Regulation of Crypto Tokens and Initial Coin Offerings in the EU

*de lege lata and de lege ferenda*

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Abstract

Much like initial public offerings produce publicly traded securities, Initial Coin Offerings (ICOs) produce crypto tokens tradeable on crypto exchanges. Despite an apparent need for investor protection the ICO and the tokenisation phenomenon have yet to be addressed by legislative action on the EU level. The paper studies the suitability of the EU regulatory framework to capture tokenised financial instruments and utility tokens based on the views of the EU supervisory and national competent authorities. It is argued that EU regulators shall first ensure legal certainty by defining the scope of tokenised financial instruments subject to MiFID. Further, authorisation and ongoing requirements shall be adapted to address the risks posed by distributed technology and direct global access of investors to crypto markets. Finally, there is no immediate need for a bespoke EU-wide regime governing utility tokens; fragmentation of the market is a positive development providing a testing field for future supranational initiatives.

Keywords

EU regulation – financial market – ICO – tokenisation – crypto asset – utility token – security token

1 Introduction

Between January 2014 and June 2018, token generation events or colloquially, initial coin offerings (ICOs), the alternative instrument of financing startups...
through online offering of crypto tokens to general public, raised between USD 13 billion and USD 18 billion.¹ Software developers have used ICOs, tokenisation² and distributed ledger technology (DLT)³ to create and finance a wide variety of online applications, both business- and retail- oriented, in the fields of financial services, hi-tech, media and entertainment, marketing, healthcare, etc.⁴ In some instances, crypto tokens serve as an integral part of technology and economics behind the project. In others, they have no purpose other than to fuel ICOs and raise financing from the general public at the early stage of the business development. The latter practice, of course, is prone to abuse, which recently questioned the integrity of the ICO market. Out of 80,000 blockchain projects launched worldwide allegedly only 8 percent⁵ are still active today.

¹ The total funds raised by ICOs worldwide amounted to between USD 4 billion and USD 6 billion in 2017 (the funds raised mainly in the last few months of year), compared to USD 100 million in 2016. Since the beginning of 2018, total funds raised between 1 January and 1 June amounted to USD 9.5 billion, or nearly USD 2 billion per month. See S.T. Howell, M. Niessner and D. Yermack, ‘Initial coin offerings: Financing growth with cryptocurrency token sales’, ECGI Working Paper Series in Finance (2018), at 1.

² Tokenisation is a method that converts rights to an asset into a crypto token which becomes a representation of such right. The current trend in the crypto token industry is to develop business models based on the idea of commoditising physical and intangible assets and bringing access to (fractional) ownership of and seamless trade in traditionally illiquid assets to consumers and businesses.

³ Distributed ledger technology (blockchain network) is a chronological database of transactions recorded by a network of computers. A copy of the blockchain is stored on every computer in the network (‘nod’) and these nodes periodically synchronise to make sure that all of them have the same shared database. See A. Wright and P. De Filippi, ‘Decentralised blockchain technology and the rise of lex cryptographia’, ssrn (2015) 58.

⁴ Most popular are projects developing B2B decentralised blockchain, hi-tech infrastructure, crypto-related financial services. Other popular ICO startups are not necessarily decentralised: peer-to-peer marketplaces, business services, media (advertising), entertainment (gambling, gaming), healthcare. See the empirical studies: S. Adhami, G. Giudici and S. Martinazzi, ‘Why do businesses go crypto? An empirical analysis of Initial Coin Offerings,’ Journal of Economics and Business (2018) 100, 64–75; G. Fenu, L. Marchesi, M. Marchesi and R. Tonelli, ‘The ICO phenomenon and its relationships with ethereum smart contract environment’, in: Blockchain Oriented Software Engineering (IWBose), 2018 International Workshop on 2018 Mar 20. IEEE, (2018) 26–32.

⁵ According to a study by the Chinese Academy of Information and Communication Technologies (CAICT) released on May 28, 2018. See J. Landau and A. Genais, 2018. ‘Les cryptomonnaies,’ Report to the Minister of Economy and Finance, Paris, France, 2018. Retrieved 31 October 2018 https://www.mindfintech.fr/files/documents/Etudes/Landau_rapport_cryptomonnaies_2018.pdf, https://www.mindfintech.fr/files/documents/Etudes/Landau_rapport_cryptomonnaies_2018.pdf (Landau & Genais Report).
Of the 902 startups that launched an ICO in 2017 46 percent⁶ are cited to have disappeared. These statistics confirm that the unregulated ICO market poses risks similar to traditional financial instruments (such as shares in a company) regulated under the current EU regulatory framework. Much like initial public offerings produce publicly traded securities, ICO projects produce transferable crypto tokens which are listed and traded on crypto exchanges.⁷ Thus, the unregulated crypto market and global direct access of individuals to trades could ultimately be the main reason why the ICO market is overwhelmed with ‘bad ideas’ and ‘scams’.⁸

Despite apparent need for investor protection on the level of the European Union (EU) the ICO and the tokenisation phenomenon have yet to be addressed by EU-level legislative action. However, substantial efforts have been made by the EU financial supervisory authorities in the last five years to analyse the nature of crypto tokens and related activities. In particular, the European Banking Association (EBA) and the European Securities and Markets Authority (ESMA) have provided valuable advice, risk-assessments and guidance to EU policymakers relating to the potential regulation of financial activities involving crypto assets and DLT in the EU. Undoubtedly, discussions among the authorities and policymakers on a potential EU-wide regulatory framework have gained momentum, with the introduction of the first bespoke regime for regulation of crypto tokens on a Member State level (Malta) feeding the argument for immediate cooperation in the face of the market fragmentation and regulatory arbitrage.⁹ However, the infancy of the ICO phenomenon,

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⁶ According to a study by the site Bitcoin.com. *Ibid.*
⁷ See *supra* note 1 (Howell et al., 2018).
⁸ According to Satis Research Group 78 percent of all ICOs by number were scams in 2017 with the value of USD 1.34 billion and 4 percent of all ICOs by number failed with their value of USD 1.66 billion. Only 7 percent were regarded as successful with the trading value of USD 6.62 billion as of October 2018. The ‘success criteria’ were (i) deployment of a base-layer protocol or platform; (ii) transparent project road map; and (iii) code contribution activity on Github within a three-month period. See Securities and Markets Stakeholder Group, 2018. ‘Own Initiative Report on Initial Coin Offerings and Crypto-Assets’, European Securities and Markets Authority, Securities and Markets Stakeholder Group, 2018. At 7. Retrieved 5 November 2018 https://www.esma.europa.eu/sites/default/files/library/esma22-106-1338_smsg_advice_-_report_on_icos_and_crypto-assets.pdf (SMSG Report).
⁹ See Malta, 2018. ‘Virtual Financial Assets Act, 2018’, retrieved 19 November 2018 http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12872&l=1 (VFA Act). On the discussed initiative in France see GOUVERNEMENT.fr. 2017. ‘Le Plan d'action pour la croissance et la transformation des entreprises (PACTE):’. Retrieved 6 March 2019 https://www.gouvernement.fr/action/pacte-le-plan-d-action-pour-la-croissance-et-la-transformation-des-entreprises; in relation to members of European Economic Area see Liechtenstein,
and otherwise globally unregulated crypto exchange market, may have a cooling-off effect on policymakers; to regulate too early may mean to stifle innovation and drive capital away.

The purpose of this paper is three-fold. The first research question to be answered is as follows: how the EU payment services and financial market laws apply to different types of crypto tokens and related activities (de lege lata)? For this purpose, the author will first provide a general typology of crypto tokens and their business applications in Section 2 by distinguishing between protocol and application tokens and will map an operational structure of a typical ICO. Then, in Section 3 the author will render a limited doctrinal legal analysis of the applicable normative framework based on the opinions on the subject made by the EBA, ESMA and the Securities and Markets Stakeholders Group (SMSG). The second research question the author answers is whether the EU regulatory framework is suitable to govern crypto tokens and related activities which are not covered by it (de lege ferenda)? For this purpose, the author will provide dogmatic-style argumentation in Section 3 based on the synthesis of discussions made at the level of the EBA, ESMA and SMSG. The third and final question addressed in this paper is: whether an EU-wide legislative act governing crypto tokens not covered by the EU regulatory framework is currently required? The answer to the third question will be built upon the analysis made in answering the first two research questions and on a legal doctrinal analysis made in Section 4 of the first comprehensive regulatory framework covering primary and secondary offering of crypto tokens adopted in Malta as of November 1, 2018. Finally, the paper will summarise the three answers to the research questions in the conclusion Section for further consideration by scholars, commentators and policy-makers.

2 Basic Typology of Crypto Tokens, Operational Model of a Typical ICO

This Section describes a basic typology of crypto tokens (protocol tokens and application tokens) and serves as a starting point for understanding the

2018. ‘The Government Consultation Report and the Draft-Law on Transaction Systems Based on Trustworthy Technologies (Blockchain Act)

10 The Securities and Markets Stakeholders Group facilitates consultation and provides technical advice to ESMA.

11 See supra note 9 (VFA Act).
underlying technology and economic functions of different types of crypto tokens. The Section further elaborates on the operational model of a typical ICO.

2.1 **Protocol Tokens**

A crypto token *per se* is merely an entry in a decentralised register (transaction ledger). A typical transaction ledger (blockchain network) records the history of transactions and the resulting balances (tokens) on the token accounts (public addresses or public keys). Holders of private keys (passwords to the token accounts) may dispose of the tokens by directing them from one public address to another. Such function of transferability is the starting point for description of any crypto token and especially, of a protocol token (often termed ‘cryptocurrency’, ‘virtual currency’, ‘coin’).

Transferability of a protocol token is made possible because of the operation of the blockchain protocol which is native to the token. For instance, a bitcoin, as a protocol token, is native to the Bitcoin blockchain network because bitcoins are created and transferred on the network as rewards to miners for maintenance of transaction flow. Therefore, the role of miners, decentralised model of token creation and the systems of transaction fees together suggest that by design bitcoin has the ‘native’ function of a network resource – an integral part of the incentive mechanism which secures bitcoin’s applicability – to be used as a means of exchange between transaction parties.

It appears that absent external reference to any asset or service, a protocol token, much like bitcoin, by design has a narrow application; holders of bitcoins agreed that the Bitcoin protocol and by extension, bitcoins, as such, have value and therefore accept bitcoins as means of payment. At the same time, popularity of a bitcoin as a means of payment is understandable: making electronic payments with protocol tokens without having to resort to a

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12 See *supra* note 3 (Wright & De Filippi, 2015).
13 Rohr and Wright call the creation and transfer of bitcoin ‘the unifying purpose of the entire network’; see J. Rohr and A. Wright, ‘Blockchain-based token sales, initial coin offerings, and the democratization of public capital markets’, *Hastings LJ* 70 (2018) 463.
14 The network is managed by an open source software protocol (‘consensus protocol’) which governs how members of a blockchain network (colloquially called ‘miners’) process and validate protocol token transfers. In the case of Bitcoin network, miners compete in spending their computational resources to generate a valid block and add it to the blockchain ledger (‘proof of work’ consensus mechanism). Having added the valid block, the miner receives Bitcoins as a reward from the blockchain protocol and as a small transaction fee from the party to the validated transaction. *Ibid.* at 470–472.
15 See J.A. Kroll, I.C. Davey and E.W. Felten, ‘The economics of Bitcoin mining, or Bitcoin in the presence of adversaries’, *Proceedings of WEIS* (2013) at 11.
centralised third party is the most recognisable and prominent application of crypto tokens, especially in a cross-border context.

However, in fact, protocol tokens have a wider functionality. For instance, the Bitcoin blockchain network allows the transfer of additional metadata together with bitcoins (e.g. deposit certificate identification number or the name and class of securities) making it possible to associate such transfers of bitcoins with transfers of externally referenced assets. Thus, anyone can assign particular external reference to the bitcoin (or, in other words, build the reference system on top of the Bitcoin network) and leverage the operation of the Bitcoin transaction ledger for transferring title in any tangible or intangible asset (e.g. cars, real estate, securities, intellectual property, etc.). Bitcoins which have been assigned with external reference are colloquially called ‘coloured coins’.

In the case of Ethereum, a protocol token blockchain network, the ether token, in addition to its general payment function, also constitutes a network resource. By design of the Ethereum network ether operates as a transaction fee payable by network users to miners for smart contracts’ processing. The nature of smart contracts is unique enough to suggest that ether in this particular case is an inherent part of the mechanism to provide specific services to the network users – execution of autonomous computer programs called ‘smart contracts’. Potential functionality of smart contracts is very broad and may be generalised as intermediation of ‘economic or social activity online’. However, for the purposes of the present paper the author will describe in detail only one popular case of application of smart contracts – generation of application tokens.

### 2.2 Application Tokens

Most of the application (app or platform) tokens are different from protocol tokens mainly because they are non-native to the protocol of a blockchain network and do not serve as a network resource. Rather, they are implemented in a second-layer protocol or in an application which is built on top of the

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16 See *supra* note 13 (Rohr & Wright, 2018), at 472. See Vitalik Buterin, 2013, ‘The Ethereum Whitepaper. A next generation smart contract & decentralized application platform.’ 2013. Retrieved 13 November 2018, http://blockchainlab.com/pdf/Ethereum_white_paper-a_next_generation_smart_contract_and_decentralized_application_platform-vitalik-buterin.pdf.

17 See *supra* note 13 (Rohr & Wright, 2018), at 473. The Ethereum project has been intended to have both financial (payment arrangements) and non-financial application (digital identity, reputation systems, data storage, governance, cloud computing, prediction) See *supra* note 16 (Buterin, 2013).
blockchain network. Much like in the case of coloured coins, app tokens utilise the blockchain network in order to be transferred from one public address to another. However, unlike coloured coins, app tokens have a nature which is distinct from protocol tokens – app tokens are generated not by the blockchain network but by smart contracts and therefore by design are not integral to (not required for) the operation of the blockchain network.

2.2.1 How Smart Contracts Generate App Tokens

Most of the existing app tokens are derivative from (built on the top of) Ethereum network and meet the ERC20 standard.18 While being easy to deploy, identical and divisible, an ERC20-standard token has been the primary choice for ICO projects (from 50 percent to 85 percent19 of ICOs use ERC20-standard tokens).20 App tokens are created by software developers on behalf of an operator (collectively, ‘Issuer’) who are in the process of developing an online application, service or platform (‘Platform’, ‘Application’). Issuers are free to determine the intended purpose of the app token which can fulfil various functions and offer different benefits to its holder.

Smart contracts act as an electronic agent for both the Issuer and any person to whom an app token is issued by the smart contract (or ‘initial token holder’). Smart contracts enable the Issuer to automatise token generation by encoding the terms and the mechanics of token supply into the algorithm. Smart

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18 Apart from Ethereum, there are other blockchain platforms supporting application tokens such as eos, Neo, Ardor, etc. See Cryptodigestnews, 2018. ‘EOS Platform – What You Should Know.’ July 2018. Retrieved 31 October 2018 https://cryptodigestnews.com/eos-platform-what-you-should-know-58da83od2aa8; Ted O’Neill, 2018. ‘NEP-5: NEO’S Answer to Ethereum ERC-20 Tokens.’ April 2018. Retrieved 31 October 2018 https://hackernoon.com/nep-5-neos-answer-to-ethereum-erc-20-tokens-69d9bo82c9er;http://www.omnilayer.org/; Bennet Garner, 2018. ‘What is Ardor: Blockchain as a Service, Explained.’ 7 January 2018. Retrieved 31 October 2018 https://coincentral.com/what-is-ardor-blockchain-as-a-service-explained/.

19 The Ethereum blockchain is dominant, with 74 percent of tokens using the ERC20 smart contract. See supra note 1 (Howell et al., 2018), at 23. Nearly 85 percent of ICOs use Ethereum (569 out of 675 according to Coin Market Cap and 381 out of 435 according to ICO Drops). See L. Rhue, ‘Trust is All You Need: An Empirical Exploration of Initial Coin Offerings (ICOs) and ICO Reputation Scores’, SSRN (2018) 37. Over 540 app tokens in public circulation, with a total market capitalisation that has widely fluctuated, reaching over USD 365 billion in terms of total token supply as of January 2018. Almost half of these tokens have been deployed on the Ethereum blockchain, and the majority of these tokens have been sold in 2017. See supra note 13 (Rohr & Wright, 2018), at 48i.

20 See supra note 13 (Rohr & Wright, 2018), at 48i, see also supra note 1 (Howell et al., 2018), at 10, supra note 19 (Rhue, 2018), at 19.
contracts understand what amount of tokens and at which point in time to generate and transfer to the pre-set public address. Smart contracts supporting the ERC-20 standard can also accept and store ether tokens which are sent to the public address of such smart contracts. The level of the smart contract’s autonomy is predetermined by the Issuer. For instance, it is possible to program the smart contract to generate and distribute app tokens to the addresses from which it received ether. Alternatively, the Issuer may want to manually instruct the smart contract to generate and transfer tokens following a triggering event.

2.2.2 (De-)centralised Applications
The level of autonomy is the judgement call of the Issuer not only in relation to the generation of the App token but also with regard to the transfers of the app tokens on the blockchain network. As an example, crypto exchange platforms which facilitate the secondary\footnote{i.e. trading of tokens which are already in circulation.} trading of crypto tokens can be generally divided into centralised and decentralised. A centralised platform, which is presently a dominant model, requires traders to deposit crypto tokens with the platform prior to trading by handing over the private keys. By safekeeping the deposited tokens on a single public address, centralised crypto exchange platforms ensure that they will only process transactions on the blockchain (on-chain) when traders deposit/withdraw their tokens at / from the platform. Other operations (matching of orders, clearing and settlement) are accounted for in a centralised manner in the books of the crypto exchange (off-chain). In contrast, in a purely decentralised crypto exchange platform there is no central party responsible for the custody of tokens and operations. Rather, the tokens are typically transferred by traders in advance to a smart contract which holds them until the trade order can be processed, i.e. until both transaction parties sign both sides of the trade with their private keys. While traders remain in control of their tokens transaction settlement happens on the blockchain network (on-chain). However, much like in the case of ICOs, the level of decentralisation in such models depends on the technical implementation of the smart contract, specifically, on the level of encoded technical controls allowing the crypto exchange operator to exercise residual influence on confirmation, approval or blockage of trading orders.

2.3 Operational Model of a Typical ICO
An ‘initial coin offering’ or ‘ICO’ can be generally defined as ‘a kickstarter-style crowdfunding campaign that allows the public to participate in an early-stage project’ and a project team to ‘raise financial capital to support the
development of its project’ across the globe.\textsuperscript{22} In a typical ICO individual retail investors (as opposed to individual qualified investors)\textsuperscript{23} and the Issuer enter into a bilateral contract whereby investors transfer funds in government-issued money (fiat) or in the most liquid protocol tokens, such as bitcoin or ether, to the Issuer and receive app tokens (or the right to have them delivered in future) in consideration. As explained in the sections above, a smart contract is programmed by the Issuer to receive ether from investors, to generate app tokens and deliver them to the public addresses (digital wallets) of the investors. ICOs are often preceded by ‘pre-sale’ – raising funds from qualified investors in return for a promise to generate and deliver app tokens at some future point in time which may coincide with the timing of the ICO or development of the Platform. A similar pre-financing model may be operated through a sale of pre-functional tokens to investors which upon development of the Platform are to be converted into fully operational tokens. However, even a delivery-versus-payment ICO model may be viewed as pre-financing if the generated app token is not fully functional on the Platform at the point of its delivery to the investor. This is why the ICO is a type of fundraising campaign rather than a mere purchase-and-sale: by running an ICO campaign Issuers plan to raise funds for the purpose of financing the development of their Applications in accordance with a defined business plan, roadmap, technical specifications and projected functionality of the app token. Information of this type is made publicly available to investors in a whitepaper document and may have an influence on their investment decisions. On receipt of the app tokens investors in most cases have only a claim against the Issuer which is linked to the future rights attributed to the app token by the contract concluded with the Issuer. Until the Issuer develops the Application and the app tokens become fully functional investors may either (1) hold the tokens and speculate on a gain in value; or (2) exchange the tokens for other tokens or fiat on a crypto exchange platform.

\textsuperscript{22} See Y. Chen. ‘Blockchain tokens and the potential democratization of entrepreneurship and innovation.’ Business Horizons (2018), at 570.

\textsuperscript{23} A qualified investor is professional, high net wealth or sophisticated person which is recognised by the law applicable to such person as eligible to make investments of high risk. For individuals, it is common for the national legislation to set income, professional qualification and trading experience requirements which, if satisfied by such individual and attested by an intermediary, would qualify such individual as a qualified investor.
2.4 **Economic Functions of Application Tokens**

In contrast to the general function of protocol tokens (medium of exchange on the native blockchain network) application tokens may have multiple functions within an individual application or organisation.\(^{24}\) Protocol tokens do not entitle someone to any rights *per se* – network users agreed that they have value because of their underlying infrastructure. App tokens vest their holders ‘with predefined rights, privileges, and rewards within a particular online application or service’\(^ {25}\) which may be triggered either by their transfer or mere holding. Some of the app tokens are colloquially called ‘utility tokens’ and entitle their owners to access and consume products of the Platform\(^ {26}\) or commit work to the Platform.\(^ {27}\) Others are colloquially called ‘security tokens’ and provide their holders with economic interest such as a share of profits of the Platform.\(^ {28}\) In general terms, the structure of an ICO and the rights assigned to tokens together may have implications for the legal qualification of the app token as a utility or a security.

### 3 Application of EU Regulatory Framework to Crypto Tokens: de lege lata, de lege ferenda

Standardisation in the field of classification of crypto tokens is yet to be introduced. Recognising the importance of providing legal certainty by defining the borders between application of traditional and potentially new regulation to both protocol and application tokens, legislators and financial regulators in quite a few countries have produced a variety of classifications and interpretations. Some of them are already binding acts with full legal effect or are yet to be effected. Others have more the nature of a position statement seeking or advising further consultation on their merits with stakeholders (if discussing potential new regulation) or on their applicability to the specific individual business cases and circumstances with the regulator or legal counsel.

#### 3.1 Methodology of the Section

The methodology of the legal analysis of this Section 3 is based on the following approach. The author will render a doctrinal legal analysis based on the

\(^{24}\) See *supra* note 16 (Buterin, 2013).

\(^{25}\) See *supra* note 13 (Rohr & Wright, 2018), at 475.

\(^{26}\) *Ibid*, at 475, see also *supra* note 4 (Adhami et al., 2018), at 4.

\(^{27}\) See *supra* note 1 (Howell et al., 2018), at 14.

\(^{28}\) See *supra* note 13 (Rohr & Wright, 2018), at 476.
following sources: (i) EBA Opinion;\textsuperscript{29} (ii) SMSG Report;\textsuperscript{30} (iii) EBA Report;\textsuperscript{31} and (iv) ESMA Report.\textsuperscript{32} First, the author summarises the EBA’s opinion on potential short- and long-term approach to regulation of virtual currencies. Second, the Section explains the taxonomies of crypto tokens applied by the EBA, ESMA and SMSG. Third, applicability of the EU payment services and financial market laws (\textit{de lege lata}) is described based on the opinions expressed in the sources. Fourth, suitability of the EU regulatory framework and a potentially new bespoke legislation for the purpose of governing crypto tokens not otherwise regulated on the EU level (\textit{de lege ferenda}) is studied based on the opinions expressed by the EBA, ESMA and national competent authorities. Finally, the author provides his own view of the subject.

3.2 \textbf{Risks Posed by DLT and Virtual Currencies: The EBA’s Primer on Bespoke Regulation}

An overview of the cryptocurrency-related regulatory measures taken to date highlights the fact that these measures have been motivated, on the one hand, by the public interest of protecting financial market participants from the risks related to markets in crypto tokens and, on the other hand, by the intention to facilitate further development of blockchain-based applications and infrastructures. Both interests are ensured through interpretations of specific provisions in the existing national and \textit{supra}-national legal framework (civil law, securities law, bankruptcy law, international private law, tax law) and proposed amendments or new laws, whichever is necessary to introduce legal certainty of the rights and obligations of stakeholders involved into the crypto economy.

\textsuperscript{29} European Banking Authority, 2014. ‘Opinion on virtual currencies’, European Banking Authority. July, 2014. Retrieved 23 March 2019 https://www.eba.europa.eu/documents/10180/657547/EBA-Op-2014-08+Opinion+on+Virtual+Currencies.pdf \ (EBA Opinion).
\textsuperscript{30} See \textit{supra} note 8 (SMSG Report).
\textsuperscript{31} European Banking Authority, 2019. ‘Report with advice for the European Commission on crypto-assets’, European Banking Authority. January 2019. Retrieved 23 March 2019 https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf \ (EBA Report).
\textsuperscript{32} European Securities and Markets Authority, 2019. ‘Advice on Initial Coin Offerings and Crypto-assets’, European Securities and Markets Authority, January 2019. Retrieved 23 March 2019 https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_cryptoadvice.pdf; European Securities and Markets Authority, 2019. ‘Annex 1. Legal qualification of crypto-assets – survey to NCAs’, European Securities and Markets Authority, January 2019. Retrieved 23 March 2019 https://www.esma.europa.eu/document/annex-legal-qualification-crypto-assets-%E2%80%93-survey-ncas \ (collectively, ESMA Report).
The need to preserve a technology-neutral, principle-based, non-discriminatory legal framework has been guiding regulators and legislative actors in their search for proportionate public policy; to attract and support digital innovation within the limits imposed by the overriding public interests.

In EBA Opinion, published in 2014, the European Banking Authority (EBA) advocated the idea of a globally coordinated regulatory action which is required in order to efficiently address the pervasive cross-border international nature of ‘virtual currencies’ (which share all of the characteristics of protocol tokens described in Section 2.1 above). However, given that international consensus and coordinated harmonisation measures are obviously a resource-intensive long-term perspective, the EBA advised the EU Council, Commission and Parliament to concentrate in the short term on the most pertinent risks related to fraud, money laundering and bankruptcy which have been materialising in operation of virtual currency schemes (such as wallet providers and exchanges).

It shall be noted that the decentralised and anonymous nature of many virtual currency schemes does not only attract outright criminal activity and money laundering but also creates new risks which, if ignored, may adversely affect the traditional financial services industry. For instance, the security and integrity of the transaction ledger, the protocol and the IT infrastructure of a decentralised scheme may be undermined by hackers or changed by the scheme operators, potentially causing a variety of operational, counterparty, bankruptcy, market price volatility and other risks to consumers, investors and market participants. Another example is irreversibility of erroneous transactions in the distributed ledger and non-recovery of lost private keys which dramatically increase the cost of mistake when consumers or market participants transact in virtual currencies. Finally, virtual currencies are not necessarily backed by any asset or obligation and therefore may lack fundamental value, liquidity and guarantee of refund for consumers.

The unique risks specified above brought the EBA to the conclusion that virtual currencies shall not be regarded as an extension of conventional payment

33 The term ‘virtual currency’ was defined in the EBA Opinion as ‘a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a FC [fiat currency], but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically.’ Materially the same definition was later included in Article 1 (2)(d)(18) of the EU AML Directive. See European Union, 2018. ‘Directive (EU) 2018/843 of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing’. European Union. 30 May 2018. Retrieved 6 March 2019. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L0843 (EU AML Directive).
and electronic money services falling under the remit of a specific existing national or EU law. Until these specific technology-related risks are addressed and a harmonised solution enacted, the EBA encouraged regulators to combat in the short term the risks stemming from interaction between virtual currency schemes and the regulated financial services and, to this end, discourage regulated financial service institutions from dealing with virtual currencies until a long-term solution is found. At the same time, the EBA noted that a harmonised regulation addressing the risks arising from activities between or within virtual currency schemes is necessary in order to prevent industry shopping for the most convenient approach to the regulation, with European Union consumers receiving accordingly different levels of protection.

In order to address the most pertinent risks and long-term solutions the EBA proposed a variety of measures. First of all, risks resulting from anonymity of transactions were addressed by the proposal to include virtual currency exchanges and similar services into the scope of money laundering and counter terrorist financing (AML/CFT) requirements set out in the EU Anti Money Laundering Directive. This initiative has already been implemented on the EU level\(^{34}\) and has been advised for implementation on the international level.\(^{35}\)

Further, as a measure aimed to combat criminal activity and to introduce supervision, governance and accountability, a high-level proposal for an authorisation requirement applicable to virtual currency service providers has been made by the EBA. The proposed authorisation standard would be divided into general requirements applicable to all virtual currency service providers and those specifically tailored to address particular risks of different types of market participants and IT infrastructures. General authorisation requirements pursue the objectives common to traditional financial market participants (fraud prevention, consumer protection, market integrity, mitigation of operational and counterparty risk). For instance, a virtual currency service provider, if operating its business in or from one of the EU Member States, would have to be established as a registered and authorised legal entity in the EU Member State. For this purpose, both the legal entity and the individuals

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\(^{34}\) See Article (1)(c) and Article 1(29) of the EU AML Directive. \textit{Ibid.}

\(^{35}\) Financial Action Task Force (\textit{ FATF}) Recommendations have been amended in 2018 so as to impose AML/CFT controls on providers of exchange services between crypto-assets and crypto-assets; and providers of financial services for ICOs; including a licensing or registration regime. See Financial Action Task Force, 2018. ‘International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation, the Financial Action Task Force (\textit{ FATF}) Recommendations’, Financial Action Task Force. October 2018. At 124. Retrieved 5 November 2018 \url{http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf}. 
behind it (beneficiaries, personnel with specific functions) would have to conform to a certain prudential and competence standard. For legal entities this implies capital requirements, for individuals – a fit and proper test. Specific authorisation requirements are meant to mitigate the risks related to a particular type of activity. For example, virtual currency exchanges with a centralised transaction ledger (see Section 2.2.2 above) may hold custody over the assets of virtual currency account owners. To protect the account holders from bankruptcy of the service provider, centralised virtual currency exchanges would be required to segregate their own assets from the assets of their clients and to comply with the related reconciliation and record-keeping requirements. Another specific requirement is related to the primary function of the exchange – facilitation of price discovery and matching of buy and sell orders. In this respect, the risks of market abuse and manipulation would be combated by transparency, reporting and control requirements imposed on virtual currency exchanges. In particular, authorised virtual currency exchanges would be required to disclose the underlying methodology for the market price formation, as well as establish and document systems and controls for monitoring and reporting of transactions (including data on the amount and exchange rate applied to executed transactions, suspicious transactions) so that authorities can monitor the process of price creation and detect instances of insider dealing and market price manipulation.

Finally, the risks related to the underlying decentralised IT infrastructure discussed above are proposed to be mitigated by specific governance and audit arrangements. For instance, a decentralised virtual currency exchange typically runs neither a centralised transaction ledger nor administers custody of crypto assets, and therefore raises unique risks related to security of and changes into the transaction ledger and its protocol, irreversibility of transactions, and loss of private keys. To address these risks, the EBA proposed a separate authorisation requirement for developers of decentralised transaction ledger infrastructure which can be used by virtual currency service providers – a 'scheme governance authority.' A scheme governance authority would have to be organised in the form of a legal person and would be responsible for establishing and governing the rules for the use and maintenance of the decentralised transaction ledger by virtual currency service providers and market participants. In other words, the legal entity would be required to maintain systems and controls for the purpose of ensuring integrity and security of the IT infrastructure and to procure compliance by all the actors involved.

36 The test implies that individuals shall be competent and capable, honest, ethical, financially sound and shall act with integrity.
In addition, to qualify as an authorised person the scheme governance authority may be subject to audits and accreditation of IT infrastructure by an independent third party which would identify IT security vulnerabilities and attest conformity with international standards.

The EBA admitted that regulators may face problems with practical effectiveness and feasibility of imposing supervision, accountability and governance requirements over developers of decentralised protocols. One reason is that in the absence of a generally recognised standard of a secure decentralised protocol, regulators may lack knowledge and an objective reference framework when assessing compliance of a particular set of systems and controls with the IT security requirements. Another reason is that the governance requirement, specifically, responsibility to procure compliance by all the actors, may become extremely burdensome and discourage developers from submitting themselves to the regulation. For instance, if such a requirement were to be interpreted so that the developers must have control over which third parties and under which circumstances may use the underlying technology, this may run counter to the idea of a permissionless blockchain infrastructure. In fact, one of the drivers of innovation in this field is the open character of a permissionless decentralised transaction ledger so that third parties can build their applications upon (with the use of smart contracts) or copy (hard-fork) the underlying infrastructure. In the author’s view, developers of the underlying infrastructure shall only ensure that their technology conforms to a certain IT security standard and not be accountable for the future applications of their open-source infrastructure in the financial service industry run by third parties. At the same time, in the author’s opinion, developers of the decentralised protocol shall ensure integrity of the protocol by retaining with them authority (and technical capacity) to reverse, block, modify or otherwise influence the abuse of the rules governing the operation of the protocol. According to this interpretation of the EBA’s opinion document, the EBA would recommend regulators to authorise developers of decentralised transaction ledgers as registered operators of accredited IT infrastructure with residual effective control over the integrity of the protocol and its operation. In addition, virtual currency service providers building upon their proprietary or modified open-source IT infrastructure would also be required to register with the regulator and ensure that their IT systems and controls are in place and that they have residual authority to reverse, modify or block unauthorised transactions and abusive market conduct. If such authority is technologically impossible to introduce, it is the author’s opinion that a virtual currency service provider could be subject to additional refund or guarantee obligations whereby, for instance, it is obliged to restore the amount of the unauthorised payment.
transaction from its own reserve, insurance refund or based on another contractually guaranteed scheme.

3.3 **Taxonomy of Crypto Tokens by EU Regulators**

More than four years after the publication of the EBA’s Opinion, the EBA and the European Securities and Markets Authority (ESMA) in January 2019 have each issued reports on crypto tokens (called in the reports as ‘crypto assets’), with the purpose to advise the European Commission on applicability and suitability of the existent EU regulatory framework and the need for a new EU-wide legislative action in relation to ICOS and other activities related to crypto tokens.\(^37\) Both authorities acknowledged that in addition to virtual currencies (also called ‘payment tokens’, ‘exchange tokens’), the use of such other types of crypto tokens as investment tokens (also called ‘asset tokens' and ‘security tokens’) and utility tokens has rapidly evolved in the recent few years.\(^38\) In the SMSG Report issued in late 2018, the Securities and Markets Stakeholder Group advised the ESMA on the same subject with regard to the EU securities laws.

The EBA Report generally distinguishes between crypto tokens based on their economic function (payment, investment or utility) which, according to the EBA, is the approach supported by international standard-setting bodies such as the Basel Committee on Banking Supervision and the Financial Stability Board. According to the EBA, the main function of payment tokens (currency or exchange token) is, as was initially noted in the EBA’s Opinion with regard to ‘virtual currencies’, to serve as a means of exchange with such additional functions as the store of value and investment object. Payment tokens typically do not entitle their holders to any right against third party, which is in contrast to investment tokens and utility tokens. Hence, payment tokens generally are not associated by the EBA with capital raising in the form of ICO. However, given that the EBA adds certain types of asset-backed crypto tokens in the category of payment tokens (e.g. stablecoins), in individual cases a payment token may entitle its holder to (the right to) be redeemed by the Issuer for fiat, (crypto) asset or other physical collateral. Therefore, if one applies the EBA’s taxonomy to the author’s division into protocol and application tokens, the term ‘payment token’ may incorporate both. In contrast to payment tokens, investment tokens, according to the EBA, function predominantly as

\(^37\) See supra note 31 (EBA Report) and note 32 (ESMA Report).

\(^38\) According to the ESMA, there have been more than 2,050 crypto tokens outstanding representing a total market capitalisation of around EUR 110 billion as of December 2018 with more than 200 trading platforms operating globally. See supra note 32 (ESMA Report), at 8.
investment objects and, to that end, typically entitle their holders with rights against their Issuer as part of an ICO. The EBA’s taxonomy did not establish an exhaustive scope of investment-related rights, but only as an example listed those related to profits (dividend) and ownership over an asset. Therefore, it appears that the distinction between payment tokens and investment tokens is mostly in the token’s economic function (means of exchange as against capital raising instrument) without strict division between the scope of underlying rights. Finally, a ‘utility token’ is defined as typically providing an entitlement (access) to a specific product or service, often through the use of a DLT platform but without a possibility to be accepted for other products or services. According to the author’s interpretation, the EBA’s taxonomy narrows the scope of the term ‘utility token’ to application tokens which are only transferable within the Application of their Issuer and, to this end, can also be called ‘pure’ utility tokens. In contrast to all other types of tokens (payment, investment and utility), pure utility tokens are by design not transferable on crypto exchanges and therefore have no link to financial markets. Consequently, a token which provides access to a DLT platform and is transferable beyond that platform would probably be recognised under the EBA’s classification as a hybrid utility and payment token.

The SMSG Report also used economic function of tokens as a point of comparison, however adopted a model different from the EBA’s but similar to that of Switzerland’s financial market regulator, FINMA:39 payment tokens, utility tokens and asset tokens. The classification is analogous to that of the EBA in relation to utility tokens. It distinguishes between ‘pure’ utility tokens not transferable other than in the specific application and utility tokens transferable on crypto exchanges (such as Filecoin). In comparison to the EBA’s Report, a narrower approach is observed in relation to payment tokens: they serve payment function but necessarily without providing the holder with any entitlement (e.g. right of redemption) against the Issuer. Finally, the definition of the ‘asset token’ is again slightly different in scope from that of ‘investment token’ in the EBA’s taxonomy: asset tokens represent entitlements against their issuers (financial, voting or in kind), may be either transferable or non-transferable but, in contrast to investment tokens, they are not necessarily issued through an ICO.

39 Swiss Financial Market Supervisory Authority FINMA, 2018. ‘Guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs)’, 16 February 2018. Retrieved 31 October 2018 https://www.finma.ch/en/-/media/finma/dokumentencenter/myfinma/1bewilligung/fintech/wegleitung-ico.pdf?la=en.
The ESMA Report presented results of the survey on application of ‘financial instrument’ and ‘transferable securities’ qualifications rendered among competent authorities (financial market regulators) of 27 EU Member States that included six case-studies (scenarios) of existing token models, five of them, according to the ESMA, being titled in the survey as either as ‘potentially investment tokens’ or as ‘potential investment / utility / payment’ (hybrid) tokens. Only one token model, Filecoin, was titled as utility token without a hybrid nature even though under the terms of the scenario it was exchangeable for cryptocurrencies or fiat money and thus, could not be regarded as a ‘pure’ utility token. In addition, two more models had a utility component but always in combination with a claim for periodic payments from the Issuer (investment component). Of all five token models with a ‘potentially investment’ component all five models expressly indicated an investment-related entitlement (either entitlement for periodic payments or an asset); four referred to an ICO, three to an ICO with proceeds of sales directed at further development of the token’s functionality (pre-functional token). One ‘potentially investment / payment’ hybrid token model expressly entitled the token’s holder only to the crypto token the value of which was determined by reference to a pool of other crypto tokens and shares in crypto-token developing companies.

3.4 Application of Current EU Regulatory Framework to Crypto Tokens (de lege lata)

3.4.1 Applicability of EU Payment Services and Financial Market Laws to Payment, Utility and Asset Tokens

Based on the EBA’s examination of the EU payment services legislation (EMD2 and PSD2) and on the consultation with the ESMA, the EBA came to a conclusion that crypto tokens may, depending on their characteristics, qualify as financial instruments, electronic money or none of the foregoing. Most

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40 27 EU Member States (all except Poland), Liechtenstein and Norway.
41 European Union, 2009. ‘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 amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC.’ European Union. 16 September 2009. Retrieved 6 March 2019 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:267:0007:0017:EN:PDF (EMD2); European Union, 2015. ‘Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC’, European Union. 25 November 2015. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2366 (PSD2).
importantly, clarity was provided with regard to EMĐ2 and PSD2. The EBA Report stated that crypto tokens (whether payment, investment or utility tokens) may not qualify as ‘funds’ as set out in point (25) of Article 4 of PSD2 unless they qualify as ‘electronic money’ for the purposes of EMĐ2. In other words, none of the regulated ‘payment service’ activities listed in Annex 1 to PSD2 would apply to an issuer of crypto tokens which do not qualify as ‘electronic money.’ At the same time, crypto tokens, in principle, may qualify as electronic money if their characteristics fulfil all of the requirements as defined in point (2) of Article 2 of EMĐ2. On a broader level the EBA concluded that even though a significant portion of activities involving crypto-assets do not fall within the scope of current EU financial services law they may fall within the scope of national laws.

In the field of EU securities laws, the SMSG Report and ESMA Report attempted to clarify legal treatment of activities related to tokens with investment (asset), payment, utility components and combinations thereof. First, the SMSG argued whether asset tokens are covered by MiFID II, Prospectus Regulation, and Market Abuse Regulation. To that end, the SMSG Report

42 The full set of requirements is listed in the EBA Report and includes an e-money scheme where the token: (a) is electronically stored; (b) has monetary value; (c) represents a claim on the issuer; (d) is issued on receipt of funds; (e) is issued for the purpose of making payment transactions; (f) is accepted by persons other than the issuer. See supra note 31 (EBA Report) at 13.

43 The Market in Financial Instruments Directive framework (MiFID II) consist of a directive (MiFID 2), a regulation (MiFIR) and their implementing acts. See European Union, 2014. ‘Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU’ European Union. 15 May 2014. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0065 (MiFID 2); European Union, 2014. ‘Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2014’ European Union 15 May 2014. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0600 (MiFIR). See European Union, 2017. ‘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, and repealing Directive 2003/71/EC, European Union. 14 June 2017. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R1129 (Prospectus Regulation); European Union, 2014. ‘Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, European Union. 16 April 2014. Retrieved 6 March 2019
compared characteristics of the terms ‘transferable security’\(^44\) and ‘financial instrument’\(^45\) on one side with that of the tokens on the other, based on two main factors: nature of entitlement and transferability. The SMSG Report concluded that payment tokens and ‘pure’ utility tokens do not fall under the definition of ‘transferable security’ or ‘financial instrument’ and therefore are out of the scope of the EU securities laws. The same applies to non-transferable asset tokens which provide for an entitlement in kind (prepaid asset). In contrast, asset tokens which are transferable may qualify as ‘transferable securities’ if they provide for a financial (monetary) entitlement, a combination of an entitlement in kind together with a decision power (voting right) on management of the Platform, or are structured products which are linked to an asset(–s) with the aforementioned characteristics (asset-linked notes). Finally, asset tokens providing for an entitlement in kind but without the decision power could qualify as ‘financial instruments’ if they share characteristics with derivatives (i.e. are commodities: (i) settled in cash or (ii) physically settled and tradable on a regulated market, a Multilateral Trading Facility (MTF) or an Organised Trading Facility (OTF)) (as defined in MiFID II). Conversely, transferable asset tokens which are not qualified as commodities under MiFID II, according to the SMSG, are out of the scope of the ‘financial instrument’ definition and therefore are not subject to the EU securities laws. Based on the above analysis of asset tokens the SMSG asked the ESMA to provide binding guidance as to their inclusion into the scope of EU securities laws and interpretation of MiFID definitions of ‘transferable security’, ‘commodity’, ‘MTF’, ‘OTF’ concepts in this respect. If the ESMA confirms the SMSG’s analysis then all public offers or admission to trading on regulated markets within the EU of asset tokens qualifying as ‘transferable securities’ would be subject to publication of a prospectus or an exemption regime as required under Prospectus Directive (Directive 2003/71/EC) and starting from July 21, 2019, under Prospectus Regulation. In addition, specific disclosure requirements would be imposed on the issuers of such publicly traded transferable securities by Transparency Directive.\(^46\)

\(^{44}\) As defined in point (44) of article 4(1) of MiFID II. See Ibid.

\(^{45}\) As listed in Annex 1 section C of MiFID II. See Ibid.

\(^{46}\) European Union, 2013. ‘Directive 2013/50/EU of the European Parliament and of the Council of 22 October 2013 amending Directive 2004/109/EC of the European Parliament and of the Council on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market, Directive 2003/71/EC of the European Parliament and of the Council on the prospectus to
Apart from that, if asset tokens are recognised as either ‘transferable securities’ or ‘financial instruments’ then specific financial activities with such asset tokens (e.g. placing, dealing on own account, operating an MTF or OTF or providing investment advice) would require their operators to be authorised as an investment firm by the national competent authority and to comply with specific ongoing requirements prescribed by MiFID II (these could involve organisational, conduct of business, transparency and reporting requirements, depending on the type of regulated activity and financial asset). The ESMA Report outlined the ESMA’s preliminary view that platforms which provide trade execution (with a central order book and/or matching orders under other trading models) for crypto assets qualifying as financial instruments should obtain authorisation as regulated markets, MTFs or OTFs, whereas platforms dealing on their own account and executing clients’ orders against their own proprietary capital – as broker/dealers. In addition to the specific requirements of MiFID II, authorised trading venues would need to have in place effective arrangements, systems and procedures aimed at preventing, detecting and reporting market abuse under Market Abuse Regulation.

In addition to the SMSG’s analysis, the survey conducted by the ESMA sheds light on how national competent authorities (NCA) of the Member States of the EU interpret application of MiFID II, namely the ‘financial instrument’ and ‘transferable securities’ terms transposed into national law, to the six scenarios included in the survey. In general, national frameworks either transposed MiFID II’s criteria without further interpretation (16 NCAs) or provided for a broader or more restrictive interpretation of what constitutes a transferable security (12 NCAs). The stricter interpretation implies, for instance, that an additional formal national requirement of a compulsory book-entry register of transferable securities (3 to 4 NCAs) will prevent classification of any of the six scenarios as transferable securities. Another form of restrictive interpretation is to consider the list of transferable securities stated in point (44) of article 4(1) of MiFID II as exhaustive (numerus clausus) and to have a strict standard of equivalence in relation to shares and other securities enlisted thereunder. To that end, the majority of the Member States (15 to 21 NCAs) opined that scenarios 1, 2 and 4 do not offer rights equivalent to shares in spite of the fact that these scenarios have economic functions, similar to shares (right to profits, be published when securities are offered to the public or admitted to trading and Commission Directive 2007/14/EC laying down detailed rules for the implementation of certain provisions of Directive 2004/109/EC: European Union. 22 October 2013. Retrieved March 26 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:32013L0050 (Transparency Directive).
voting rights, share of the assets). These NCAs denied equivalence on diverse grounds: the ‘investment component’ (which, according to 13 NCAs, means the right to profit/payment) is not self-sufficient to qualify it as a share (3 NCAs); a link to goods/products or services should negate the ‘investment component’ qualification (3 NCAs); there needs to be a capital investment (2 NCAs), a case-by-case assessment is required with due regard to the investor’s intention (4 NCAs), etc.

Contrariwise, some NCAs with broader interpretation of MiFID II and more extensive national provisions considered scenarios 2, 3, and 4 as shares or other securities equivalent to shares (4 to 9 NCAs), scenarios 2 and 4 as ‘transferable securities’ (6 and 6 NCAs) because of a non-exhaustive list of transferable securities and a broad ‘substance over form approach’ applied to the standard of equivalence (some NCAs argued that an ‘investment component’ is not a prerequisite and that a sole right (e.g. a voting / profit right) is sufficient to qualify).

Remarkably, the scenario with potential utility token (Filecoin) was unanimously denied qualification as a ‘financial instrument’ by all respondents. Most NCAs (14) considered that ‘investment component’ does not stem from the fact that the value of a utility token derives solely from its secondary trading. This is in contrast to the SMSG’s position, which similarly to the minority of NCAs (3), argued that transferable utility tokens have the potential to become investment objects and that only ‘pure’ utility tokens are out of the scope of MiFID II. Similarly, the absolute majority of respondents (25 to 27 NCAs) agreed that in the absence of an underlying asset and contractual relationship with a forward commitment all of the scenarios 1 to 6 cannot be qualified as derivatives under MiFID II. Finally, 7 NCAs pointed out that at least one crypto token is currently under their supervision on the basis of national rules which broaden or are out of the scope of MiFID II. The prominent examples of such national provisions include a ‘unit of account’ category of financial instruments adopted by Germany in 2014 and a bespoke regime for certain types of crypto tokens (virtual financial assets) adopted in Malta in 2018.

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47 Section 1(11) of the German Banking Act (Kreditwesengesetz) states that cryptocurrencies are defined as ‘units of account’ (rechnungseinheiten) and included in the financial instruments category. See Federal Financial Supervisory Authority BaFin, 2016. ‘Virtual Currency’, BaFin. April 2016. Retrieved 29 March 2019 https://www.bafin.de/EN/Aufsicht/FinTech/VirtualCurrency/virtual_currency_node_en.html.

48 See supra note 9 (VFA Act).
3.4.2 Consistency of EU Regulatory Framework with the Operation of Crypto Tokens Covered under Its Scope

One of the main questions addressed by the ESMA Report was whether the current EU regulatory framework is suitable to regulate activities with crypto tokens qualified as financial instruments. The main risk underpinned by the results of the survey is that Member States will inconsistently interpret and apply the existing EU regulatory framework creating fragmentation of the market and opportunities for regulatory arbitrage. Further, in the ESMA’s view, not only gaps in the current framework and inconsistencies of interpretation but also specific risks of decentralised technology would have to be addressed by tailored amendments to the current EU framework. As a corollary, the ESMA’s conclusion was that the gaps, inconsistencies and specific risks arising from application of crypto tokens and decentralised technology to the current framework would require an EU-wide approach: Level 1 measures (amendments of the current EU legislation), Level 2 measures (amendments of technical standards) and Level 3 measures (substantial guidance by the ESMA).

It shall be first noted that the ESMA did not provide any details on whether the issue of inconsistency of national laws, transposing MiFID II, shall be approached by EU policymakers by legislative or non-legislative action. It was only mentioned that there must be a shared understanding of the type of crypto tokens falling under the scope of MiFID II. Hence, it remains to be seen whether the ESMA would issue a Level 3 guidance with interpretation of application of the current definitions of ‘transferable securities’ and ‘financial instrument’ to asset, payment and utility tokens and if the ESMA would advise the EU Commission on any amendments into MiFID II necessary to include into its scope instruments not qualified as regulated under the current EU framework (e.g. payment tokens), as was suggested by the SMSG.

However, since the ESMA already believes that at least some crypto tokens may qualify as financial instruments under MiFID II, it specifically outlined potential changes required to clarify rules and requirements applicable to financial service providers dealing with crypto tokens (financial instruments), in particular: operating a trading venue, maintaining a securities settlement system, book-entry securities record-keeping with a central securities depositary (CSD), providing safekeeping of securities, etc.

One major change considered by the ESMA was inclusion of platforms trading crypto tokens (financial instruments) into the amended scope of MiFID 2/ MiFIR, for which purposes the ESMA observed, inter alia, the following challenges. The main issue raised was how to draft the new definition in view of existence of decentralised and hybrid platforms where the regulated activity(–s) in full or in part is administered without involvement of a central operator.
In a similar vein, clarification as to the identity of an authorised ‘system operator’ is needed in a situation where a decentralised matching engine of the trading venue qualifies as a ‘securities settlement system’ under the Settlement Finality Directive (SFD). Likewise, the ESMA believes that further consideration is needed on whether an operator of a platform trading crypto tokens (transferable securities) or the underlying decentralised network would need to be authorised as an authorised CSD for the purpose of record-keeping of security accounts in a book-entry form as defined under Article 2(1)(1) of the Central Securities Depositories Regulation (CSDR). In this regard, the ESMA mentioned that for the purposes of the CSDR a decentralised transaction ledger of transferable securities would fall under the definition of ‘securities account’ which an authorised CSD must maintain. However, national rules which define the legal nature of ‘security accounts’ may pose restrictions on the use of decentralised networks for the purpose of initial book-entry form recording and by extension, for the purpose of recognition of equivalence between uncertificated and tokenised transferable securities.

Another issue concerned the fact that the practice of direct and global access of individual traders to trading on the platforms is not consistent with specific requirements of MiFID II and SFD. First of all, under the current MiFID II framework regulated markets and MTFs are obliged to render a suitability check of their participants to ensure their competence, good repute and adequate organisational arrangements and resources. Furthermore, article 2(f) of SFD does not enlist individuals as participants to a ‘securities settlement system’ unless the scope is extended on the national level. As a result, further cost/benefit analysis is required on whether and to what extent the current framework of MiFID II and SFD shall be amended to accommodate direct access of individuals to regulated platforms trading crypto tokens.

49 European Union, 2009. ‘Directive 2009/44/EC of the European Parliament and of the Council of 6 May 2009 amending Directive 98/26/EC on settlement finality in payment and securities settlement systems and Directive 2002/47/EC on financial collateral arrangements as regards linked systems and credit claims’, European Union. 6 May 2009. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0044 (SFD).

50 European Union, 2014. ‘Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012’, European Union. 23 July 2014. Retrieved 6 March 2019 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0909 (CSDR).

51 Article 2(1) (28) of the CSDR defines a securities account generically as ‘an account on which securities may be credited or debited.’ See Ibid.
Further significant inconsistency was underpinned by the ESMA in the context of post-trading settlement of crypto tokens. Specifically, problematic aspects concern discrepancies between the legal and operational requirements of SFD\textsuperscript{52} (the transfer and netting shall be legally binding on third parties, segregation of collateral security from the assets of the settlement service provider), the CSDR\textsuperscript{53} (specific settlement periods and settlement discipline requirements) and execution of transactions on permissionless decentralised transaction ledgers. From an operational standpoint, it may be difficult to achieve a delivery versus payment equivalence where the governance mechanism of decentralised transaction ledgers (‘consensus’ validation, risks of ‘forks’) may have to be accompanied by an off-chain cash processing ‘leg’. Netting may also not be supported by decentralised transaction ledgers which only settle transactions on a gross basis. In addition, variability of the time required for execution of transactions on blockchain and concerns about access to permissionless systems add up to the challenges required to be solved before application of the (amended) current EU financial framework to decentralised settlement systems.

Finally, in the ESMA’s opinion, introduction of regulated trading in crypto tokens necessitates both legislative and non-legislative actions on an EU level in relation to pre- and post-trade transparency requirements, IT security, reliability and safety requirements, data reporting and record keeping obligations.

3.5 Is the EU Regulatory Framework Suitable (Shall be Amended) to Apply to the Crypto Tokens and Related Activities Not Covered by it (de lege ferenda)?

As underpinned by the results of the survey in the ESMA Report utility tokens, such as Filecoin, are not considered by NCAs to be financial instruments under MiFID II. In a similar vein, the SMSG opined that payment tokens, such as bitcoin, also fall out of the scope of EU financial law. In this respect, both the ESMA and SMSG admitted, however, that both utility and payment tokens may be perceived by their holders as security-like investment objects due to their transferability on secondary markets (crypto exchanges). Thus, further work is required to understand whether investor protection, financial stability and market integrity risks prevail justifying inclusion of these instruments into the scope of MiFID II or whether a bespoke EU-wide regime would better address the unique risks and opportunities posed. There was little consensus among

\textsuperscript{52} See supra note 49 (SFD) Arts 3–9.

\textsuperscript{53} See supra note 50 (CSDR) Arts 5–7.
NCAs on how to address this issue, but at least the vast majority of them agreed that some form of regulation and harmonisation is necessary. The analysis below summarises the observations made by NCAs with regard to potential amendment of MiFID II and inclusion of crypto tokens into its scope.

A group of NCAs advocated inclusion of crypto tokens into the annex of MiFID II as a new umbrella type of financial instruments (C12). The proponents argued that the main benefit of the approach would be in providing legal certainty to the market participants (8 NCAs) and in observing traditional risks (operational, business continuity, market conduct, conflicts of interest, non-discrimination, market integrity) through equality of legal implications (for both primary offering and secondary trading) with other financial instruments (6 NCAs). Importantly, the vast majority of NCAs disapproved of this approach, advocating the need to distinguish between different types of crypto tokens in order to effectively address their risks and benefits. Opponents of the umbrella approach claimed that a new C12 category has a risk of not being technology-neutral (3 NCAs) and, to that end, cause confusion and arbitrage with traditional financial instruments of equivalent economic function. In a similar vein, an alternative activity-based approach (‘same business, same risk, same rules’) was proposed by three NCAs to guide policymakers in applying discreet rules to each type of crypto token (e.g. payment, utility and asset tokens) which would help to distinguish between those crypto tokens falling under the current definitions of ‘transferable securities’ and ‘financial instruments’ (by virtue of Level 3 guidance), those which justify their inclusion into MiFID II as a separate ‘financial instrument’ and those which do not.

Apparently, no unanimity was present in terms of whether all or only specific types of crypto tokens shall fall under the scope of MiFID II. For instance, only three NCAs stated that all crypto tokens including payment tokens shall be regulated, with two NCAs believing that protocol tokens shall not be regulated in view of the supervisory challenges raised by absence of a central issuer or operator. Six NCAs opined that considering the main economic function of payment tokens (protocol tokens) such tokens are not under their (financial market regulators’) purview. In respect of this argument, it shall be noted that the EBA also disclaimed its authority over virtual currencies (protocol tokens) stating that both EMD2 and PSD2 would not apply to the crypto tokens not qualifying as electronic money and that the EU payment services legislation is unsuitable to address the risks associated with virtual currencies. Further, the EBA concluded that the feasibility and effectiveness of potential legislative measures needs to be assessed through the prism of the impact of crypto-token activities on the financial stability and standards of consumer protection. In line with the findings set out in the Financial Stability Board’s October 2018
both the EBA and ESMA found that as of present crypto tokens pose no financial stability risks given limited linkage of crypto economy with traditional financial markets and relatively small volumes of crypto-related activity in the EU. Therefore, the focus of both the EBA and the ESMA is on the access points of the crypto-token activity to traditional financial system (market participants) and consumers. In other words, on the regulation of operators of initial offering and secondary trading of these instruments.

It is the author’s opinion that protocol tokens (virtual currencies) by their main economic purpose and design are investment objects, the operation of which could be governed by MiFID II as a separate type of regulated instrument with specific Level I amendments and carve-outs needed, where necessary, to address specific risks, inconsistencies and gaps. First of all, application of the current EU financial law framework to virtual currencies would subject virtual currency operators operating in or from the EU to conform to the same principle-based regulatory standard. Importantly, the current EU legal framework would provide legal certainty and effectively limit traditional risks pertaining to trade in virtual currencies (operational, business continuity, conduct of business, conflicts of interest, non-discrimination, market integrity) only to the extent and so long as it is modified in accordance with the operational and legal practices, risks and implications of a direct access to market and a decentralised or off-chain (pre-, post-) trading. In other words, the risks of direct access to market of individual traders and of decentralised transaction ledger applied to securities markets shall be first assessed and translated into activity-based requirements (e.g. guidance on suitability checks of individual traders, guidance on on-chain and off-chain record-keeping and settlement, authorisation requirements for (hybrid) settlement systems and custody of crypto tokens, guidance on conduct of business, IT security and segregation of assets).

54 Financial Stability Board, 2018. ‘Crypto-asset markets, Potential channels for future financial stability implications’, Financial Stability Board, October 2018. Retrieved 29 March 2019 http://www.fsb.org/wp-content/uploads/P101018.pdf.

55 The ESMA considers the trend in development of DLT applications in traditional financial services, the benefits of which could be: (i) more efficient post-trade processes, (ii) enhanced reporting and supervisory functions, (iii) greater security and availability and (iv) reduced counterparty risk and enhanced collateral management. See European Securities and Markets Authority, 2017. ‘The Distributed Ledger Technology Applied to Securities Markets’, European Securities and Markets Authority. February, 2017. Retrieved 23 March 2019 https://www.esma.europa.eu/sites/default/files/library/dlt_report_-_esma50-1121423017-285.pdf.
Likewise, according to the author, the ESMA shall provide guidance on which asset tokens fall under the definition of ‘transferable securities’ and advise on which amendments to the current EU framework are required in order for ICO issuers and regulated venues to comply taking into account the ICO practices and specific risks (e.g. the systems audit or certification of the smart contract to address the ‘code risk’, i.e. the token software may not always reflect the algorithm and features described in the whitepaper; the role of ‘asset validator’, i.e. the person responsible for guaranteeing performance of the right(–s) attached to the token). Those asset tokens which do not fall under either the definition of ‘transferable securities’ or ‘financial instruments’ would need to be categorised and included into the scope of MiFID II as a separate type of ‘financial instrument’ with simultaneous amendments into the law and guidance provided on application of the traditional and new authorisation and compliance requirements to the issuers and market participants.

3.6 Is an EU-wide Legislative Act Governing Crypto Tokens Not Covered by the EU Regulatory Framework Currently Required?

Alternatively, EU policymakers could consider the opportunity to set up a bespoke regime for those crypto tokens that do not qualify as financial instruments – especially, those which are typically issued through the ICO – asset tokens and utility tokens. Among possible advantages of a new Level I directive or regulation in comparison to inclusion into the scope of MiFID II is the experimental and cost-efficient character of legislation: sunset clauses, voluntary authorisations, new registrations, specific audits and certifications may be provided for with no need to solve inconsistencies between the current EU regulatory framework and the existent ICO and crypto-token trading operation and practices. It may be argued that the excessive changes required to be made into the current EU regulatory framework are not proportionate to the still nascent evolving and relatively small market of primary offering and secondary trading of crypto tokens. At the same time, if crypto tokens were to be regulated under MiFID II, these changes are necessary in order not to drive crypto-token projects away from the EU. Otherwise, uncertainty of legal interpretation and the high compliance costs associated with traditional authorisation, disclosure, reporting, market conduct and other requirements would be irreconcilable with the start-up nature of the ICOS, community-like product-oriented investor base, global direct access to trade and liquidity, etc. Therefore, if the public interest in facilitating a global and direct access of individuals to tokenised illiquid assets and innovative products becomes high enough, EU policymakers could consider a lighter than MiFID-like but consumer- and product-oriented approach to a bespoke regulatory regime. In the author’s opinion, a successful
EU-wide proposal for a comprehensive crowdfunding regime covering both the issuance and the secondary trading of utility and asset tokens not covered under MiFID is currently a long shot because bespoke EU-wide legislation requires maturity of the market in ICOs and the underlying products. Arguably, this is the rationale for 12 NCAs currently not being in favor of a bespoke regime outside MiFID.

4 Regulation of ICOs in Malta

In this Section 4 the author renders a doctrinal legal analysis of the main provisions of the first comprehensive bespoke regime on the EU national level regulating utility tokens – the Virtual Financial Assets Act (VFA Act). The Section first describes taxonomy of the crypto tokens applied by the legislator and the types of tokens which are within the scope of the VFA Act.

4.1 Taxonomy of Crypto Tokens by the VFA Act

First of all, the VFA Act applies only to virtual financial assets (VFA), a term which by definition excludes from the new regulatory regime electronic money, financial instruments and, subject to a caveat, virtual tokens.

One feature of token qualification in Malta is the ‘financial instrument test’ – a questionnaire-style test promulgated by the Maltese regulator, the Malta Financial Services Authority (MFSA). The test is composed of 13 qualification sub-tests, for each of which qualifications need to be ‘failed’ in order for the VFA Act to apply. To the extent that the token is recognised as a financial instrument, money market instrument or electronic money rules on securities business, prospectus, anti-money laundering, licensing requirements continue to apply to such offering, as the case may be. Despite having specific questions in each sub-test section and interpretation guidelines the assessment framework may have certain flaws. For instance, MiFID II excludes from its the
scope instruments of payment\textsuperscript{60} and therefore a token which satisfies an ‘instrument of payment’ test would be exempt from the regulation. However, under the Maltese financial instrument framework all tokens which function as a means of exchange are recognised as payment instruments and to this extent are excluded from the definition of ‘transferable securities’ under MiFID II.\textsuperscript{61} This appears to be a questionable approach given that most app tokens have a hybrid nature. The ‘means of exchange function’ is the most basic function of an app token, but what distinguishes them is a combination of underlying social and economic entitlements assigned in addition to the basic means of exchange function (see Section 2.4. above). Thus, in the author’s opinion, only protocol tokens (i) serving exclusively a means of exchange function and (ii) which give no asset-, voting- or payment-related entitlements,\textsuperscript{62} under the current framework would be exempt from MiFID II as ‘instruments of payment’. This position is also stated in the SMSG Report with the SMSG viewing such bitcoin-like protocol tokens (‘payment tokens’) as currently unregulated under MiFID II.\textsuperscript{63}

Another important exclusion from the scope of the VFA Act relates to ‘pure’ utility tokens or, in the wording of the act, ‘virtual tokens’. A virtual token is defined as ‘a form of digital medium recordation whose utility, value or application is restricted solely to the acquisition of goods or services, either solely within the DLT platform on or in relation to which it was issued or within a limited network of DLT platforms.’\textsuperscript{64} One may view the part ‘solely to the acquisition of goods or services’ as excessively narrowing the definition of ‘virtual token’. For instance, utility tokens may be designed to give a variety of rights not limited to ‘acquisition of goods and services’ including the right to render work by bonding tokens in a ‘proof-of-stake’ consensus mechanism or the voting rights in a token-curated registry.\textsuperscript{65} Consequently, under the

\textsuperscript{60} See the definitions of ‘transferable securities’ and ‘money-market instruments’ under MiFID II.

\textsuperscript{61} See supra note 58 (Guidance Note).

\textsuperscript{62} The entitlement for redemption of the token against fiat would also need to be tested against the ‘electronic money’ definition under the act implementing EMD2 in Malta. For this purpose, see also EBA Opinion and Section 3.4.1. above.

\textsuperscript{63} Ibid. The SMSG Report claims that all protocol tokens have mutable scarcity of supply which can be amended by software update and for this reason compares them to fiat currencies with controlled scarcity of supply. See supra note 8 (SMSG Report), at 13.

\textsuperscript{64} See supra note 57 (VFA Act).

\textsuperscript{65} Token-curated registries or TCRs are ‘decentrally-curated lists with intrinsic economic incentives for token holders to curate the list’s contents judiciously.’ See explanation of the concept in Mike Goldin, 2017. ‘Token-Curated Registries 1.0.’ 14
Maltese framework such forms of utility tokens are arguably beyond the scope of the ‘virtual token’ definition and are regulated as virtual financial assets, even though there is hardly any reasonable justification present for exempting one and regulating the other. An important caveat to the classification as ‘virtual token’ is ‘solely within the DLT platform’ which excludes exchanges.\footnote{66} Hence, utility tokens are ‘included back’ into the term ‘virtual financial asset’ if such tokens are by design capable of being ‘exchangeable within’ exchanges.\footnote{67} This is in line with the SMSG’s opinion that only ‘pure’ utility tokens shall not be included into the scope of MiFID II because the need to protect investors and the market integrity appears to be raised only by tokens transferable on crypto exchanges (capital markets).\footnote{68} However, the Maltese approach fails to apply this ‘transferability rule’ equally to ‘virtual financial assets’ and ‘virtual tokens’. As a corollary, a work token, a voting token, or a token-curated registry token could fall out of the ‘virtual token’ definition because it is not used for acquisition of goods or services but would still fall under the scope of ‘virtual financial asset’ and the VFA Act even if by design it is not exchangeable beyond the Issuer’s DLT platform. From the policy perspective this observation could be explained as a drawback of direct regulation which purports ‘to classify and thus to rigidify essentially moving and still unidentified objects’ in the wake of ‘rapid evolution of technology’.\footnote{69} However, the above criticism does not imply that direct regulation and token classification is per se the wrong policy approach. Rather, more principle-based and generic definitions could be applied. Both the whitepaper registration proposal in France\footnote{70} and the EU Crowdfunding Proposal\footnote{71} use a binary approach for defining tokens based on whether they vest any ‘claim(–s)’ to the holder or ‘use a counterparty’ (which effectively

\footnote{See supra note 59 (Guidance Note) at 10.}

\footnote{See supra Section 3.4.1.}

\footnote{See supra note 5 (Landau & Genais Report), at 2.}

\footnote{See France, 2018. ‘PROJET DE LOI No 1088’, ASSEMBLÉE NATIONALE. 19 June 2018. Article 26. Retrieved 6 March 2019 http://www.assemblee-nationale.fr/15/projets/pho88.asp.}

\footnote{See European Parliament, 2018. ‘Draft Report on the proposal for a regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business’, European Parliament Committee on Economic and Monetary Affairs, 10 August 2018. Retrieved 19 November 2018 http://www.europarl.europa.eu/sides/getDoc.do?...
means the same). The SMSG Report follows a similar approach by classifying utility tokens as ‘non-monetary entitlements’ within ‘a specific application or service’ which give ‘no decision power on the project’.72

Finally, a token which does not fall under any of the above exclusions shall serve as ‘a digital medium of exchange, unit of account or store of value’ in order to be within the scope of the VFA Act.73 These three characteristics are commonly associated with the function of fiat currencies and therefore it is reasonable to state that the VFA Act may apply to payment tokens, utility tokens and asset tokens, at least as ‘medium of exchange’ or ‘store of value.’ However, the law does not distinguish between payment, utility and asset tokens and, to this end, does not provide for a tailored approach governing specific risks arising from each types of tokens. For instance, the draft Blockchain Act of Liechtenstein, if enacted, would protect the interests of the asset token holders by establishing the role of a ‘physical validator’, an authorised person required to ensure that the object of value (asset) is properly identified, stored, insured and legally represented by the token and that the Issuer has legal title to the object without any encumbrances.74

It may be concluded that by focusing on regulating only exchangeable tokens direct regulation can aim to preserve control over the interfaces between the cryptocurrency world and the monetary and financial system. At the same time, regulation shall address the actors and not the products themselves. Placement of app tokens with hybrid nature into one of four brackets like ‘virtual tokens’, ‘virtual financial assets’, ‘electronic money’ or ‘financial instruments’ may be a very cumbersome, superficial and subjective task which raises the questions of the quality of assessments, technological neutrality,75

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72 See supra note 8 (SMSG Report), para. 16, para. 47.
73 See supra note 57 (VFA Act).
74 See supra note 9 (Blockchain Act).
75 ‘The regulation must be <technologically neutral>. […] Outside of finance, technology offers prospects for the preservation and secure transmission of currencies. […] Standardising actors and technology today would paralyse these advance […] We must dissociate technological innovation, which must be encouraged and stimulated, from monetary and financial innovation, which must be considered with caution. […] The regulatory effort must therefore focus on the interfaces between the cryptocurrency world and the monetary and financial system.’ See supra note 5 (Landau & Genais Report), at 2, 44.
divergent regulatory approaches, regulatory missteps,\textsuperscript{76} regulatory arbitrage\textsuperscript{77} and evasion.

Is there something that EU policymakers can do to increase certainty and simplify the rules?\textsuperscript{78} In the author’s opinion, a tailored activity-based approach shall guide legislators in their attempts to classify crypto tokens. The first basic distinction between tokens with and without an entitlement shall be provided in the law, so that additional governance and authorisation arrangements can be prescribed to address the integrity of the ‘entitlement’. Another importance difference could ensue from the pre-functional or functional character of the token. A crypto token is fully functional when the related ‘entitlement’ can be exercised at the point of the token’s issuance. Therefore, a lighter regulatory standard could potentially apply. In contrast, the risks of issuing a pre-functional token regardless of the nature of the entitlement are closer in nature to the risks posed by traditional financial instruments and therefore a regime more similar to that of MiFID could apply. Finally, the nature of the entitlement may pose different risks. For instance, an entitlement to have specific services or electronic goods received from a group of merchants through the Platform may pose more consumer protection risks (quality and timing of service, refunds and complaints handling, etc.) than investor protection (even if the token is transferable on a crypto exchange). In contrast, tokenised assets, for instance, art collection or expensive wines, are closer in nature to forms of alternative investment and, to that end, may pose more risks related to fraud, money laundering and market abuse. Closeness of such asset-backed tokens to the financial markets may necessitate a bespoke regulation of both primary offerings (mandatory whitepaper registration) and secondary trading (\textit{kyc}/\textit{aml}, asset verification, token listing rules, market conduct rules, security, solvency, settlement, etc.). Conversely, the low risk profile of utility tokens already functional at the moment

\textsuperscript{76} For instance, a hacker’s attack on BitFinex’s exchange costing investors USD 72 million is cited by many as caused by the fine and \textit{cftc} regulations which required BitFinex to store 100\% of its client assets in hot wallets. See C. Burniske and J. Tatar, ‘\textit{Cryptoassets: The Innovative Investor’s Guide to Bitcoin and Beyond}’ (New York: McGraw-Hill Education, 2017), at 178.

\textsuperscript{77} The risk is that a normative classification distinguishing financial tokens or ‘securities’ – conferring rights to income or the decision – utility tokens or ‘utilities’ – conferring a right of use – is ultimately to offer companies wishing to raise funds a regulatory arbitrage between applicable standards depending on the nature of the asset. See \textit{supra} note 5 (Landau & Genais Report), at 60.

\textsuperscript{78} A prominent example of a call for simplification was made by the CEO of Kraken crypto exchange. See Jesse Powell, 2018. ‘Kraken’s Position on Regulation.’ 22 April 2018. Retrieved 7 November 2018 https://blog.kraken.com/post/1561/krakens-position-on-regulation/.
of issuance may cause regulators to opt for a voluntary whitepaper registration regime and unregulated secondary trading in such instruments. A voluntary registration regime may be very appealing where a regulator is concerned\(^7^9\) that the new regulatory regime (including mandatory caps on participation and maximum fundraising amount, consultation on each whitepaper and on token’s classification, ongoing disclosures and reporting, timeline and costs of collaboration, etc.) is incommensurately burdensome for the nascent and mobile market of utility token ICOs not covered under the scope of traditional financial market regulation.

### 4.2 Mandatory Whitepaper Registration Regime

The Maltese VFA Act, already in force, establishes a mandatory\(^8^0\) whitepaper registration procedure and provides an investor protection regime based on transparency and accountability. First of all, the act establishes liability of the Issuer for direct damages incurred by either the initial token holder or a crypto exchange trader by reason of any ‘misleading or otherwise inaccurate or inconsistent’ information contained in the whitepaper.\(^8^1\) This includes, *inter alia*, profit forecasts made in the whitepaper or any advertisements the text of which shall be included in the whitepaper. Further, statements on financial position in the whitepaper have to be based on financial records of the

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79 In 2015 the state of New York introduced a regulatory framework which required New York virtual currency operations to obtain a BitLicense from the state’s Department of Financial Services. It has been argued that because of prohibitive costs of applying for a BitLicense, by 2017 only three licenses have been granted to Circle, Ripple, and Coinbase with smaller startups quickly relocating. See M. Finck, ‘Blockchains: Regulating the Unknown.’ German LJ 19 (2018) at 680; Michael del Castillo, 2017. ‘Bitcoin Exchange Coinbase Receives New York BitLicense.’ January 2017. Retrieved 17 November 2018 http://www.coindesk.com/bitcoin-exchange-coinbase-receives-bitlicense/.

80 Mandatory registration of the whitepaper with the regulator is also contemplated by prospective Gibraltar and enacted Jersey regulations. Voluntary registration is being introduced in France.

81 See *supra* note 9 (VFA Act) Article 10(1): ‘The issuer shall be liable for damages sustained by a person as a direct consequence of such person having bought virtual financial assets, either as part of an initial VFA offering by such issuer or on a DLT exchange, on the basis of information contained in the whitepaper, website or advertisement by reason of any untrue statement included therein: – Provided that a statement included in a whitepaper, website or advertisement shall be deemed to be untrue if it is misleading or otherwise inaccurate or inconsistent, either willfully or in consequence of gross negligence, in the form and context in which it is included.’
Issuer. This may be reinforced by a requirement for the Issuer to prepare audited annual accounts for each of the last three financial years or for such a shorter period that the Issuer has been established. Any changes in the whitepaper before the end of the offering period shall be approved by the MFSA and mentioned in a supplement appended to the whitepaper. Offerees have the right to withdraw their acceptance within two working days after the publication of the supplement. Finally, the Issuer shall be liable not only for misstatements in the whitepaper but also for any damages incurred by willful or negligent failure to perform in whole or in part its obligations under the offering, e.g. to reach the milestones of the project. Delivery under the milestones of the project shall be closely monitored. The detailed description of the past and future DLT platform development deliverables (‘milestones’) have to be included in the whitepaper and regularly accounted for in public announcements made by the Issuer prior to and following the ICO event as controlled by the Issuer’s VFA Agent (to be discussed below) and the MFSA. In the event of the milestones not being met, this must be stated in the public announcement and should the delays potentially affect the risk parameters of the project, the Issuer would need to update the whitepaper accordingly and inform investors of their right to opt out. It is not clear whether the right to opt out only refers to the time until the tokens are delivered and the offering is over. If this is the case, then the refund procedure is straightforward – the custodian (whether a third party or a smart contract) refunds the purchase price to the opted out investors. However, if the regulations allow investors to opt out and redeem their tokens at their offering (nominal) price after the tokens are issued into circulation on secondary markets, that would raise a difficult question of whether the purchasers (traders), which obtained such tokens from resales, are also eligible for the redemption at the fixed price? If the

82 See Malta Financial Services Authority, 2018. ‘Virtual Financial Assets Rulebook, Chapter 1, Virtual Financial Assets, Rules for VFA Agents.’ R1-3.3.9. Retrieved 19 November 2018 https://www.mfsa.com.mt/pages/viewcontent.aspx?id=674 (VFA R1).
83 See Malta Financial Services Authority, 2018. ‘Virtual Financial Assets Rulebook, Chapter 2, Virtual Financial Assets, Rules for Issuers of Virtual Financial Assets.’ R2-2.3.1.2. Retrieved 19 November 2018 https://www.mfsa.com.mt/pages/viewcontent.aspx?id=674 (VFA R2).
84 See section 15 of the First Schedule of the VFA Act.
85 Ibid.
86 See supra note 83 (VFA R2), R2-2.3.6.
87 See supra note 82 (VFA R1), R1-3.3.4.
88 See supra note 83 (VFA R2), R2-2.4.2.
89 Ibid. R2-2.4.4.3.
answer is in the positive, then the Issuers may become immediately bankrupt as soon as they start facing difficulties with meeting operational deadlines. Hence, the MFSA shall probably consider such extension of the right of refund to post-issuance as unnecessarily burdensome for the Issuers.

All in all, the aforementioned investor protection provisions are aimed to give legitimacy to whitepapers stamped with regulatory approval. Investors in such ICOs can no longer waive all of the investor and consumer protections they would have availed themselves of in a traditional financial transaction with a similar risk-setting. Investors, arguably, do not incur the costs of verifying the accurateness and completeness of information presented in the whitepaper (which are shifted to the VFA Agent, as discussed below). More importantly, mandatory disclosures of changes in the whitepaper and of updates on milestones provide investors with the statutory right to claim back their investments (‘opt out’) prior to the end of the offering period. This, in turn, encourages ICO Issuers to be more cautious about representations made in the whitepaper and to focus more on DLT platform development and communication with investors.

However, following receipt of the tokens the offering lapses and the Issuer is no longer obliged to refund the investor if the milestones are not reached. This risk of losing the investment as a result of the startup’s failure (absent fraud and negligence on its part) is exacerbated by the token’s price volatility risks driven by the market which in and of itself is non-transparent, fragmented and unregulated. Hence, the final layer of investor protection which the Maltese ICO regulations impose (and, arguably, the most controversial) is the statutory cap on participation of each investor in a Maltese ICO. By default, the cap is fixed at an equivalent of EUR 5,000 in tokens of one Issuer over a 12-month period. At the same time, Experienced Investors may invest into a Maltese ICO as much as one percent of their net wealth provided that they are aware of the risks and had previously invested in other ICOs in an amount exceeding the equivalent of EUR 10,000. To this extent, public policy interest follows the same logic prescribed by division of investors under financial market regulations into retail and qualified investors: retail investors are not allowed to risk losing more than they can afford. However, the Experienced Investor threshold is not in and of itself based on the criteria of professional investor in the

90 See supra note 83 (VFAR 2), R2-2.2.6.1.
91 Ibid. See also Malta Financial Services Authority Circular, 2018. ‘Publication of the Virtual Financial Assets Rules for Issuers of VFAs’, 2018. At 3. Retrieved 19 November 2018 https://www.mfsa.com.mt/pages/viewcontent.aspx?id=674.
context of MiFID.\textsuperscript{92} In contrast to the MiFID concept, the Experienced Investor threshold is capped, meaning that a person meeting the threshold cannot invest unlimited amount of funds into the \textit{ICO} (which is allowed in the MiFID context).

To sum up, the whitepaper registration regime in Malta focuses on transparency of the rights and obligations of the \textit{ICO} participants and on accountability of the Issuer before the law, regulator and investors. The public interest is also protected by limits imposed on the maximum individual investment. However, it remains to be seen whether considerable costs of initial and ongoing compliance in Malta would drive Issuers of pre-functional tokens to jurisdictions where only transparency requirements are imposed with no limits on individual participations or supervision by third parties over attainment of milestones and mandatory opt out schemes.

4.3 \textit{Technological Standard: Systems Audit Report}

An independent expert quality check of the underlying technology (including the blockchain’s integration into the Platform) and smart contract (token distribution terms) is absolutely necessary to ensure the minimum transparency, integrity and viability of the startup’s commitments presented in the whitepaper. In this regard, the Maltese Systems Audit requirements shall be described and analysed below. Both smart contracts and DLT platforms are defined in the law\textsuperscript{93} as innovative technology arrangements (ITAS). Under the \textit{ICO} regulations\textsuperscript{94} the Issuer is required to appoint a licensed Systems Auditor which will be responsible for reviewing and auditing all of the Issuer’s ITAS, including the smart contract deployed for the token’s distribution. Prior to offering tokens in Malta the Issuer shall procure that an independent Systems Auditor prepares a report certifying that the particular elements of the whitepaper are coded into the smart contract, including token distribution terms (soft cap / hard cap, transfer limitations, refund mechanisms, dispute resolutions, vesting schedule and burning protocols)\textsuperscript{95} and that it is impossible to ‘unilaterally mutate, amend and, or destroy without leaving trace’ the smart contract.\textsuperscript{96}

More importantly, prior to the \textit{ICO} and subsequently on an annual basis an

\begin{itemize}
\item[92] See \textit{supra} note 43 (MiFID ii), Annex ii.
\item[93] See Malta, 2018. ‘Innovative Technology Arrangements and Services Act,’ retrieved 19 November 2018 http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12874&l=1 (ITAS Act).
\item[94] See \textit{supra} note 83 (VFAR 2), R2-2.4.2.1, R2-2.4.2.6.
\item[95] \textit{Ibid.} R2-2.4.2.11, R2-3.2.2.4.
\item[96] \textit{Ibid.} R2-2.4.2.12.
\end{itemize}
Issuer shall procure confirmation from the Systems Auditor that the Issuer’s ITAs comply with any qualitative standards set and guidelines issued by the Malta Digital Innovation Authority (‘MDIA’).\textsuperscript{97} The System Auditor’s opinion shall confirm that (i) the specific whitepaper requirements are fairly represented in the designed ITAs (the Platform and smart contract);\textsuperscript{98} (ii) the controls in relation to the ITA (the Platform) are in place which if operated effectively would meet the control objectives and key principles. Annual confirmation of compliance with (i) and (ii) above requires the Systems Auditor to provide ongoing opinions to the Issuer and MFSA on the operating effectiveness of the controls installed and procedures implemented in the context of meeting the control objectives.

In addition to systems audit, regulated ICOS require the Issuer to store a copy of the DLT data locally in Malta by introducing a Forensic Node concept.\textsuperscript{99} Forensic Node shall be implemented by the Issuer and shall receive all of the data recorded within the distributed ledger and thus serve the purpose of a ‘live replication server’ in Malta.\textsuperscript{100} To this extent, the MFSA and MDIA ensure their continuous access to the DLT transactions data in Malta in case regulatory investigation or intervention is deemed necessary. Remarkably, ICO whitepaper registration does not require the Issuer to establish procedures and in-built technology features in its ITA which will give it authority to intervene in the event of a material cause of loss to any user; or a material breach of law (e.g. by forking of the ledger) which can be the result of tradeoff between the policy interest and the practical need to make the rules attractive to startups.

Consequently, the Systems Auditor’s opinion may become a standard not only for the purpose of ensuring the exact and secure implementation of

\textsuperscript{97} Ibid. R2-3.2.1.2, see supra note 82 (VFAR 1), R1-3.3.3, R1-3.3.10.2. See also Malta, 2018. ‘Digital Innovation Authority Act, 2018’, retrieved 19 November 2018 http:// justiceservices.gov.mt/DownloadDocument.aspx?app=lp&itemid=29080&l=1.

\textsuperscript{98} The specific whitepaper’s content requirements subject to Systems Audit include technical features of the underlying ITAs (description of the Platform, smart contract’s, wallet’s underlying protocol; consensus algorithm (if any); security safeguards; interoperability), commercial viability-related issues (speed of transactions; risks and challenges of technology and mitigating measures; functionality of the vfa, incentive mechanisms and transaction fees) and audit of encoded token distribution terms (offering period, transferability, soft / hard caps and refunds, total supply, limitations and dependencies).

\textsuperscript{99} See Malta Digital Innovation Authority, 2018. ‘ITA Blueprint Guidelines’, retrieved 19 November 2018 https://mdia.gov.mt/guidelines/.

\textsuperscript{100} See supra note 83 (VFAR 2), R2-2.7.2., see Malta Digital Innovation Authority, 2018. ‘Systems Auditor Guidelines (Chapter 01, Part A)’, retrieved 19 November 2018 https://mdia.gov.mt/guidelines/.
token's distribution terms but also for development, implementation and maintenance of a commercially viable DLT project. However, excessive transparency and accountability standards may discourage Issuers from launching their Crowdsales in Malta in the first place. In this regard, mandatory pre-ICO and periodical systems audits of the smart contracts, ITAS and data localisation requirements, even without rules for in-built mutability of DLT transactions, have a good chance of tipping the scales in favor of jurisdictions with voluntary regulatory standards.

4.4 Intermediation of Supervision: The Role of a VFA Agent

Virtually all of the abovementioned rules relating to investor protection and audit have to be organised in Malta by the Issuer through a licensed independent VFA agent. VFA Agents shall act as liaison between the Issuer and the MFSA on all matters arising in connection with the registration of the whitepaper or the trading of the Issuer's VFA on a DLT exchange. In particular, a VFA Agent shall make all submissions to the MFSA on behalf of the Issuer including, inter alia (i) the results of the Financial Instrument Test signed by the Issuer and endorsed by its VFA Agent with any assumptions and/or reservations added by the latter; (ii) the signed whitepaper after the VFA Agent has satisfied itself that the Issuer's board members were fit and proper to prepare the whitepaper and that the information so disclosed was complete, accurate and not misleading; (iii) the Issuer's development roadmap (milestones) and information on any failure of the Issuer to meet such milestones; (iv) an annual certificate evidencing compliance with regulatory requirements (annual Systems Auditor's report, AML/CFT requirements, fitness and properness of the Issuer, statement of any breaches of law).101 In order to qualify as a VFA Agent, an applicant shall be (i) fit and proper; (ii) solvent and (iii) competent in terms of regulatory framework (both traditional and under the VFA Act).102 Remarkably, VFA Agents are required to have a background neither in corporate finance (crypto investment), nor in technology (blockchain). Thus, the only role of the VFA Agent is to help the Issuer navigate the financial instrument test and regulatory requirements imposed by the VFA Act without necessarily advising on the merits and challenges of the Issuer’s DLT platform, long-term sustainability of the token distribution terms, prospects of user adoption and listing. Such a single-contact approach is naturally resource-effective for regulators, but it is unlikely to be cost-effective for Issuers who will be required to retain

101 See supra note 83 (VFAR 2), R2-2.4.3.7, R2-2.4.3.8, R2-3.2.1.2.
102 See supra note 82 (VFAR 1), Section 2.
vfa Agents and comply with ongoing requirements for an indefinite time after rendering a Crowdsale or after being listed in Malta. Contrariwise, the Maltese vfa Act appears to be the first comprehensive approach directly regulating both primary and secondary vfa offerings. If one keeps the voluntary whitepaper registration proposal of France and an opt-in EU Crowdfunding Proposal in mind, in the short-term future there could be less-costly alternative regulatory regimes to consider.

The doctrinal legal analysis rendered in this Section 4 shows that the comprehensive regulatory framework imposes a high compliance burden on potential Issuers of virtual financial assets. The regulator addressed money-laundering, transparency, accountability, cybersecurity, safekeeping, market integrity, investor-suitability and many other concerns by requiring Issuers both to have adequate internal organisation and direct partnerships with authorised intermediaries. Therefore, much of the success or failure of the Maltese regime will depend on the competence and integrity of the authorised intermediaries as well as on the success of the competitive regimes in other jurisdictions with alternative and potentially less costly but a more straightforward product- and consumer-oriented framework. For instance, by focusing on establishing legal certainty for icos of functional utility tokens (clear guidance on taxonomy of crypto assets and applicable financial market, payment services and consumer protection laws; liability for misrepresentations; risk-disclosures and prohibition on unfair marketing; clear accounting rules in relation to crypto tokens; bank account opening only for projects with whitepapers voluntarily registered with the regulator) national policymakers may attract genuine DLT-projects with real application and in need of broader consumer / community base. Alternatively, for Issuers of asset tokens, depending on the nature of the entitlement, NCAs could provide clear guidance on the application of the current regulatory framework to the primary offering, safekeeping, recordkeeping of title, secondary offering, trading and settlement of such tokens. It is foreseeable that the ESMA will issue Level 3 guidance which can help NCAs to navigate their interpretations. Finally, Level 1 amendments to the EU regulatory framework (MiFID II, Transparency Directive, Prospectus Regulation, MAR, SFD, CSDR) could address the gaps and inconsistencies with the operation of tokenised financial instruments. Following implementation of the above measures EU policymakers may collect valuable feedback on the effectiveness of national-level bespoke regulation (whether comprehensive or light-touch) and the MiFID regime (inclusion of specific types of crypto tokens into the list of financial instruments). Until then it is too early to realistically consider the prospects of an EU bespoke regime governing utility tokens and payment tokens.
5 Conclusion

The present paper showed that, according to the view of the EU financial supervisory authorities, some crypto tokens and related activities may fall under the EU regulatory framework, which means that specific regulatory requirements may need to be re-examined and tailored on a legislative level to address operational capabilities and diverse risks of decentralised technologies, direct access to trade and tokenised financial instruments. The varied, dynamic and hybrid economic nature of crypto tokens and feasibility concerns related to adoption of DLT raise uncertainty among EU regulators and national competent authorities about which principles shall underly their judgement call on whether to integrate (into MiFID and transposing laws), regulate (as a bespoke crowdfunding regime) or isolate (discourage by warnings to traditional financial institutions) crypto tokens. Based on the doctrinal legal study presented in this paper the author came to the conclusion that it is still early for EU policymakers to include into the scope of the EU regulatory framework crypto tokens which are not functional equivalents of financial instruments (as defined in MiFID II). Neither is it time to provide for a separate EU-wide bespoke regime. A conservative approach would enable EU policymakers to concentrate on accommodating the EU regulatory framework to the risks posed and opportunities arising from application of DLT in financial services so that first tokenised financial instruments may become effectively regulated under the amended framework. Fragmentation of the regulatory landscape on the national level is viewed by the author as a positive development in the short-to-medium term. Emergence of bespoke regimes governing crypto tokens may prove to be a necessary testing field for different modes of supervision (comprehensive / light-touch; investment-based / product-based). Inclusion of crypto tokens as new types of financial instruments into national securities laws may provide empirical evidence to EU policymakers on the attractiveness and suitability of traditional regulatory infrastructure for DLT and ICO projects.

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103 See Mark Carney, 2018. ‘The Future of Money.’ 2 March 2018. Retrieved 18 November 2018 https://www.bankofengland.co.uk/speech/2018/mark-carney-speech-to-the-inaugural-scottish-economics-conference.