RIGA GRADUATE SCHOOL OF LAW

ANALYSIS OF THE EVOLUTION OF THE EU REGULATORY APPROACH ON VIRTUAL ASSETS.

BACHELOR THESIS

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DECLARATION OF HONOUR:

I declare that this thesis is my own work, and that all references to, or quotations from, the work of others are fully and correctly cited.

Signed …….

RIGA, 2022

ABSTRACT

The technological advancements of virtual assets are growing exponentially in numbers now providing better security and enhanced privacy for its users. Furthermore, users may scramble and tumble virtual assets disguising their records of transactions. Innovations such as these although allow users to enjoy enhanced privacy in a world of constant supervision and "liberalization" of currency from the state, has however also opened a milieu for criminals to operate in, allowing money laundering, terrorism financing, tax and sanctions evasion, and other financial crimes to go unnoticed.

In that regard, this thesis focuses on how the European Union has managed to catch up with the continuous innovations in virtual assets in terms of managing to rein in and regulate the market.

Keywords: Financial crimes, anti-money laundering, cryptocurrencies, compliance.

SUMMARY

The survival and the boom of virtual assets have managed to bring them to popular and mainstream use. One of the biggest concerns for the virtual asset holder however has been its total lack of privacy due to blockchain technology which stores virtual assets' transaction history and acts as a ledger.

As virtual assets have become more and more widespread, even attaining the title of the national currency in certain jurisdictions, the lack of anonymity and security it displays has become a matter of great concern. This has resulted in innovations in transaction methods and virtual asset types and blockchain technology resulting in increased access to the wider populace and increased anonymity and security for their concerned users from third parties and bad actors. However, virtual asset advancements cannot be assessed without additionally examining blockchain advancements due to their interlinked nature, resulting in further analysis on how smart contracts have affected the evolution of virtual assets themselves.

The paper analyses the evolution of the EU's attention on developments regarding virtual assets. The paper recognises that virtual assets are becoming more integrated within the legislative framework of the EU. This integration has happened at multiple stages, starting from seemingly ignoring the new technology to developing a legislative framework for the virtual asset market through a new and comprehensive Regulation. A step of this evolution is ongoing at the time of the writing of this paper. However, this evolution has happened at various stages, such as the inclusion of virtual assets within the scope of the EU's Anti Money Laundering framework through amendments of its Directive on money laundering prevention. The paper explores the variety of financial crimes that have been granted new techniques and environments, and analyses how the evolution of the EU's integration of virtual assets within its legal framework responds to the financial crime risks.

This paper shall focus on how the EU's legislative framework has managed to respond with innovations such as decentralised exchanges, unhosted wallets, and crypto tumblers/scramblers. However, as the EU has left a significant segment of the virtual asset market unregulated, the member states have maintained their competence to fill in the gaps. As a result, examples from how some of the member states have managed to regulate virtual assets will be used to analyse if they should be adopted as an EU-wide policy. For additional perspective regulatory methods of virtual assets in the USA will be also taken into consideration.

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INTRODUCTION

Financial crimes such as money laundering not only enable bad actors with legitimate appearing funds but also damages the country's economical, and social well-being as the funds may be used to finance terrorist activity, human and drug trafficking, smuggling, or other illicit activities.[1] Therefore, combating money laundering is one of the most effective means of opposing these forms of criminal activities which constitute a particular threat to Member States' societies.[2]

Historically within the EU/Economic Community combating financial crimes has been the member states' competence. However, in 1991 the first anti-money laundering (hereinafter AML) Directive was introduced in an attempt to harmonise the regulative framework and adopt coordinated measures.[3] This was due to the Union becoming aware that single market and integrated financial systems are incomplete and inconsistent without measures ensuring that the provided freedoms will not be abused.[4] Similarly, with tax evasion, after recognizing the international nature of the problem and acknowledging that "national measures, whose effect does not extend beyond national frontiers, are insufficient; whereas collaboration between administrations based on bilateral agreements is also unable to counter new forms of tax evasion and avoidance, which are increasingly assuming a multinational character" bringing in to a conclusion where the competence of collaboration with tax authorities must be delegated to the Union resulting in the formation of the Council Directive of 19 December 1977 concerning mutual assistance by the competent authorities of the Member States in the field of direct taxation (77/799/EEC).[5]

Due to the multi-faceted and multi-national nature of financial crimes, the implementation of methods of detection has remained a challenge. The rise of virtual assets has allowed yet another habitat for criminals to take advantage of and flourish in. This is due to virtual assets being recognized as a national currency and as a legal tender in certain jurisdictions while simultaneously maintaining their legal ambiguity to some extent in others.[6;7]

This research aims to answer three questions: First, how has the EU's attempts to regulate virtual assets evolved? Second, are the measures taken to mitigate the risk of financial

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[1] Financial Action Task Force. "Money laundering". Accessed November 20, 2021. Available on: https://www.fatf-gafi.org/faq/moneylaundering/.
[2] Council Directive 91/308/EEC of 10 June 1991 on prevention of the use of the financial system for the purpose of money laundering *OJ L 166*, 28/06/1991 P. 77 – 83. Available on: http://data.europa.eu/eli/dir/1991/308/oj. Accessed November 20, 2021.
[3] Directive 91/308/EEC.
[4] *Id.*
[5] *Supra* note 3.
[6] The New York Times associated press, "El Salvador Becomes First Nation to Make Bitcoin Legal Tender." The New York Times. Published on: 09.06.2021. https://www.nytimes.com/2021/06/09/world/americas/salvador-bitcoin.html.
[7] European Securities and Markets Authority, ''Advice on Initial Coin Offerings and Crypto-Assets.'' Report published on 9th of January 2019, ESMA50-157-1391. P.18.
Available at: https://www.esma.europa.eu/document/advice-initial-coin-offerings-and-crypto-assets.

crimes technologically neutral? Third, is the EU legislation evolving in the right direction, which is mitigating and countering financial crimes in a new environment to combat the misuse of new technologies that circumvent traditional supervision measures in anti-money laundering?

Before exploring these questions, the paper elaborates on technological innovations introduced after Bitcoin entered the playing field, and what economic implications for developments in sustainability, financial management, and business models have been rendered and conceptualised, underlining the importance of regulating virtual asset and the market they operate within without providing hurdles for continued development within the EU.

The analysis will be conducted by investigating the EU's legal development and its institutional responses on the issue of virtual assets. This research will be juxtaposed to the technical developments of virtual assets to determine whether or not the EU's legislative response has taken into consideration the technical challenges blockchain technology and its decentralised elements create in regulating and enforcing legislation. Furthermore, the technological neutrality of the EU's responses will be taken into consideration.

This paper conducts qualitative research and uses methodologies of interdisciplinary and empirical research methods as the paper analyses the perspective of the EU's regulatory policy in response to developments of virtual asset technology, its implications on global sustainability and economic developments, focusing on both sides of the coin - financial innovation and financial crimes. The paper further focuses and provides analysis of the EU's regulatory evolution in integrating virtual assets in its legislative framework with two goals:

1. Countering the use of virtual assets in financial crime and ensuring a safe market for consumers, investors and developers;

2. Establishing a coordinated legislative framework for virtual assets to counter legislative fragmentation among member states.

Furthermore, the paper has been divided into three separate parts. In the first part, elements of virtual assets will be investigated and implications of virtual asset integration within the global sustainability context are explored. In the second part, the EU's necessary legislative information, loopholes, financial crime risks and key points of response will be analysed, ascertaining whether or not the EU has managed to successfully regulate the decentralised elements of the virtual asset market, and what are the ongoing plans of action in regards to further regulation and supervision through developing the AML directive and the proposal of regulating the virtual asset market with the European Commission's proposed Markets in Crypto-assets regulation (hereinafter the MiCa regulation) for virtual assets and their service providers.[8] The paper recognizes the fact that the MiCa proposal has been internationally recognised as bespoke and comprehensive,[9] with the potential of setting global

[8] European Commission, Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937. COM/2020/593 final. Brussels, 24.9.2020.

[9] Vermaak, Werner. "MiCA: A Guide to the EU's Proposed Markets in Crypto-Assets Regulation." Sygna. Available on: https://www.sygna.io/blog/what-is-mica-markets-in-crypto-assets-eu-regulation-guide/.

standards.[10] In the last part, the conclusion of the analysis with an overview of discoveries will be provided.

This paper was limited in the use of quantitative data regarding virtual assets and their functioning within the EU financial market as quantitative research regarding virtual asset related crimes is highly limited. In the cases of it being available it is too broad and unreliable. For example, in 2019, an analysis of various empirical studies identified that the rate of Bitcoin transactions that are connected to illicit activities falls between 1 % and 46 % of the transactions.[11] While such data is being used, the paper identifies the broadness of it. However, as the market grows in regulation, qualitative research on the effect of regulation on the market will deepen as finance, legal and computer technology scholars will research this area through a quantitative approach while international relations scholars would focus on the political ramifications. Additionally, more doctrinal research can be conducted in the future with the increase of available case laws and as the financial sector will likely grow more digital and older legal doctrines will need to be examined in their functioning in the modern context, an example being the role of institutions within the digital market.

1. TYPES AND USES OF VIRTUAL ASSETS

The inception of the current mainstream virtual asset market can be traced to the launch of Bitcoin in 2009 from which it slowly began attaining monetary value, finally reaching its current status where it is regarded as a legal tender in some jurisdictions.[12;13]

As a result of the worldwide general accessibility of the virtual asset and the legal void, they have operated in, within their jurisdictions multiple regulators have begun asserting their authority by defining and categorising virtual assets, creating a complex and disharmonized legal milieu where there is no general consensus on the definition of virtual asset.[14]

While commonly accepted definitions of virtual currencies or virtual assets have yet to be established,[15] the EU provides the following definitions within its regulatory framework. Within the EU, the European Banking Authority (hereinafter the EBA) has defined virtual asset as "a digital asset that may depend on cryptography and exists on a distributed ledger" while in the proposed MiCa regulation, virtual assets are defined as "a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger

[10] Dashveenjit Kaur, "EU lawmakers approved a crypto legislation. Here's how it plans to regulate digital assets." Techhq. Published on: 21.03.2022. Available on: https://techhq.com/2022/03/eu-lawmakers-approved-a-crypto-legislation-heres-how-it-plans-to-regulate-digital-assets/. Accessed: 19.04.2022.
[11] *Infra* note 124.
[12] Piergiorgio Valente, 'Bitcoin and Virtual Currencies Are Real: Are Regulators Still Virtual?', (2018), 46, *Intertax*, Issue 6, pp. 541-542. Available at: https://kluwerlawonline.com/journalarticle/Intertax/46.6/TAXI2018055.
[13] *Supra* note 7.
[14] Deloitte, "Market Manipulation in Digital Assets," March 2021. Deloitte, p.4. Available at: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-design-market-manipulation-in-digital-assets-whitepaper-v2-1.pdf.
[15] FI Sweden Supervision Report. "Financial instruments with crypto assets as underlying asset." Report Nr 21. Accessed 22 February 2021 p.4. Available at: https://www.fi.se/en/published/reports/supervision-reports/2021/fi-supervision-report-21-financial-instruments-with-crypto-assets-as-underlying-asset/.

technology or similar technology".[16;17] Meanwhile, in the Directive (EU) 2015/849 of the European Parliaments and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council (hereinafter AMLD 5), defines virtual assets by what they have in common and what separates them from other electronic assets such as e-money and central bank digital currency.[18] The Directive establishes the following in order for assets to be regarded as a virtual asset:

a) Value is not issued or guaranteed by a central bank or a public authority;

b) Not attached to a legally established currency;

c) Does not possess a legal status of currency or money;

d) Accepted by natural or legal persons as a means of exchange;

e) Can be transferred, stored, and traded electronically.[19]

Researchers point out that virtual asset are not fulfilling traditional fiat money functions well, and can be understood and classified as "speculative assets expected to yield returns only as a result of capital gains.''[20] The reality of the virtual asset field is that numerous innovations are introduced on a monthly basis in the terms of new products that are designed with the combinations of various features of virtual asset technologies and distributed ledgers.[21] However, researchers distribute between two general categories of virtual assets and underline the importance of the distinction for the purposes of regulating and supervising the realm of virtual assets.[22] First, the category that is most similar to currencies - virtual assets, and second, initial coin offerings (ICOs), which resemble fundraising for institutions or networks with the promises of services in the future.[23] They further identify service providers - virtual asset exchanges and wallet providers as significant in the context of regulation and supervision as these are the entities allowing the exchange of fiat currency for virtual assets, providing brokerage services and holding of wallet keys.[24] This paper focuses specifically on the use of virtual asset, further elaborating on virtual assets as a product of evolving technology and the issues that arise, and the entities operating within the market of virtual assets.

According to the Policy Contribution delivered at the request of the Austrian Presidency of the Council of the European Union for the informal ECOFIN meeting of EU finance

[16] European Banking Authority, "EBA reports on crypto-assets." 09.01.2019. Available at: https://www.eba.europa.eu/eba-reports-on-crypto-assets.
[17] Proposal for the MiCa regulation.
[18] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU. *OJ L 156*, 19.6.2018, p. 43–74. Available at: http://data.europa.eu/eli/dir/2018/843/oj.
[19] *Id*. Amendments to Article 3(d).
[20] Grégory Claeys, Maria Demertzis and Konstantinos Efstathiou, ''Cryptocurrencies and monetary policy,'' *Bruegel Policy Contribution*, No.2018/10. (2018) Bruegel, Brussels.
[21] *Id*.
[22] Maria Demertzis; Guntram B. Wolff, ''The economic potential and risks of crypto assets: Is a regulatory framework needed?'' *Bruegel Policy Contribution*, No.2018/14. (2018) Bruegel, Brussels.
[23] *Id*.
[24] *Id*.

ministers and central bank governors in September 2018,[25] among the key public policy questions that the paper explores, concerning the developments of virtual assets and the blockchain technology are their economic implications and potential within the advanced financial systems already present, the question of best practices in combating illegal activity, and how to integrate blockchain applications within the existing legal framework.[26] This paper shall explore the identified territories.

1.1 Types of virtual asset

The progress of financial technology in the virtual asset market has in turn resulted in an increased need from investors and consumers to diversify the utility of virtual assets. As a result, different types of virtual assets have been developed to meet the specific demands of buyers. The most significant part of all virtual assets are virtual assets, with Bitcoin being the prominent one, and as such, the most significant part of the market capitalization of virtual asset is connected to Bitcoin. Hence, besides being a tool for the transaction of funds, the most popular virtual asset, Bitcoin is mainly regarded as a "digital gold" and used to store the value of their virtual investments.[27] Alternative types of categories for virtual assets include Stablecoins, decentralised smart contract platforms, governance tokens, native exchange tokens, cross chain protocol tokens, banker's coins, privacy coins and meme coins.

1.1.1 Stablecoins

Stablecoins are virtual assets that generally have their value tied to another asset such as a currency or valuable minerals i.e., gold.[28] This is done so to provide the buyers with breathing room in an extremely volatile and unregulated market where the prices are especially susceptible to short-term volatilities.[29] By providing the buyers with a coin they can cash their investments in without withdrawing funds in fiat currency, stablecoins have managed to maintain access to virtual assets for the general public by lowering the volatility of the general market and by acting as a bridge between virtual assets and fiat currencies. The role of stablecoins has further been emphasised as the number of transactions in virtual asset increases making a coin immune to virtual assets volatility necessary for buyers to conduct daily transactions and commercial exchanges.[30]

Stablecoin taxonomy can be divided into four separate categories: Fiat collateralized stablecoins, virtual asset backed stablecoins, commodity-backed stablecoins, and non-

[25] Maria Demertzis; Guntram B. Wolff, ''The economic potential and risks of crypto assets: Is a regulatory framework needed?''
[26] *Id.*
[27] Marion Laboure, "Bitcoin could potentially become the 21st century gold." Deutsche Bank. Available at: https://www.db.com/what-next/digital-disruption/dossier-payments/i-could-potentially-see-bitcoin-to-become-the-21st-century-gold.
[28] Alyssa Hertig, "What Is a Stablecoin?" CoinDesk. Last updated 09.03.2022. Available at:https://www.coindesk.com/learn/what-is-a-stablecoin/. Accessed: 21.04.2022.
[29] *Id.*
[30] Nasdaq. "Bitcoin Estimated Transaction Volume USD." Available at: https://data.nasdaq.com/data/BCHAIN/ETRVU-bitcoin-estimated-transaction-volume-usd. Accessed: 21.04.2022.

collateralized stablecoins. As their names suggest, these stablecoins are either tied to another asset or alternatively rely on computational algorithms.[31]

1.1.2 Governance & Native exchange token

For exchanges to establish decentralisation, a democratisation of the decision-making process decision-making must be established. Within Proof-of-Stake (PoS) systems to ensure that the decisions are made by only those who have a genuine interest in the exchange's potential, governance tokens are established and distributed, creating a democracy where each token represents one vote on how the exchange should shape to best satisfy its client's needs. The decentralised governance enabled by smart contracts has led to the formation of Decentralised autonomous organisations (DAOs) where traditional hierarchical organisations are instead replaced by democratised voting systems where every action of the organisation may be inspected by anyone due to the transparent nature of the blockchain.[32]

Alternatively, centralised exchanges distribute their own utility tokens which although do not provide any decision-making rights to their owners they, nonetheless, provide utility in a sense that they are incentivized by that exchange via lower transaction fees and reward programmes.[33]

1.1.3 Banker's coin

One of the benefits of virtual assets have been their faster transactions and lower costs making them a more attractive alternative compared to that of traditional banks. For this reason, coins such as Ripple networks XRP coin have been named as banker's coins as they have created an alternative cross-border transactions system exceeding the capabilities of Swift and even the upgraded Swift-go system.[34] However, compared to the Swift system which acts via correspondent banking accounts that financial institutions hold within each other, Ripple has the ability to send XRPs user to user, without the use of intermediaries as gateways. Due to its significant advantages over traditional systems, financial institutions such as Santandar, Axis Bank and Yes Bank have already begun incorporating the Ripple system.[35]

1.1.4 Smart contract platforms & Cross-chain protocol tokens

The term smart contract has been coined by legal scholar and computer scientist Nick Szabo who called the computer programs which are capable of automatically and autonomously executing an action or even a protocol after a set of conditions "has been fulfilled by parties as

[31] Alyssa Hertig, "What Is a Stablecoin?" CoinDesk.
[32] Ethereum.org. "Decentralized autonomous organizations (DAOs)." https://ethereum.org/en/dao/. Accessed: 21.04.2022.
[33] Binance. "Benefits of BNB." https://www.binance.com/en/bnb. Accessed: 21.04.2022.
[34] David Rodeck and Johan Schmidt, "Meet Ripple & XRP, Cryptocurrency For Banks." Published: 12.04.2022. Forbes. Available at: https://www.forbes.com/uk/advisor/investing/cryptocurrency/what-is-ripple-xrp/. Accessed: 21.04.2022.
[35] *Id.*

smart contracts due to their substantial functionality compared to their "inanimate paper-based ancestors" and their considerable potential for even further development.[36;37]

Technologies such as point of sale terminals, credit card terminals can be regarded as a crude version of smart contracts as the purpose of a smart contract is to satisfy contractual conditions by minimising both intentional or unintentional deviations with the help of a computerised transaction protocol that executes the terms of a contract and replaces the need for trusted intermediaries.[38]

Blockchains such as Ethereum have managed to process smart contracts by integrating an Ethereum Virtual Machine (EVM).[39] Furthermore, by combining smart contracts with a frontend user interface one can create digital decentralised applications (DAPP) running on top of Ethereum blockchains.[40] The increase of types of DAPPs available and due to their permissionless and transparent nature, meaning that anyone can create a DAPP using EVM while directly copying the code from another developer has led to the iteration of Web3, an existence of a separate digital milieu based on blockchain technology.[41;42] With the help of Cosmos APK developers are no longer limited by Ethereum to build their smart contracts and DAPPs on but are now able to create their own separate customised blockchains to meet their own specific needs.[43] To further realise the "internet of blockchains" of connecting all blockchains under one ecosystem a new innovative modular architecture and Intfor-Blockchain Communication protocol (IBC) has been designed.[44]

1.1.5 Privacy coin

As user's transaction history is publicly displayed due to the transparent nature of blockchain, a need for privacy-enhanced virtual asset have risen to obfuscate the transaction information on the blockchain.[45] Privacy tokens such as Z-cash and monero enable the user's to opt-in for an anonymous address providing the user with the privacy sufficient privacy to hide the transaction amount and parties to the transaction.[46]

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[36] Ethereum.org, "Introduction to smart contracts." Ethereum. Published: 14.04.2022. Available on: https://ethereum.org/en/smart-contracts/. Accessed: 21.04.2022.
[37] Nick Szabo, "Smart Contracts: Building Blocks for Digital Markets" 1996. Available on: https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html. Accessed: 21.04.2022.
[38] *Id.*
[39] Ethereum.org, Ethereum Virtual Machine (EVM). Ethereum. Last edited: 11.04.2022 Available on: https://ethereum.org/en/developers/docs/evm/. Accessed: 21.04.2022.
[40] *Id.*
[41] Ethereum.org, "Introduction to dapps." Ethereum. Last edited on: 11.04.2022. Available on: https://ethereum.org/en/developers/docs/dapps/. Accessed: 21.04.2022
[42] Ethereum.org, "Web2 vs Web3." Last edited on: 12.04.2022. Available on: https://ethereum.org/en/developers/docs/web2-vs-web3/. Accessed: 21.04.2022.
[43] Cosmos Network, "What is Cosmos?" Available on: https://v1.cosmos.network/intro. Accessed: 21.04.2022.
[44] *Id.*
[45] Paul Kim, "Privacy coins are cryptocurrencies that can be traded anonymously." Business Insider. Available on: https://www.businessinsider.com/personal-finance/privacy-coins?r=US&IR=T. Accessed: 21.04.2022.
[46] *Id.*

Another alternative for users to pursue is to use coinmixers in order to obfuscate the parties of the transaction the mixer blends users' coins in a pool of other virtual asset thus obfuscating the transaction history of the token.[47]

1.1.6 Meme coins

Meme coins are virtual assets based on internet memes resulting in the creation of a highly volatile and unpredictable market due to their extremely speculative nature. Its value is commonly dependent on its community and public endorsement.[48]

1.2 Types of wallets

On that note, it is best to keep in mind that wallets are another method for users to maintain their privacy as they no longer need to store their virtual assets in a Know-Your-Customer (KYC) compliant exchanges but may choose a variety of different types and categories to alternatively store their virtual wealth.[49]

Hosted wallets are provided when one creates an account for an exchange which then proceeds to act as a custodian for the user's virtual asset. The drawback of this type of wallet is its lack of anonymity as exchanges are KYC-compliant and may even freeze users' assets if requested by law enforcement.[50]

Unlike hosted wallets, in unhosted wallets, the users themselves are in the possession of their assets. By bypassing the need to host assets in a KYC-compliant exchange, the user is in effect obfuscating their ownership of their wallet, making it difficult for anyone to determine them being the owner of the wallet.[51]

However, to ensure total control, security, and privacy of their wallets, users may opt-in to instead use cold wallets. By doing this they choose to trade conveniences provided by online wallets in exchange for the security provided by offline physical devices such as hardware that acts similarly to a flash drive or even a piece of paper printed out with the encryption data, essentially ensuring physical control of one's virtual assets.[52]

2. THE BENEFITS OF VIRTUAL ASSETS RELATED TECHNOLOGIES

[47] Paul Kim, "Privacy coins are cryptocurrencies that can be traded anonymously."
[48] Binance, "What Are Meme Coins?" Published: 15.11.2021 and last updated 22.03.2022. Available at: https://academy.binance.com/en/articles/what-are-meme-coins. Accessed: 21.04.2022.
[49] Binance.com, "What Is a Crypto Wallet?" Published: 18.06.2019 and last updated 22.03.2022. Available at: https://academy.binance.com/en/articles/crypto-wallet-types-explained. Accessed: 21.04.2022.
[50] The U.S. Department of the Treasury, Frequently asked questions regarding the "Requirements for Certain Transactions Involving Certain Convertible Virtual Currency or Digital Assets." December 18.12.2020. Available at:
https://home.treasury.gov/system/files/136/2020-12-18-FAQs.pdf.
[51] *Id.*
[52] Jon Martindale, "The Best Crypto Wallets For Storing Bitcoin, Ethereum, Dogecoin And More." Forbes. Published: 19.07.2021. Available at: https://www.forbes.com/sites/forbes-personal-shopper/2021/07/19/best-crypto-wallet/. Accessed: 21.04.2022.

Academics and practitioners alike describe the financial innovations as revolutionary to how humans have learned to handle transactions, and argue that the existing systems for commerce and exchange of value are at risk of falling apart.[53;54] At the same time, they argue that these technologies are opening various doors that were previously closed and optimising already existing concepts in finance and provide significant benefits due to the economic implications of the technology. Modern innovations in digital finance hold the potential to revolutionise finance, and aid businesses and consumers alike, especially after being witnesses to the rapid nature of digitalisation of processes within the 2 years of the Covid-19 pandemic, and the prior developments.[55] Blockchain and virtual asset related technologies have become flagships in the development of the FinTech industry.[56] While the chapter explores various applications of virtual assets and transformations of financial processes that emerge, the overall potential is difficult to overstate.[57] It is important to underline that the digitalisation of finance aids in decreasing levels of global poverty while providing access to financial services to a larger number of individuals and provides alternatives to managing personal finance and business cash flow in an alternative way in regions in crisis or lacking development.[58] That could be, regions in war or occupation, characterised by unstable governance or a poor financial infrastructure whatever the reason may be.

2.1 Finance innovations and Sustainable Development

The technologies that have emerged since the introduction of blockchain and virtual assets allow for innovative business models to operate facilitating innovations in other sectors and the general economic welfare of societies. The significantly impactful increase in access to financial services aligns with the sustainable development goals of decreasing global levels of poverty and increasing global economic developments. This chapter explores the various technical elements that the technology enables and identifies their impact.

2.1.1 Financial innovations

With Bitcoin becoming more and more mainstream and new virtual assets being developed and released, the virtual asset has managed to become an attractive environment for the financial technology industry to expand. With the help of decentralised blockchain innovations this expansion has proven to be a success as currently parallel to traditional investment and trading

[53] Dirk Andreas Zetzsche and Ross P. Buckley and Douglas W. Arner and Linus Föhr, "The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators," Written on: 24.07.2018. University of Luxembourg Law Working Paper No. 11/2017, UNSW Law Research Paper No. 17-83, University of Hong Kong Faculty of Law Research Paper No. 2017/035, European Banking Institute Working Paper Series 18/2018, *Harvard International Law Journal*, Vol. 63, No. 2, 2019, Available at SSRN: https://ssrn.com/abstract=3072298.

[54] Iris H-Y Chiu, "A New Era in FinTech Payment Innovations? A Perspective from the Institutions and Regulation of Payment Systems," *Law, Innovation and Technology*: (2017) 9(2) 190.

[55] Institute of International Finance / Deloitte, 'Realizing the Digital Promise: Part 1' (2020) IIF / Deloitte Study, 4. Available on: https://www2.deloitte.com/global/en/pages/financial-services/articles/realizing-the-digital-promise.html. Accessed: 22.03.2022.

[56] Matt Keford, "4 Ways Blockchain Is Revolutionizing FinTech." BusinessBecause. 07.04.2021. Available at: https://www.businessbecause.com/news/insights/7534/blockchain-fintech. Accessed:19.04.2022.

[57] Leigh Cuen, "How emerging markets are approaching crypto." TechCrunch, 24.01.2021. Available at: https://techcrunch.com/2021/01/24/how-emerging-markets-are-approaching-crypto/. Accessed: 20.04.2022.

[58] The World Bank, "Digital Finance: Empowering the Poor via New Technologies." Published: 10.04.2014. Available at: https://www.worldbank.org/en/news/feature/2014/04/10/digital-finance-empowering-poor-new-technologies. Accessed: 20.04.2022.

methods such as derivatives, margin trading, and funds, one can alternatively invest in virtual asset by the following methods:[59]

- Yield farming

Yield farming enables the buyers to earn passive income by storing their virtual assets in a pool which similarly to banks uses the stored assets to credit loans. Buyers are then rewarded with a portion of the interest rate.[60]

- Liquidity mining

By pairing their virtual assets into another virtual asset such as Bitcoin and USDC-stablecoin and locking them in a liquidity pool, users are rewarded with transaction fees collected from the invested coin pair.[61]

- Staking

Buyers who lock their virtual assets in a staking pool are rewarded as their assets are being used to create new virtual asset and maintain network security.[62]

- Airdrops

Method for projects to reward their users by providing them free virtual assets in order to raise awareness of upcoming projects and services.[63]

- Crypto synthetic asset

Synthetic assets enable investments in the tokenized representation of forex exchanges of real-life currencies and stock markets possible.[64] This allows the user's to invest in synthetic stocks and currencies without the need of withdrawing the funds into fiat currency. Additional benefits of synthetic assets are its global access as only an internet connection is needed and its ease of transfer as users can easily transfer funds from wallet to wallet or even switch between different types of equities, synthetic currencies, or other different types of assets. Clearly, the way investing is being conducted has been transformed by virtual asset

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[59] Injective labs, "Injective: 2021 Review and the Road Ahead" Injective. Published: 01.01.2022. Available at: https://blog.injective.com/injective-2021-review-and-the-road-ahead/. Accessed: 21.04.2022.
[60] Olga Kharif, "What's 'Yield Farming'? (And How Do You Grow Crypto?)." Washington Post. Published: 09.09.2021. Available at: https://www.washingtonpost.com/business/whats-yield-farming-and-how-do-you-grow-crypto/2021/09/08/451af008-10f9-11ec-baca-86b144fc8a2d_story.html. Accessed: 21.04.2022.
[61] Willy Ogorzaly, "Liquidity mining is booming — Will it last, or will it bust?." Published: 27.03.2021. CoinTelegraph. Available at: https://cointelegraph.com/news/liquidity-mining-is-booming-will-it-last-or-will-it-bust Accessed: 21.04.2022.
[62] Binance.com, "What Is Staking?" Published: 22.09.2019. Last updated: 16.03.2022. Available at: https://academy.binance.com/en/articles/what-is-staking. Accessed: 21.04.2022.
[63] Andrey Sergeenkov, "What Is a Crypto Airdrop?" CoinDesk. Available at: https://www.coindesk.com/learn/what-is-a-crypto-airdrop/. Accessed: 21.04.2022.
[64] Coinbase. "Around the Block #8: The promise and potential of synthetic assets." Available at: https://www.coinbase.com/learn/market-updates/around-the-block-issue-8. Accessed: 21.04.2022.

technologies, and new doors have been opened. However, the technology allows for transformations in other fields as well.[65]

The paragraphs above point out in specific detail what techniques have already been identified within the modern investing and finance sector based on the innovations that have emerged since decentralised blockchain innovations emerged on the playing field. The innovations bring forth opportunities for virtual asset technology enthusiasts, hardware and software developers, investors, and companies as an increasing amount of digital solutions are developed by established companies and startups. Yet, the innovations since Bitcoin was developed in 2009 have been identified to transform already existing financial concepts as well. The following sub-chapters explore the various points of finance, where virtual asset related technologies have generated significant transformations, indicating a part of their impact.

2.1.2 Micropayment-friendly finance systems

The emergence of Bitcoin and technologies since have been generating economic implications through the provision of technical solutions that influence the general handling of finance. Payments in virtual assets such as Bitcoin may be made up to the eight decimal point, and without the fixed transaction fees that exist in regular fiat currency systems.[66] Companies and web analysts underline that this innovation is helpful in the digital realm for access to paywalled content like education courses, blog posts, music, movies, and others of the sort, providing changes in how subscription-based services may be handled.[67]

This development seems to imply that subscription-based services could be paid for outside of the 'all or nothing' access that is so common apart from free trials, as micropayment infrastructure without significant transaction costs would facilitate the environment in which a specific article, video or a specific part of an educational course could be purchased.[68] This change might affect business models that operate within the mentioned fields. Granted, the computing power to process payments increase other costs, e.g. consumption of energy, which fiat money transactions do not to the same extent, which combined with the environmental costs of proof-of-work virtual asset mining raise concerns and ought to be mitigated in the case of this development.[69] However, the possibility for effective use of micropayments has emerged, which had been heavily strained before the technologies that were introduced with the emergence of Bitcoin.

2.1.3 Ease of accessibility

One of the benefits of virtual asset technology is its accessibility. This transformation caused by virtual assets in the handling of finance holds potential for facilitating access to transactions in the developing world with limited access to banking services, but with access to mobile

[65] Coinbase. "Around the Block #8: The promise and potential of synthetic assets."
[66] Geeq, ''Micropayments: from costly dreams to frictionless reality?''. Available at: https://geeq.io/micropayments-dreams-to-reality/. Accessed: 19.04.2022.
[67] *Id.*
[68] *Id.*
[69] Nathan Reiff, "What's the Environmental Impact of Cryptocurrency?" Investopedia. Last updated: 21.12.2021. Available at: https://www.investopedia.com/tech/whats-environmental-impact-cryptocurrency/. Accessed: 19.04.2022.

networks, presenting a way to conduct global payments and transfers as well as storing funds.[70] This is useful for a plethora of reasons. One of these reasons is the greatly increased access to financial services, with the only requirements being - access to the internet on some piece of technology and knowledge on how to open an account. The growth of mobile connectivity to digital services combined with these FinTech developments change the playing field fundamentally.

Developing regions might find themselves with a means to access connectivity to what have been traditionally services of banks, for example - the sub-Saharan Africa region.[71] For example, individuals are granted another way for remittance,[72] as the technologies grant an easy and fast way of sending money home to countries in which bank branches are sparse. Furthermore, in theory, a person connected to a mobile network provided by a state company or by means such as Starlink stations provided by Elon Musk's company or an organisation aiding regions in crisis would have the possibility to conduct payments for services that would be relevant for their situation even in the case of traditional banking systems not operating within their country or being disrupted in functionality by an aggressive actor, terrorist forces or a foreign military occupation as examples.[73] These developments are underlined when considering the context of sustainable development and the, at the time of writing this paper, the ongoing war against Ukraine.

2.1.4 An alternative in financially unstable regions

Furthermore, an economic implication of this technology is that the technology may be used by citizens of countries in financial crises that are experiencing hyperinflation.[74] Even if virtual assets fluctuate in value frequently and can be deemed unstable, some economies crumble and their currencies are even less reliable.[75] As such, citizens of such countries might choose to handle finance in virtual assets. However, this development requires a certain amount of digital literacy within the region, country, or city in question. An important factor would be that businesses in these regions would follow the trend as well. However, to take the leap from a crumbling currency and/or unreliable financial institutions to a virtual asset is indeed logical under the right circumstances.

Furthermore, the previously described ease of accessibility, that comes along with the use of virtual asset technology, makes this leap easier with financial technology applications

[70] Jonathan B. Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." *Indiana Journal of Global Legal Studies* 21, no. 1 (2014): 335–68.
[71] The World Bank. 'Commercial bank branches (per 100,000 adults)'. Comparison between the global average and the average of the sub-Saharan region. Indications based on a Financial Access Survey conducted by the International Monetary Fund. Available at: https://data.worldbank.org/indicator/FB.CBK.BRCH.P5. Accessed: 09.04.2022.
[72] The World Bank. 'World Bank Predicts Sharpest Decline of Remittances in Recent History'. Press release. 22.04.2020. See: the importance of remittance in various regions. Available at: https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history. Accessed 09.04.2022; and United Nations, "Remittances and the SDGs." UN Observances. Available at: https://www.un.org/en/observances/remittances-day/SDGs. Accessed 09.04.2022.
[73] Thomas Barrabi, "Ukrainian soldier says Elon Musk's Starlink 'changed the war' with Russia." New York Post. Published: 28.04.2022. Available at: https://nypost.com/2022/04/28/ukrainian-soldier-says-elon-musks-starlink-changed-the-war-with-russia/. Accessed: 09.05.2022.
[74] Usman W. Chohan, "Cryptocurrencies and Hyperinflation." Discussion Paper Series: *Notes on the 21st Century*. Critical Blockchain Research Initiative (CBRI) Working Papers. Published: 21.03.2021.
[75] *Ibid.*

available on any device with access to the internet, as described before. This is an economic implication that would be of benefit to the developing world and economically unstable regions directly. Yet, it is to be underlined that the developments based on virtual asset technologies are not the ultimate solution for hyperinflation and unstable economies in the developing world.[76] However, the technology does indeed allow for alternative means of handling finance, provided that there is sufficient digital knowledge and access to the internet, which may be recognised as points of facilitation in relevant regions through the work of organisations and companies that work on these causes.[77]

As such, the communities of developing and underdeveloped regions, as well as regions in crisis, have been identified as potential beneficiaries of further developments of virtual asset related technology and their integration. The scope of the impact shall be seen through the context of long-term development, especially due to the education that is necessary for effective and efficient integration and use of these innovations. Furthermore, the experimental nature of virtual asset development ought to be underlined as well.

The technical points of transformations identified and possible applications of technology exemplified make a strong case for facilitating research and development of virtual asset technologies. Any regulatory frameworks implemented shouldn't hinder the innovations in this field. The paper further explores the beneficial applications and developments caused by the growth in the use of virtual asset technologies as recognised by the EU.

2.2 The European Union perspective

The European Union recognises the benefits of developing virtual asset related technologies. Within the discourse of the Parliament of the European Union in leading towards unifying policies around innovation, the benefits are provided succinctly. The Committee on Economic and Monetary Affairs report on virtual currencies in 2016,[78] identify the potential benefits to the development of the financial sector, economic development, and facilitation of citizens' welfare held by virtual currencies and distributed ledger technologies within the context of a ''rapidly evolving landscape of payments''. The characteristic benefits of these technologies are the following.

Firstly, the fact that transaction and operation costs are lowered is identified. Emphasis is set on the lowering of costs to conduct international transactions, where instead of the online payment system fee of 2% - 4%, and cross-border remittance transfer fee of 7%, a system for international transactions with a fee of less than 1% is now feasible.[79] The committee report references that optimistic estimates of reduction of global remittance cost up to EUR 20 billion are a potential development.[80] The developments of virtual asset utilisation in remittance transfers have been recognised as a significant aspect in decreasing the poverty of citizens

[76] Chohan, "Cryptocurrencies and Hyperinflation."
[77] Salah-Eddine Kandri. "Africa's future is bright—and digital." World Bank Blogs.October 23, 2019. Available at https://blogs.worldbank.org/digital-development/africas-future-bright-and-digital. Accessed: 19.04.2022.
[78] European Parliament Committee on Economic and Monetary Affairs, Report on Virtual Currencies (2016/2007(INI)). A8-0168/2016. Rapporteur: Jakob von Weizsäcker.
[79] *Supra* note 78.
[80] *Id*.

within at least 18 Sub-saharan African nations,[81] to indicate a small portion of where this aspect generates benefits.[82]

Secondly, the fact that access to finance grows easier and democratised, in the sense that more people would be granted this access, to the point that a traditional bank account may not be a necessity for transactions, financial inclusivity grows,[83] as the paper mentioned earlier in this chapter. The report references the contribution of these technologies in achieving the reality of the '5x5 objective' set by the G20 and G8 states.[84] That is, virtual asset related technology developments facilitate states' practical efforts within the objective of reducing global average remittance costs to 5% or less, important also within the context of the United Nations Sustainable Development goals.[85]

Furthermore, the report references observations on enhancements in the resilience of payment systems and trade in goods and services in the face of network malfunction or hacker attacks due to the architecture of distributed ledger technologies.[86] The increased speed of the payment system depending on which system is used is also identified.[87] The report finishes its listing of the benefits by recognising that the factors of ease of access and use, and low operating costs and costs of transactions, combine into possible systems with a high level of privacy of system participants in which technical security solutions for transactions may be developed to replace existing online business models that ensure less privacy.[88] A comment is additionally made that full anonymity is undesirable in regards to the participants in these financial systems to ensure that illicit actors are not given full anonymity, and can be tracked and caught.[89] And finally, the reported benefits provide a vision that solutions, such as user-friendly applications that combine payment mechanisms, credit mechanisms, investing, and other finance mechanisms could advance e-commerce developments within Europe and the Single Market.[90]

Clearly, the economic implications of digital transformation of finance, resources saved and potential for increasing the quality of life of individuals globally, that these technologies present, paint the landscape in optimistic colours for further innovations, and the EU institutions promise flexible institutional oversight not to discourage them.[91] On the other hand, the legal uncertainty and the globally uncoordinated approach to regulating and supervising the virtual asset market and the risks that emerge challenge the work of regulators, software developers, and investors and hinder the experience of users alike.

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[81] The World Bank. 'World Bank Predicts Sharpest Decline of Remittances in Recent History'.
[82] Michael Reeves, "Cryptocurrency-Remittance Transfers Futuristic Technologies & Poverty Alleviation." *Economics Student Theses and Capstone Projects* (2017): 56. Available at: https://creativematter.skidmore.edu/econ_studt_schol/56.
[83] Report on Virtual Currencies (2016/2007(INI)). A8-0168/2016.
[84] *Id.*
[85] United Nations. Remittances and the SDGs.
[86] Report on Virtual Currencies (2016/2007(INI)). A8-0168/2016.
[87] *Id.*
[88] *Id.*
[89] *Id.*
[90] *Id.*
[91] *Supra* note 78.

3. LEGISLATIVE BACKGROUND

The continuous high-speed evolution of virtual assets has made regulating them a difficult task due to their ever changing nature. Furthermore, as virtual currencies are not limited to any specific border or national jurisdiction but are able to circulate anywhere with internet access may result in conflicting regulations by different regulatory bodies creating a legal uncertainty among its users.[92]

As virtual assets began integrating a number of new economic activities such as staking and farming, which in many jurisdictions either operate on total legal void or the legislators have maintained the one size fits all policy and treat all virtual assets simply as "out of scope" or "property".[93]

However it is best to keep in mind that in jurisdictions such as Finland where virtual assets are classified as a property, it may not only affect property law and tax law but also have implications for insolvency, succession, restitution and commercial law more generally, as property is the foundation of numerous transactions and when virtual assets are operating in a legal void under the wide definition of property it is apparent that in order to fill the legal gaps by establishing uniform and methodical regulations a coherent, organised and multi-institutional approach is necessary.[94]

In the context of the European Union, one of the first institutional bodies to bring up their concern on virtual assets was the European Central Bank (ECB) which in 2012 recognized the lack of applicable laws to regulate these assets.[95] This resulted in the European Parliamentary Research Service (EPRS) escalating two main questions regarding virtual assets: first is even enforcement of legislation a possibility within the virtual asset milieu, and second would virtual asset be codified via new legislation or through the extension of existing ones.[96] In response, EBA provided a landmark opinion on virtual currencies seeking to answer the raised key questions.

Although EBA did outline the necessity to implement essential legislation for the purpose of preventing the use of virtual currencies for illegal purposes, nonetheless EBA maintained that consumers' privacy, transactions' security and availability of remedies in case of failures should be ensured by imposing basic obligations on the users of virtual currencies. For this reason, EBA put out a five-point recommendation on measures to regulate virtual assets:[97]

(i) establishment of specific (even decentralised) authority responsible for each virtual currency on the market,

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[92] Piergiorgio Valente, 'Bitcoin and Virtual Currencies Are Real: Are Regulators Still Virtual?', p.545.
[93] European Parliament. "Cryptocurrencies in the EU: new rules to boost benefits and curb threats." Press release. Published: 14.03.2022. Available at: https://www.europarl.europa.eu/news/en/press-room/20220309IPR25162/cryptocurrencies-in-the-eu-new-rules-to-boost-benefits-and-curb-threats#:~:text=Crypto%2Dassets%2C%20including%20cryptocurrencies%2C,market%20manipulation%20and%20financial%20crime.
[94] Finnish tax authority. Declaration of revenue from virtual currencies. Available at: https://www.vero.fi/henkiloasiakkaat/omaisuus/sijoitukset/virtuaalivaluutat/. Accessed: 09.05.2022.
[95] *Supra*, note 92. p.544.
[96] *Id*. p. 544.
[97] *Id*. pp.544-545.

(ii) some identification of consumers by other participants of virtual currency schemes, e.g. exchange service providers,

(iii) application of rules against market manipulation and insider dealing,

(iv) introduction of minimum capital requirements,

(v) provision of evidence on information technology (IT) systems' security etc.

EBA also stressed that an optimal regulatory approach should build on global consensus, taking into account that virtual currencies have by definition a global reach.[98] However, as an interim measure, EBA recommended the extension of the current legislation of anti-money laundering legislation to virtual currency exchange service providers.[99]

Subsequently, in 2015 the European Court of Justice in a preliminary hearing declared that "*virtual currency has no purpose other than to be a means of payment*" and as a result can be exempted from value added taxation. Although the court's judgement may have confused many investors it nonetheless allowed for virtual asset exchanges to operate with equal standing as those in traditional forex exchanges in the VAT perspective.[100]

Furthermore, ECB emphasised the necessity for member states to implement state level regulations and classified them into 4 main categories:

1. Defining the legal status of virtual asset via clarifying statements, especially in the field of legal taxation;
2. Implementing warning statements on the risks related to using virtual assets;
3. Establishing requirements for licencing and authorization of services related to virtual assets;
4. Establishing legal and illegal parameters for the uses of virtual assets.[101]

At an EU wide level however from a legal perspective, the brunt of legislative resources for regulating virtual asset has been dedicated to anti-money laundering directives. These have been amended to include entities that engage in fiat currency and virtual currency exchange services, and custodian wallet providers. Apart from those, the EU has not taken much further concrete actions on the matter of regulating virtual currencies and somewhat adopted a "wait and see" approach.[102]

[98] *Supra* note 97.
[99] *Id.*
[100] *Id*.
[101] *Id*.
[102] *Id*. p. 546.

CHAPTER II
ISSUE & ANALYSIS
4. FINANCIAL CRIMES AND ILLICIT USE OF FUNDS IN THE VIRTUAL ASSET REALM

Without any doubt, virtual assets are leading the innovation in the field of digital finance.[103] Academics and practitioners alike underline the potential of this technology to revolutionise how humans organise finance, as explored in the previous part. However, the following chapter identifies the risks associated with these developments. As the European Parliament Committee on Economic and Monetary Affairs has noted, the absence of flexible, reliable and resilient governance structures in distributed ledger technology applications generates uncertainty for users and problems for user protection.[104] The report further underlines that the issue grows more problematic in handling challenges not predicted by the designers of the software.[105]

The growth of virtual asset related markets has raised concerns within the financial, regulatory and academic fields on risks to the general financial stability. The volatility of the value of virtual assets and the potential for speculative bubbles, in a field without a traditional regulatory framework and oversight, safeguards, supervision and protection of consumers raises alarms within the Single Market of the European Union, especially as the challenge of providing a regulatory framework grows more complicated due to the rapid development of the distributed ledger technology.[106] The risks include operational disruptions, market fluctuation, the financial crimes of fraud, market manipulation, money laundering, underground market financing, terrorist financing and other illegal and/or criminal activities.[107;108] Furthermore, the risk of international actors being able to circumvent financial sanctions by alternative means of transactions and terrorism financing are present as well.[109]

The following part of this chapter discusses the environment that is rendered by the legal uncertainty and general lack of regulation within the realm of virtual assets and the financial crimes that may reap the benefits of said environment. The following parts of the chapter shall discuss various financial crime risks that emerge and transform along with the transformations in the field of finance caused by the innovative technology, and provide examples of cases of misconduct around the globe. The author chooses to provide global examples due to the nature of the technology used being digital and internationally available.

4.1 The risky virtual asset landscape

[103] Jerome Leon Saulnier and Ilaria, Giustacchini, "Digital finance: Emerging risks in crypto-assets – Regulatory and supervisory challenges in the area of financial services, institutions and markets." European Parliamentary Research Service. 17.09.2020.
[104] European Parliament. Report on Virtual Currencies (2016/2007(INI)). A8-0168/2016.
[105] *Id*.
[106] *Id*.
[107] Saulnier and Giustacchini, ''Digital finance: Emerging risks in crypto-assets – Regulatory and supervisory challenges in the area of financial services, institutions and markets''; and Warren, Jonathan M. "A Too Convenient Transaction: Bitcoin and Its Further Regulation." *Journal of Law & Cyber Warfare* 8, no. 1 (2020): 5–29. p. 6. Available on: https://www.jstor.org/stable/26915562.
[108] European Parliament. Report on Virtual Currencies (2016/2007(INI)). A8-0168/2016. P. 6.
[109] Thomas Clautice, "Nation State Involvement in Cryptocurrency and the Impact to Economic Sanctions" (2019). *Economic Crime Forensics Capstones*. 43. Available on: https://digitalcommons.lasalle.edu/ecf_capstones/43.

Since the introduction of Bitcoin in 2009 as the first decentralised virtual currency, with dependence on cryptography for its processes, virtual assets have grown into vastly known means of transactions and investments on a global scale with irreversible end-to-end transaction capabilities.[110] These technologies have not been introduced with the intent to grant criminals means of operating their activities in new methods. However, just as the legitimate aspects of the market are transformed and granted layers of privacy, fast transactions without institutional oversight, and the ability to conduct microtransactions without the limitations of transaction costs, so are the illegitimate aspects of the market.

The revolutionising nature of this innovation rendered it impossible to provide an immediate regulatory framework to operate within, AML and KYC processes were not designed to be inclusive of virtual asset transactions and hence required changes through developments in AML legislation.[111] The concern grows in that without sufficient regulatory oversight individuals have the potential to engage in traditionally illegal activities due to the legally grey and globally uncoordinated area virtual assets operate within.[112] Such an environment is attractive to criminals, specifically cybercriminals due to the technical nature of the virtual asset field, and the technology has been useful for illicit actors operating within the dark web or committing crime through fraud schemes and theft.[113] Virtual asset exchanges act as an intersection enabling users to swap one token to another, while at the same time enabling the purchase and sale of tokens via using fiat currencies and therefore creating a point in which illicitly obtained tokens can be exchanged for fiat currency usable for general purposes.[114]

The challenges in overseeing, identifying, detecting and investigating financial crimes within the realm of virtual assets also stem from the fact that they generally do not operate with the involvement of traditional financial institutions, as such circumventing the existing financial structures and mechanisms (e.g. the monitoring and reporting of suspicious activities conducted by banks) that are traditionally used to monitor suspicious actors and catch illegal activities.[115] Individuals are granted the freedom to exchange virtual asset on exchange platforms without involving a financial intermediary and exchange the value of the virtual asset into traditional fiat money, and while some exchanges have implemented anti-money laundering rules and protocols, they vary in comprehension, capacity to enforce and include weak points for potential exploitation.[116] An example of this variation within virtual asset exchange protocols is also the use of privacy coins such as Monero, Zcash or Dash among others. The subset of privacy coins are frequently used by criminals due to their specific focus

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[110] Europol, "Cryptocurrencies: Tracing the Evolution of Criminal Finances." Europol Spotlight Report series, Publications Office of the European Union, 2021 Luxembourg. Available at: https://www.europol.europa.eu/cms/sites/default/files/documents/Europol%20Spotlight%20-%20Cryptocurrencies%20-%20Tracing%20the%20evolution%20of%20criminal%20finances.pdf.

[111] *Id*.

[112] Claire Groden, Edoardo Saravalle, and Julia Solomon-Strauss, "UNCHARTED WATERS: A Primer on Virtual Currency Regulation Around the World." Center for a New American Security, 2018. http://www.jstor.org/stable/resrep20458.

[113] *Id*. and *Infra* sub-chapter 4.2.4.

[114] Binance. How to buy How to Buy Cryptocurrency .https://www.binance.com/en/support/faq/400c38f5e0cd4b46a1d0805c296b5582. Accessed 12.05.2022

[115] Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." p. 11.

[116] George Forgang, "Money Laundering Through Cryptocurrencies" *Economic Crime Forensics Capstones*. 2019: .40. Pp. 6-19.

on encryption, increased levels of privacy and obscuring sending and receiving addresses and transaction history.[117] While some virtual asset exchanges have taken advice from regulatory guidelines, some have opted not to follow suit, and the full use of privacy coins is challenging to estimate due to their technical nature.[118] However, the functioning of a digital market with self-regulation, privacy and focus on anonymity within transactions are among the grounds for the development of the virtual asset technology itself, and the trends and developments in regulating the market, raise concerns regarding decreased privacy and limitations on the utility of virtual assets among its users.[119]

Another aspect of the landscape is that unregulated markets have a higher frequency and fluctuate on a higher scale than regulated markets tend to.[120] In the case of Bitcoin, holders have experienced high exchange rate volatility due to waves of publicity and other factors such as reliance on speculation regarding cyber safety against potential hacks until 2017, the willingness of consumers to use the virtual asset and the degree of acceptance by merchants.[121] Apart from the volatility experienced in the first 5 years of the introduction of Bitcoin and the accompanying technology of Blockchain, a vivid example of market volatility and uncertainty that comes along with it is virtual asset market value fluctuations during the year 2018. In January 2018 the virtual asset market was at a peak value of over 800 billion U.S. dollars and in the third quarter of the year, the market value dropped to around 200 billion U.S. dollars.[122] Further, researchers indicate that bitcoins' value commonly fluctuates in hundred U.S. dollars on a daily basis.[123] These market fluctuations are mentioned as a leading aspect to a conscious activity that actors of the market may conduct in such an environment identified further in this chapter.[124]

4.2 Financial crimes with virtual assets

In 2019, an analysis of various empirical studies identified that the rate of Bitcoin transactions that are connected to illicit activities falls between 1 % and 46 % of the transactions.[125] The figure is vague and unclear, exemplifying the difficulties in tracing and connecting these

[117] Europol. "Cryptocurrencies: Tracing the Evolution of Criminal Finances." 2021.
[118] *Id*.
[119] Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." p.344; and PYMNTS. ''EU Starts to See the Unintended Consequences of Crypto Regulation'' March 1, 2022. Available at: https://www.pymnts.com/cryptocurrency/2022/eu-starts-to-see-the-unintended-consequences-of-crypto-regulation/. Accessed: 04.04.2022.; and Nikhilesh De, ''Europe's Landmark Crypto Regulation Is Advancing, but New Privacy Rules May Be More Important'' CoinDesk. March 29, 2022. Available at:https://www.coindesk.com/policy/2022/03/29/europes-landmark-crypto-regulation-is-advancing-but-new-privacy-rules-may-be-more-important/. Accessed: 04.04.2022.
[120]Jonathan M Warren, "A Too Convenient Transaction: Bitcoin and Its Further Regulation." Journal of Law & Cyber Warfare 8, no. 1 (2020): 5–29. p.9 https://www.jstor.org/stable/26915562. See also references in footnote 40 of the cited article.
[121] Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework."; and European Central Bank, "Virtual Currency Schemes 9." October 2012, available at: http://www.ecb.int/pub/pdf/other/virtualcurrencyschemes201210en.pdf. p.38.
[122] Maria Demertzis; Guntram B. Wolff, "The economic potential and risks of crypto assets: Is a regulatory framework needed?", *Bruegel Policy Contribution*, No. 2018/14, Bruegel, Brussels. p. 8.
[123] *Id*.
[124] *Infra*, sub-chapter 4.2.1.
[125] Dr. Valentina Covolo. "The EU Response to Criminal Misuse of Cryptocurrencies: The Young, Already Outdated 5th Anti-Money Laundering Directive." 13.12.2019. University of Luxembourg Law Working Paper No. 2019-015, Available at SSRN: https://ssrn.com/abstract=3503535.

transactions as studies would have such a vast range. The overall landscape of the virtual asset market establishes grounds for the potential conduct of different types of financial crimes, and this statement is confirmed by two clear trends that law enforcement agencies indicate. The trends are: 1) the number of criminal cases that involve the use of virtual asset is increasing; and 2) criminals increasingly shift to the use of tokens that grant greater levels of anonymity.[126] The illicit types of activities using virtual assets can be categorised into the following groups:

1) highly technical cybercrimes that require specialists for conducting, examples being theft, hacking, attacks on virtual asset exchanges, mixing of illicit funds within the realm of virtual asset transactions and other technically complex crimes;
2) white collar crimes that are regulated within traditional financial systems, but are in a legally grey area within the virtual asset realm allowing workarounds to existing legal structures, examples being - tax evasion or currency manipulation;
3) well known and traditional financial crimes like illegal trafficking, money laundering and terrorist financing, which are made easier due to the privacy that can be obtained in transfers and payments and identities obscured in virtual asset usage.[127]

The further sub-paragraphs will explore the nature of these crimes in the virtual asset context.[128]

A place where all the aforementioned categories can be found in one location is the dark web where services ranging from kidnapping, assassination and providing illegal substances to providing criminals with clean bank accounts and money transfer business service accounts such as PayPal accounts to be used to on and off-ramp their funds.[129] For a list and ease of access to such services, see Annex I to this paper.

4.2.1 Currency manipulation

White collar crimes traditionally operate well in fields without regulatory oversight. Symptoms of lacking regulatory oversight are deep, visible and frequent in market fluctuations, which as discussed has been witnessed in the case of Bitcoin.[130]

Currency manipulation is especially concerning in the case of the leading virtual asset Bitcoin and in virtual asset networks that are connected to it.[131] The key issue is that a small number of individuals hold enough of the virtual asset to influence the overall market.[132] The prominence of potential abuse of market power is identified within smaller networks, the potential of abuse seems to be correlating with the small size of the network.[133] The trend of

[126] *Id*.
[127] *Id*.
[128] http://2jwcnprqbugvyi6ok2h2h7u26qc6j5wxm7feh3znlh2qu3h6hjld4kyd.onion/. Accessed: 11.05.2022
[129] Europol (2021), Cryptocurrencies - Tracing the evolution of criminal finances, Europol Spotlight Report series. https://www.europol.europa.eu/cms/sites/default/files/documents/Europol%20Spotlight%20-%20Cryptocurrencies%20-%20Tracing%20the%20evolution%20of%20criminal%20finances.pdf. Accessed: 11.05.2022
[130] CoinDesk, "Bitcoin price chart." Available on: https://www.coindesk.com/price/bitcoin/. Accessed: 31.03.2022.
[131] Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." p.10.
[132] *Id*.
[133] Joseph Abadi. and Markus Brunnermeier (2018) 'Blockchain economics', mimeo, Princeton University.

new small scale networks developing underlines the risk factor. An example of manipulating the market would be the case of the doge coin which Elon Musk is accused of using for pump and dump schemes due to him utilising his strong social media presence to spotlight the token.[134]

4.2.2 Illegal market operations and AML and KYC challenges

Money laundering is the most significant point of concern with the innovative technology of virtual asset related technologies, as it offers a new effective means for the process.[135] Money laundering is understood as the process that is used by illicit market actors to hide the relation between illegally obtained money and the activities leading towards obtaining these funds, which has traditionally been a difficult process of integrating the illegal funds within the functioning of a legitimate business in order to direct the funds into the general market, which later are replaced by legitimate money from the legitimate business.[136]

Virtual assets, however, have transformed this landscape and can be attractive to money launderers due to quite a few characteristics.[137] Two of the characteristics are the difficulty to trace transactions to any particular individual and the speed of the transaction process.[138] For example, Bitcoin transactions can be made with pseudonyms and relative anonymity, and without requirements of connecting bank accounts and cards, with various alternative methods of obscuring any personal identification by taking extra steps.[139] And even if the blockchain network of Bitcoin keeps a public ledger of the transactions, the use of aliases and various identities limits how useful the information of the transaction ledger is to enforcers of law and investigative entities.[140] An iconic and comic example of the range of this issue are Bitcoin transactions being traced to an individual of the name Mickey Mouse residing in '123 Main Street' in subpoena returns.[141] Based on these factors, the traditional methods of money laundering are circumvented when conducted in virtual assets and the time necessary to conduct such schemes is condensed into the timespan of a virtual asset transaction.[142]

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[134] Shivdeep Dhaliwal. "Dogecoin a 'Victim of Pump and Dump Scheme' by Elon Musk, Says Analyst." Business Insider. Accessed 12.04.2022. https://markets.businessinsider.com/news/stocks/dogecoin-a-victim-of-pump-and-dump-scheme-by-elon-musk-says-analyst-1030522149.

[135] Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." p.10.

[136] *Ibid*. and see their reference Nr. 45 to Nicholas J. Ajello, Brookl. L. Rev. 435. 444 (2015).

[137] George Forgang, "Money Laundering Through Cryptocurrencies" (2019). *Economic Crime Forensics Capstones*. 40. Pp. 6-19.
Available at: https://digitalcommons.lasalle.edu/ecf_capstones/40.

[138] Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework."

[139] Amanda B. Johnson, "9 Ways to Buy Bitcoin without a Bank Account," COIN TELEGRAPH . Published: 07.07.2015. Available on: https://cointelegraph.com/news/9-ways-to-buy-bitcoin-without-a-bank-account. Accessed: 28.02.2022.

[140] Joshua Fruth, "'Crypto-cleansing:' strategies to fight digital currency money laundering and sanctions evasion." Reuters. Available at:
https://www.reuters.com/article/bc-finreg-aml-cryptocurrency/crypto-cleansingstrategies-to-fight-digital-currency-money-laundering-and-sanctions-evasionidUSKCN1FX29I. Accessed: 04.04.2022

[141] Corinne Ramey, "The Crypto Crime Wave is Here. The Wall Street Journal. 26.04.2018. Par.38, source: former U.S. attorney with the Justice Department. Available at: https://www.wsj.com/articles/the-crypto-crime-wave-is-here-1524753366. Accessed: 04.04.2022.

[142] Warren, "A Too Convenient Transaction: Bitcoin and Its Further Regulation.". p.10. and Turpin. "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework.". p. 356.

An example case here can be mentioned is the illegal drug market called The Silk Road which based its success on perceived anonymity obscuring the identities of the sellers and buyers which was achieved by utilising the TOR network, which provides internet users with a certain level of anonymity and by accepting only obscured Bitcoin transactions.[143] Due to procedural mistakes on the part of the website operator, the site ceased action and was shut down after the Federal Bureau of Investigation (FBI) traced the creator with traditional investigation methods.[144] However, other websites operating with the same goal have been launched,[145] and other virtual assets with increased levels of untraceability have been created, a strong example being Monero,[146] Zcash,[147] in the subset of privacy coins,[148] and the combination of TOR and near untraceable virtual assets enable various illegal markets to develop as more layers of privacy can be obtained which may benefit illicit market actors.

Another example worth underlining is a drug trafficking case in which 174 different bank accounts were used, and recognising how easily traceable their actions were, modified their operations to integrate the use of virtual asset technologies within their scheme.[149] The case included an investigation conducted by Europol, the Spanish Guardia Civil, the U.S. Homeland Security and relevant authorities in Finland after detecting and investigating a globally spanning scheme resulting in the apprehension of 11 individuals and confiscation of 8 million dollars.[150]

In regards to money laundering, large sums of money that could be identified and monitored through traditional structures and mechanisms of financial institutions become heavily obscured in terms of traceability and incredibly effective in transaction speed, without any indication to relevant authorities.[151] While the EU requires virtual asset exchanges to conduct due diligence, and are required to report suspicious activity to investigative bodies, Financial Intelligence Units (FIUs), money launderers include steps and utilise unlicensed

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[143] *Id.* p. 358.

[144] Kim Zetter, How the Feds Took Down the Silk Road Drug Wonderland, WIRED Published 18.11.2013. Available at: http://www.wired.com/threatlevel/2013/11/silk-road/. Accessed: 31.03. 2022.

[145] Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework.". p. 358.

[146] Amrit Kumar, Clement Fischer, Shruti Tople, Prateek Saxena, A Traceability Analysis of Monero's Blockchain in *European Symposium on Research in Computer Security (ESORICS)*. September 2017, Microsoft. Available at: https://www.microsoft.com/en-us/research/publication/a-traceability-analysis-of-moneros-blockchain-2/.
Findings indicate ways of tracing Monero nodes within the blockchain, however, work to improve untraceability has been done.

[147] Benjamin Powers, Ollie Leech, ''What Is Zcash? The Privacy Coin Explained.'' CoinDesk. Jan 26, 2022. Available at: https://www.coindesk.com/layer2/privacyweek/2022/01/26/what-is-zcash-the-privacy-coin-explained/. Accessed: 04.04.2022.

[148] In the case of Monero - transactions have great difficulty being traced with any certain individual due to the nature of transaction signatures which are shared by a large number of people; and Zcash - ensuring transaction privacy by erasing transaction history. Key aspect: these technologies have not been invented to help criminals, but as innovative inventions in finance technology. Just as with any other technology, users of various morality find a use for them.

[149] Europol, "Illegal network used cryptocurrencies and credit cards to launder more than EUR 8 million from drug trafficking." Europol. [Press Release]. 09.04.2018. Available at: https://www.europol.europa.eu/media-press/newsroom/news/illegal-network-used-cryptocurrencies-and-credit-cards-to-launder-more-eur-8-million-drug-trafficking. Accessed: 04.04.2022.

[150] *Supra* note 149.

[151] Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework."

exchanges or through virtual private networks (VPNs) utilise virtual asset exchange services outside of the EU, with unrestrictive AML and KYC protocols.[152] The issue grows more concerning as services that explicitly provide money laundering services emerge within the online realm.[153];[154] These services are known as mixers, blending various virtual assets towards various digital wallets and addresses, non-compliant exchanges and other services.[155]

Furthermore, a known approach to launder illicit funds through virtual assets happens within gambling platforms, often in an organised manner, placed in bets and played, and after cashing out from the platform funds are legitimate.[156] KYC requirements are generally low within such gambling platforms. In 2020 NBC reported the existence of around 70 virtual assets friendly gambling platforms that have experienced an intake of value of 10 billion dollars in a year, to underline the usage of such platforms.[157]

Apart from the complex financial crime of money laundering, traditional financial crimes have also been transformed in the new landscape.

4.2.3 Fraud

Another type of illegal activity that has been transformed is fraud targeting investors. Fake exchanges and fake virtual currencies, and fake wallet providers have been witnessed and the authors of these scams target investors by making them believe that they are acquiring virtual assets from a legitimate website, asking for credit card information and payments or stealing the funds from the fake wallet.[158]

These criminal activities target the interested audience with various levels of knowledge ranging from expert investors dabbling in new territory to amateur investors. A historical case in this regard is the case of Bitcoinica, where the virtual assets exchange service provider was accused of foul play and theft of investor funds of more than four hundred and sixty thousand dollars, which became the grounds for the first lawsuit in regards to Bitcoin.[159] Another case worth mentioning that underlines the risks is the Ponzi scheme set up as a fund by the name of "Bitcoin Savings & Trust'' which promised incredible returns of 12%+ and higher per month, scamming investors for approximately 146,000 BTC worth $807,380 at the time of the scheme.[160] Investment fraud issues like these impact the general public's perception of virtual

[152] Europol, "Illegal network used cryptocurrencies and credit cards to launder more than EUR 8 million from drug trafficking."
[153] Sofia Del Monaco, "Money mules and tumblers: money laundering during the cryptocurrency era. Ca' Foscari University of Venice." *EUDIFIN Research Working Paper* No. 10.04.2020.
[154] Tom Sadon, "Money Laundering: The Key to Cryptocurrency Crime." Cognyte. Published: 07.11.2021. Available at: https://www.cognyte.com/blog/anti-money-laundering-cryptocurrency/#. Accessed: 20.04.2022.
[155] *Id*.
[156] *Id*.
[157] Kevin Collier, "Crypto casinos: How bitcoin opened up a new online gambling world." NBC news. Available at: https://www.nbcnews.com/tech/crypto/crypto-casinos-bitcoin-opened-new-online-gambling-world-rcna23062. Last accessed: 20.04.2020.
[158] Warren, "A Too Convenient Transaction: Bitcoin and Its Further Regulation." pp. 11-12.
[159] Adrianne Jeffries, "Bitcoin woes: users file lawsuit over $460k in missing funds." Published: 10.08.2012. The Verge. Available at: https://www.theverge.com/2012/8/10/3233711/second-bitcoin-lawsuit-is-filed-in-california. Accessed: 31.02.2022.
[160] Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework." p.346; and Pete Rizzo, "Bitcoin Ponzi Scheme Operator Sentenced to 18 Months in Prison." CoinDesk. Published: 22.07.2016. CoinDesk. Available

assets and damage public confidence, possibly making virtual assets less attractive to new investors until more security is established.[161] Similarly, a classic illegal activity has been given the chance to operate on a new playing field.

4.2.4 Theft

The risk of theft of funds is present also within the realm of virtual assets. On one hand, blockchain technologies that construct the system in which virtual assets like Bitcoin and Ethereum operate within are incredibly secure, and hacking or creating fake systems that a knowledgeable user would be introduced to are unlikely.[162] On the other hand, the user-end computers, broker systems and exchanges all vary in technology competencies and are set up at various levels of IT security, and can be recognised as vulnerable points of entry for hackers with the intent to commit robberies.[163]

Europol reports cases in which hackers have identified weak points in the ledgers and have stolen hundreds of millions of Euros.[164] A case here is a heist conducted by hackers emptying the digital wallets of a digital wallet service provider company Bitinstant, ultimately stealing more than twelve thousand dollars, because of vulnerabilities in the security system of the operator of the service.[165]

4.2.5 Sanctions evasion & digital cleansing

Another risk that has emerged is a process known as crypto cleansing that has been used in various states to avoid financial sanctions.[166] This is the case due to the level of technical privacy possible to obtain within the virtual asset field utilising it to the full extent with privacy coins and VPNs, burner email addresses, anonymous digital wallets and involving persons with clean records to be the strawmen of criminals using pseudonyms.[167]

The function of these strawmen is both to on-load illicitly obtained cash and offload clean funds into the virtual asset systems through processes that are known as on-ramp and off-ramp.[168] For additional security, these ramps may be located in offshore banks such as those in Dubai where there are less severe compliance mechanisms implemented and as a result,

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at:https://www.coindesk.com/markets/2016/07/21/bitcoin-ponzi-scheme-operator-sentenced-to-18-months-in-prison/. Accessed: 31.03.2022.

[161] Turpin, "Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework.". p. 348.

[162] *Id.* p.345.

[163] *Id.*

[164] Europol, "Illegal network used cryptocurrencies and credit cards to launder more than EUR 8 million from drug trafficking." and see: BBC News (2021), "Hackers steal $600m in major cryptocurrency heist," Accessible at https://www.bbc.com/news/business-58163917. Accessed: 18.04.2022.

[165] Robert McMillan, ''Hackers Pull Off $12,000 Bitcoin Heist'' Wired. Published: 7. 03. 2013. Available at: http://www.wired.com/wiredenterprise/2013/03/digital-thieves-pull-off-12000-bitcoin-heist/?cid=co6246174. Accessed: 31.03.2022

[166] Pascal Sprenger and Franziska Balsiger, "Anti-Money Laundering in times of cryptocurrencies." KPMG. June 2018. Available on Google Scholar. Accessed: 19.04.2022.

[167] *Id.*

[168] Joel Zhao, "Take The First Step Into Crypto: Understanding How, And Where, To On-Ramp and Off-Ramp." ChainDebrief. 09.03.2022. Available at: https://chaindebrief.com/how-to-on-ramp-and-off-ramp-crypto. Accessed: 20.04.2022.

criminal transactions such as large deposits and withdrawals remain unquestioned by local authorities.[169]

Furthermore, these offshore banks are eager to share their client information with other countries which will impede any investigations by foreign law enforcement.[170] The deposited funds are then used to purchase primary coins, which in turn are utilised to obtain alt-coins for layering confusing the audit trail after the use of developed tools that swap primary coin addresses to temporary wallet addresses in order to disrupt the traceability in the ledger.[171]

The ability to utilise virtual asset technologies to avoid sanctions regimes damages the utility of financial sanctions as an instrument in international law that is imposed in grave international concerns, examples being human rights violations, and countering extremist groups among others.[172] Countries such as Iran, Russia, Venezuela and North Korea all have been documented of using virtual assets to circumnavigate the effects of sanctions regimes imposed by the EU, U.S.A and the UN.[173] Furthermore, financial sanctions are placed upon certain companies and individuals. As such, insufficient global coordination poses a great risk within the context of international law and the effective usage of financial sanctions, indicating a need for global standard setting for virtual assets usage within this context.

Clearly, the emerging virtual asset technologies have been transformative on both sides of the coin regarding the financial field. In general, the academic and governing consensus is that an approach to mitigate these risks through regulation is a necessity. Some countries have already made attempts to integrate virtual asset finance within their systems. However, within the context of the functioning of the EU Single Market, coordination in legislative frameworks is desirable for ensuring that bureaucratic redundancies do not emerge that would discourage developments within the digital finance sector. The further sub-chapters shall explore the evolution of the EU approach in risk mitigation through regulation of virtual asset use in money laundering and developing regulation for the market in general.

4.3 Analysis of the EU approach in risk mitigation

Various jurisdictions across the globe have taken varying degrees of action to tackle the matter of monitoring and identifying money laundering and other illicit activities within the virtual asset market.[174] On the other hand, other countries have decided to adopt a 'wait and see'

[169]Peter Kirechu, "Dubai's Vulnerability to Illicit Financial Flows." Carnegie Endowment For International Peace. p.49-50.
Available at: https://carnegieendowment.org/files/PageVittori_DubaiCorruption_final.pdf. Accessed: 11.05.2022.

[170] Fabian Maximilian Teichmann, "Recent trends in money laundering and terrorism financing." Teichmann International AG, St. Gallen, Switzerland. P.7. Available at: https://www.emerald.com/insight/content/doi/10.1108/JFRC-03-2018-0042/full/html.

[171] Pascal Sprenger and Franziska Balsiger, "Anti-Money Laundering in times of cryptocurrencies."

[172] Emma K. Macfarlane, "Strengthening Sanctions: Solutions to Curtail the Evasion of International Economic Sanctions through the use of Cryptocurrency." University of Michigan Law School. 2021. Available on: HeinOnline.

[173] *Id*.

[174] Claire Groden, Edoardo Saravalle, and Julia Solomon-Strauss. "UNCHARTED WATERS: A Primer on Virtual Currency Regulation Around the World."; and COIN DESK, "Is Bitcoin Legal?" Available on: https://www.coindesk.com/learn/is-bitcoin-legal/. Accessed 30.03. 2022.

approach and are not regulating the rapidly evolving field.[175] The inconsistent regulatory framework across the globe,[176] especially within the region of the European Union are identified by academics as a key factor that enables financial crimes to take place within the virtual asset realm.[177] Increased efforts in the international coordination of regulation of virtual asset markets and actors would decrease the risks of evasion of international sanctions, foster legal certainty and predictability of regulation of virtual assets within the geographical scope of the region.[178] Furthermore, such developments are recognised to incentivise institutional investors in developing the virtual asset field and to encourage the work to decrease levels of volatility of the market.[179]

In general three fields of issues are recognised in regards to the risk of financial crime activities mentioned. First, the high levels of privacy, and anonymity granted by the use of virtual asset transitions, that obscure the transactions of whatever type of financial crimes they may be connected to.[180] Secondly, there is the issue of uncoordinated regulation and supervision principles globally, that permit choices of jurisdictions and evasions of developed regulatory frameworks, hindering also the development of the technology as developers operate in unpredictable fields.[181] And third, the lack of institutions with authority in assessing the legitimacy of virtual asset transactions operating as a third party without any conflicts of interest.[182]

While a globally coordinated approach to handle the issues of anonymity, oversight and other factors that provide vulnerabilities within the virtual asset system and attract the attention of illicit users is at the level of academic discourse, such a framework has not been implemented. However, the paper shall now focus on the approach taken and planned within the EU. The EU is continuously amending its AML regulatory policy as developing technologies are presented disrupting the field, as a result, an action plan regarding digitalisation of finance in the EU is on the agenda for the European Commission for the term until 2024.[183] Furthermore, proposals for an institution specifically designed for AML purposes, a proposed regulation regarding AML, amendments to the AML Directive and the MiCa regulation are proposed to establish a coordinated EU virtual asset market regulatory framework.[184] Furthermore, through targeted sectoral legislation amendments and defining efforts presented in the developing legal framework, boundaries are being drawn regarding which virtual assets fall within the scope of existing financial services legislation, e.g. MiFID

[175] Groden, Saravalle, and Solomon-Strauss. "UNCHARTED WATERS: A Primer on Virtual Currency Regulation Around the World."
[176] *Id*.
[177] European Banking Authority, "EBA reports on crypto-assets." 09.01.2019. Available at: https://www.eba.europa.eu/eba-reports-on-crypto-assets.
[178] Macfarlane, "Strengthening Sanctions: Solutions to Curtail the Evasion of International Economic Sanctions through the use of Cryptocurrency."
[179] *Id*.
[180] *Id*.
[181] *Supra* note 178.
[182] *Id*.
[183] European Commission. Communication on the Digital finance package. Published: 24.09.2020. Available at: https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en.
[184] European Commission. Anti-money laundering and countering the financing of terrorism legislative package. Published: 20.07.2021. Available at: https://ec.europa.eu/info/publications/210720-anti-money-laundering-countering-financing-terrorism_en.

II, and the regulation of stablecoins, which is especially necessary as one size fits all policy definitions can not accommodate for the diverse range of virtual assets.[185]

The framework is described as bespoke and holds the potential to paint the EU as a standard setting actor in regulation and policy regarding the virtual financial market, harmonising this sphere of EU legislation on a large scale.[186] Early-stage regulation in the EU would ensure that various jurisdictions do not further undergo fragmentation or legal approaches, and avoid the financial risks of virtual assets in a common manner while integrating the technology in the single market. This chapter analyses the efforts done by the EU in developing a legal framework for handling these issues while being flexible enough not to limit the innovations of the technology.

4.3.1 The 5th AML Directive, inclusivity of virtual assets and its drawbacks

The European Union has repeatedly adopted Financial Action Task Force (FATF) recommendations since 1989, which have been key principles of the AML directives within the Union.[187] As discussed previously, virtual asset related technology has been integrated into the techniques of money launderers and terrorism financing, among other illicit activities. The FATF recommendations have accounted for that and provided recommendations responding to the use of these technologies for illicit purposes.[188] These recommendations are continuously commented on and updated. The 5th Anti-Money Laundering Directive,[189] transposed in national legal frameworks by 10th January 2020, replaced the Directive (EU) 2015/849 (4th AML Directive),[190] with the goal of tackling the impact of developing technologies and virtual asset applications in the conduct of financial crime. This inclusion did not require changes in the definition of money laundering, as per Article 1(3) Directive 2015/849/EU,[191] indicating that the illicit action itself, from a legal perspective, has not changed in definition but merely from technique standpoint.[192]

This also holds true for the definition in the proposed 6th AML Directive,[193] making the reference to 'property', inclusive of 'assets of any kind, whether corporeal or incorporeal,

[185] Maria Demertzis; Guntram B. Wolff, ''The economic potential and risks of crypto assets: Is a regulatory framework needed?''.
[186] Werner Vermaak, "MiCA: A Guide to the EU's Proposed Markets in Crypto-Assets Regulation."
[187] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[188] FATF, 'Regulation of Virtual Assets', Paris, 19.10.2018. http://www.fatf-gafi.org/publications/fatfrecommendations/documents/regulation-virtual-assets.html; and FATF (2012-2022), International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation, FATF, Paris, France, www.fatf-gafi.org/recommendations.html, hereinafter FATF Recommendations.
[189] Council Directive 2018/843 of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU. *OJ L 156*, 19.6.2018, pp. 43–74. Available at: http://data.europa.eu/eli/dir/2018/843/oj. (The 5th AMLD).
[190] Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC. *OJ L 141*, 5.6.2015, p. 73–117. Available at: http://data.europa.eu/eli/dir/2015/849/oj. (The 4th AMLD).
[191] The 4th AMLD.
[192] Dr. Valentina Covolo, The EU Response to Criminal Misuse of Cryptocurrencies.
[193] Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the mechanisms to be put in place by the Member States for the prevention of the use of the financial system for the purposes of money laundering or terrorist financing and repealing Directive (EU) 2015/849, COM/2021/423 final.

movable or immovable, tangible or intangible, and legal documents or instruments in any form including electronic or digital, evidencing title to or an interest in such assets'.[194]

Among clarifications and increased strength of measures, the EU has extended the applicability of the 4th AML Directive to include within its scope virtual currency exchange platforms and wallet providers by extending the scope to entities "engaged primarily and professionally in exchange services between virtual currencies and legally established currencies as well as offering custodial services of credentials necessary to access virtual currencies"[195] As such, entities serving as gates for virtual transactions are targeted by the Directive, increasing the KYC protocols.[196] Therefore, these entities became subject to the same AML and counter-terrorism financing (CTF) rules that regulate other actors operating within the financial sector, such as traditional financial institutions and auditors. [197]

The key obstacles in the implementation of AML rules in regards to virtual asset risks do not relate to the use of virtual assets per se.[198] Rather, the challenges are found in applying the AML standards and rules in the identification, traceability, and investigating money laundering in the virtual asset realm.[199] This is a slow step-by-step process and a daunting task, considering the scale of how these technologies transform the nature of transactions and the rate of innovation present. So, among the key points of the 5th AML Directive is that virtual asset transfers would be integrated within the scope of the AML/CTF framework of the EU even in their largely unregulated stage.[200] It follows that among the goals is the application of due diligence, internal control, and reporting procedures to key entities operating in the virtual asset realm in accordance with the FATF recommendations.[201] The first steps of such efforts were the clarification of what exactly is meant by virtual asset, and the 5th AML Directive established for the first time a harmonised legal definition worded as follows.[202] The AML Directive identifies virtual assets as a "digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but it is accepted by natural or legal persons as a medium of exchange and which can be transferred, stored and traded electronically".[203]

As per the Directive, their duties include the performance of customer due diligence, the submission of suspicious activity reports, journaling, and keeping internal control. Another key aspect is that the Directive grants the Financial Intelligence Units authority for the obtaining of identity and address of holders of virtual assets, which in turn directly affects the

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Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0423. (Proposal for the 6th AMLD).

[194] *Id*.

[195] European Parliament Committee on Legal Affairs. 12/2016 Committee on Legal Affairs opinion (PE594.003) 4 art.2, co.5. Available at: https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2016/0208(OLP); Source obtained in Sofia Del Monaco, ''Money mules and tumblers: money laundering during the cryptocurrency era.''

[196] Del Monaco, ''Money mules and tumblers: money laundering during the cryptocurrency era.''

[197] *Id*.

[198] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."

[199] *Id*.

[200] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."

[201] FATF recommendations 15, pt1 interpretative note.

[202] Dr. Valentina Covolo, The EU Response to Criminal Misuse of Cryptocurrencies.

[203] AMLD 5. Article 1(d), amending Article 3 of the 4th AMLD.

characteristic of anonymity of virtual currencies.[204] Further, the Directive required that service providers are registered by the competent national authorities.[205] Examples of such authorities would be: in Germany - BaFin,[206] in France - The Autorité des marchés financiers,[207] and in Latvia - the State Revenue Service.[208] As such, transparency was increased in regards to financial conduct through virtual assets within the EU through the regulation of gatekeepers by the means of reports and monitoring in comparison with a largely unregulated market and difficulties of enforcing obligations that followed.[209]

There are various ongoing questions that are not resolved by the integration of virtual assets in the scope of the AML rules, one such key question would, for example, be the legal status of virtual assets. This would especially affect how they would relate to existing concepts in finance such as securities, money, property, and commodities.[210] Furthermore, the questions relate to how these financial concepts have operated within the scope of national legislations which have exercised their competencies in attempts of establishing legal qualifications for virtual assets to be recognised as one or more of the mentioned financial concepts.[211] The confusion on the legal status remains due to the fragmentation of legislation stemming from the various national regulatory approaches, and case law precedents, for example, the VAT legislation and the case - Skatteverket v David Hedqvist.[212;213]

Academics point out that the wording of Article 3 (18) Directive 2018/843/EU is technologically neutral, as no reference is made to the technical characteristics of blockchain or the use of cryptography.[214] At the same time, the referencing of the exchange and conversion of virtual assets to fiat currencies and the use of cryptographic keys in articles 1 and 3 of the Directive do ensure that criminals' use of virtual assets shall be governed by these rules.[215]

Academics further point out the confusion in regards to the applicability of AML rules to the process that is known as tokenisation.[216] The common understanding of this term is a ‘method that converts rights to an asset into a virtual asset token which becomes a

[204] AMLD5. Art. 65.
[205] Sofia Del Monaco, ‘’Money mules and tumblers: money laundering during the cryptocurrency era.’’
[206] Federal Financial Supervisory Authority, “Virtual Currency (VC).” Last updated on: 11.12.2017. Available at: https://www.bafin.de/EN/Aufsicht/FinTech/VirtualCurrency/virtual_currency_node_en.html. Accessed: 12.05.2022.
[207] The Autorité des marchés financiers, “Towards a new regime for crypto-assets in France.” Available at: https://www.amf-france.org/en/news-publications/news/towards-new-regime-crypto-assets-france. Accessed: 12.05.2022.
[208] State Revenue Service (Valsts Ieņēmumu dienests), “Cryptocurrencies (Kriptovalūtas).” Published: 22.07.2021. Available at: https://www.vid.gov.lv/lv/kriptovalutas. Accessed: 12.05.2022.
[209] Sofia Del Monaco, ‘’Money mules and tumblers: money laundering during the cryptocurrency era.’’
[210] Dr. Valentina Covolo, “The EU Response to Criminal Misuse of Cryptocurrencies.”
[211] *Id*.
[212] Dr. Valentina Covolo, “The EU Response to Criminal Misuse of Cryptocurrencies.”
[213] Case C-264/14. Skatteverket v David Hedqvist. Judgment of the Court (Fifth Chamber) of 22 October 2015. Preliminary ruling sets a precedent that Bitcoin related transactions do not fall within the scope of OJ 2006 L 347, p. 1, ‘the VAT Directive’.
[214] Lars Haffke, and Mathias Fromberger and Patrick Zimmermann,”Virtual Currencies and Anti-Money Laundering – The Shortcomings of the 5th AML Directive (EU) and How to Address Them” 03.02.2019. *Journal of Banking Regulation* (2020): Volume 21, Issue 2, pp. 125-138, Available at SSRN: https://ssrn.com/abstract=3328064.
[215] Dr. Valentina Covolo, “The EU Response to Criminal Misuse of Cryptocurrencies.”
[216] *Id*.

representation of such right'.[217] The confusion arises from the experimental nature of developments within the subsphere of Initial Coin Offerings which has significantly diversified the virtual asset realm not only to include tokens, which would be conceptualised as an alternative means of payment.[218;219] The tokens may grant the holder specific access to certain rights, services or goods within a system related to such tokens without operating as traditional means of exchange, as such not being viable to purchase access to other goods or services outside the system in question.[220] Examples of such tokens would be Non-Fungible Tokens (tokens that provide a certificate of ownership), among others.[221] The question of whether AML rules apply also to such trends emerges, or is the legal framework playing catch-up once again in the face of new developments in virtual assets? The preamble of the 5th AML Directive does shed light on the goals of the legislation in this matter as it clearly sets out to 'cover all the potential uses of virtual currencies', including 'investment, store-of-value products or use in online casinos' and refers to govern digital assets representing value not as means of payment but as means of exchange.[222] Even still, the use of the phrase 'means of exchange' also sets room for interpretation and academics have found this confusing, as such phrasing has been used for the function of money in economic systems.[223] This fact underlines that further work on legal certainty regarding virtual assets is necessary. Are all potential digital exchanges of virtual assets with value subject to the Directive? The Directive seems to state that with the goal of full inclusivity.[224] The question of what assets do fall within the scope of this Directive may still be present in the agenda of relevant institutions, and subjects of the Directive - service providers and issuers of virtual assets, competent national authorities and academics, and policy makers.[225]

In a context where the significant amount of virtual asset market operations is conducted via centralised service providers, the AML setup may draw inspiration and does not conceptually differ from how AML monitoring and investigations are conducted in traditional financial markets.[226] The obligated to report gateway entities of the virtual asset market ought to validate the transactions and holding of their clients' virtual assets. Yet, such a framework is recognised as ill-suited to regulate the transactions of decentralised service providers without an identified entity resembling an institution.[227] And the goal regarding such networks is then to take necessary actions on decentralised systems subject to AML regulation based on principles, such as ensuring that the technology does not provide loopholes or functionality meant for illicit activities, ensuring standards for the utilisation of virtual asset keys and

[217] *Id*. see reference 99.
[218] Cointelegraph. "Read Our Guide on ICO vs IPO Differences." Cointelegraph. Published: 24.04.2018. Available at: https://cointelegraph.com/bitcoin-for-beginners/ico-vs-ipo-key-differences. Accessed: 05.05.2022.
[219] *Id*.
[220] *Id*.
[221] Paul Vigna, "NFT sales are flatlining." The Wall Street Journal. Last updated: 03.05 2022. Accessed: 05.05.2022. Available on: https://www.wsj.com/articles/nft-sales-are-flatlining-11651552616#:~:text=NFTs%20are%20bitcoin%2Dlike%20digital,are%20among%20the%20most%20speculative.
[222] Preamble of the 5th AMLD, para. 10.
[223] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[224] Preamble of the 5th AMLD, para. 10.
[225] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[226] Mehdi Manaa, and Maria Teresa Chimienti and Mitsutoshi M. Adachi *et al*, "Crypto-Assets: Implications for Financial Stability, Monetary Policy, and Payments and Market Infrastructures" 17.05 2019. *ECB Occasional Paper* No. 223 (2019); ISBN 978-92-899-3688-0, Available at SSRN: https://ssrn.com/abstract=3391055.
[227] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."

operation of highest security standards possible, transparency of algorithms and the performance of services, cyber-resilience, and the legal use of the services by consumers.[228]

An obvious blind spot in the approach of the 5th AML Directive is the fact that exit from the virtual asset market might not be a necessity, in the case that goods may be purchased with virtual assets and as such not trigger the control of the ledger, which indicates an unresolved risk by Directive (EU) 2018/843.[229] Furthermore, virtual asset to virtual asset transfers are also not included in the scope of the Directive, as these entities do not fall within the requirements set for the gatekeeping entities governed by the Directive.[230] What that means is that the greater part of the entities undergoing the fundraising process through initial coin offerings may not be within the scope of the Directive as well. This is a major drawback of the legislative framework of AML in regards to the transfers of virtual assets. Due to the growing number of services accepting virtual assets,[231] the need to off-ramp is declining, indicating that the legal framework would be avoided by certain transactions that ought to be within the provisions of the AML framework.[232]

This blind spot is well known to FATF and is tackled through the amendments of the FATF recommendations. Furthermore, the trend of tokenisation is also identified in the updated FATF recommendations and, as such, changes in the legal framework concerning the inclusion of virtual assets are on the way.[233] Indeed, these recommendations largely shape the form of the anti-money laundering and countering the financing of terrorism legislative package announced on the 20th of July 2021,[234] which introduces a substantive transformation of the AML approach in the EU through proposals for a 6th AML Directive,[235] a first AML/CTF Regulation,[236] a revision of the 2015 Regulation on Transfers of Funds,[237] and a new EU AML Authority (AMLA).[238] This framework has since departed and is in the process of development, however, at the current stage which still includes discussions, changes to the framework are highly possible. Yet, what can be expected is that the updated FATF recommendations are integrated within the legal framework of the EU. The updated recommendations seek AML/CTF governance for entities that would operate as virtual assets service providers. Such an approach, based on the nature of activities of entities engaged within, would be inclusive of

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[228] *Id*.
[229] *Id*.
[230] *Id*.
[231] David Walsh, "Paying with Bitcoin: These are the major companies that accept crypto as payment." Euronews.com. Last updated: 04.12.2021 Available at: https://www.euronews.com/next/2021/12/04/paying-with-cryptocurrencies-these-are-the-major-companies-that-accept-cryptos-as-payment.
[232] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[233] FATF recommendations, p.125.
[234] Commission, Anti-money laundering and countering the financing of terrorism legislative package.
[235] Proposal for the 6th AMLD.
[236] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing. COM/2021/420 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0422. (Proposal for the AMLR1).
[237] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on information accompanying transfers of funds and certain crypto-assets (recast) COM/2021/422 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0422.
[238] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the Authority for Anti-Money Laundering and Countering the Financing of Terrorism and amending Regulations (EU) No 1093/2010, (EU) 1094/2010, (EU) 1095/2010. COM/2021/421 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0421.

virtual to virtual exchanges, transcending the limitations of the scope of the 5th AML Directive.[239] The recommendations go as far as to regulate the developer of the service. The following activities would render entities within the scope of the FATF recommendations:

(i) exchange between virtual assets and fiat currencies,

(ii) exchange between one or more forms of virtual assets,

(iii) transfer of virtual assets,

(iv) safekeeping and/or administration of virtual assets or instruments enabling control over virtual assets and participation in

(v) provision of financial services related to an issuer's offer and/or sale of virtual assets.[240]

As a consequence of the broadened definitions and the inclusive list of activities that render entities subject to the FATF recommendations, many of the blind spots identified by academics are covered, including initial coin offerings, exchange of virtual assets, including the ones described in paragraphs concerning tokenisation, virtual asset to virtual asset exchanges and decentralised exchange platforms rendering the recommended legislation as adaptable and inclusive for future developments in the virtual asset technologies.[241] Yet, the impact of these rules on the implementation of due diligence procedures and the monitoring requirements of the various entities within virtual asset markets remains to be seen. It shall be underlined, however, that various entities differ structurally and vary in difficulty to ensure full compliance with such rules.

The Directive has had consequences on entities operating in the market. Among them is the increase in compliance costs affecting firms working on virtual assets. Generally, these firms are startups developing innovations or established companies taking up the development of innovative technologies. Yet, mostly a piece of software or hardware needs to obtain a certain level of traction before being able to fundraise enough to initiate production. This stage may be hindered by a too strict set of rules at an early stage of technology development that wide inclusivity may bring to the startups. As such, it could become a trend for startups to consolidate with established companies or cease operations before their ideas gain traction.

Furthermore, the issue of using 'strawmen' in the avoidance of AML and KYC rules has not been fully resolved, as criminals identified that the use of other legal or natural personas may be used to clean their funds without any relation with the actual source of the illicit, obtained funds which allow for confounding the system and circumventing the legislative framework.[242] Apart from the regulation of virtual assets in regard to illicit financial misuse, the EU has taken the first steps of regulating the market of virtual assets as well.

4.3.2 MiCa and the digital finance package digitising the market within the EU - Proposed market regulation and its effects on identified virtual asset risks

[239] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[240] FATF recommendations, p 125.
[241] Dr. Valentina Covolo, "The EU Response to Criminal Misuse of Cryptocurrencies."
[242] *Id*.

A turning point for the EU in regulatory policy regarding virtual assets is the regulation on Markets in Crypto assets (MiCA) which was published on September 24, 2020.[243] It was published as a part of the Digital Finance Package that aims to transform the EU's economy.[244;245] By regulating the virtual asset market through the means of a regulation, harmonisation of the specific market is facilitated, contrasting with the previously established legislation regarding financial services through directives as exemplified within the MiFID II.[246] As such, the risk of further fragmentation of legislation at the national levels would be tackled.

At the time of writing this paper, MiCa remains a draft proposal of a regulation, evolving and in the process of review, with a plan to implement the blockchain and virtual asset regulatory framework by 2024. However, there are not any specific implementation timelines as of yet. Among its objectives is the provision of legal certainty regarding all virtual assets that operate outside the reach of existing legislation on financial services.[247] Examples to mention here is the exclusion of electronic money tokens and deposits, even if they operate based on blockchain technology, as these assets are within the scope of MiFID II.[248] Furthermore, the EU sets out to establish uniform rules regarding service providers (virtual asset exchanges, digital wallets, and others) and their operations, replacing the various established and emerging national legal frameworks.[249] A key goal of the legislation is establishing EU standards of consumer and investor protection and market integrity, working to strengthen financial stability considering the volatile market of virtual assets.[250] At the same time the institutions behind the regulation proposal are clear that blocking technological innovation and hindering the development of virtual asset related technology, and their applications in products, is not a desirable outcome.[251] The proposed regulation is built based on the following four key objectives: legal certainty, support of innovation, consumer and investor protection and market integrity.[252]

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[243] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-assets, and amending Directive (EU) 2019/1937. COM/2020/593 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0593. (Proposal for the MiCa regulation).

[244] European Commission, 'Digital Finance Package: Commission sets out new, ambitious approach to encourage responsible innovation to benefit consumers and businesses' Press release, 24.09.2020. Available at: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_20_1684/IP_20_1684_EN.pdf.

[245] 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. *OJ L 173*, 12.6.2014, p. 349–496. Available at: http://data.europa.eu/eli/dir/2014/65/oj. (MiFID II).

[246] Agata Ferreiraa and Philipp Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure." *Computer law & security review* 43 (2021) 105632. https://doi.org/10.1016/j.clsr.2021.105632.

[247] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."

[248] *Id*. and Sherman and Sterling, "Regulators and Courts Clarify Virtual Currency Regulation, but Overall Framework Remains Murky." Published: 12.04.2018. Available at: https://www.shearman.com/perspectives/2018/04/regulators-clarify-virtual-currency-regulation-murky. Accessed on 05.05.2022.

[249] *Id*.

[250] *Id*.

[251] Silvia Amaro, "The EU announces its first ever plan to regulate cryptocurrencies." CNBC. Last updated: 24.09.2020. Available at: https://www.cnbc.com/2020/09/24/eu-valdis-dombrovskis.html. Accessed on: 05.05.2022.

[252] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."

In regards to legal certainty, MiCa addresses the issues of defining and classifying various virtual assets by establishing certain far-reaching terminology. Broad definition to ensure that all virtual assets, except for the explicitly pointed out exceptions that are within the scope of existing directives, fall within the scope of the regulatory framework is provided.[253] A virtual asset is defined broadly as a digital representation of value or rights, which may be transferred and stored electronically, using distributed ledger technology or similar technology.[254] Further, e-money tokens, asset-referenced tokens and utility tokens are differentiated and defined.[255] It is noteworthy to mention that MiCa regulation is designed with the anticipation of adjusting definitions following the innovations and further developments of the virtual asset market and related technologies.[256]

Virtual asset issuers and Virtual assets service providers (VASP) are within the scope of the MiCa regulation, which shall set regulatory standards.[257] Issuers will be obliged to provide a whitepaper detailing the rights, obligations, and the key characteristics of their virtual asset.[258] Furthermore, MiCa sets cybersecurity requirements to mitigate the risks emerging from blockchain technologies with the aim of investor protection.[259] Even further, an additional set of rules is provided regarding significant asset-referenced tokens and e-money tokens, with a focus on supervision of governance, investments, custody of assets, and conflicts of interests.[260] Another key factor of this regulation is the fact that issuers of asset-referenced tokens and e-money tokens will have the requirement of being also authorised and established in the EU.[261] This factor generates compliance burdens that will particularly affect issuers outside of the EU and has the potential of granting an advantageous position to already established issuers in the EU and institutions authorised in the financial sector.[262]

In regards to VASPs, certain operational requirements and standards for authorisation are proposed.[263] Competent member state governmental institutions' authorisation is required for a VASP to legally operate within the EU.[264] Once again, the exclusions of this requirement would be companies already authorised under MiFID as financial services.[265] The proposed requirements for VASPs include safeguards, requirements in the organisational sphere, the establishment of consumer complaint systems and complaint handling procedures.[266] Certain services, such as virtual asset trading platforms or digital wallets holding custody of virtual

[253] *Id*. and Art. 2 of the MiCa proposal.
[254] Articles 2 and 3 of the MiCa proposal.
[255] Preamble of the MiCa proposal, para.9. And Art. 3 of the MiCa proposal.
[256] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."
[257] Article 2 of the MiCa proposal.
[258] Werner Vermaak, "MiCA: A Guide to the EU's Proposed Markets in Crypto-Assets Regulation." Sygna. Available on: https://www.sygna.io/blog/what-is-mica-markets-in-crypto-assets-eu-regulation-guide/. Accessed 03.05.2022.
[259] Werner Vermaak, "MiCA: A Guide to the EU's Proposed Markets in Crypto-Assets Regulation."
[260] *Id*.
[261] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."
[262] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."
[263] Titles II, III, IV and V of the MiCa proposal.
[264] Title VII of the MiCa proposal.
[265] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."
[266] Title VII of the MiCa proposal.

assets, virtual asset and fiat money exchanges, and general virtual asset exchanges among others fall within the scope of even more specific requirements in the proposed MiCa regulation.[267] Market abuse is prevented through the specific requirement of disclosing insider information,[268] and prohibitions of insider dealing,[269] unlawful disclosure of inside information,[270] market manipulation are provided.[271] These prohibitions apply to anyone admitted to the services of VASPs, as such encompassing within their scope all entities operating on the virtual asset market within the jurisdiction of the EU.

Academics expect that established financial institutions and service providers will find it easier to comply with the requirements set by MiCa on the virtual asset market.[272] This trend once again may generate hurdles to start-ups and general newcomers to the market that do not have present competences in regards to the legalities of the European financial market, AML and KYC and the developing MiCa Regulation, or the funds to retain consultants for their operations to comply with. On the other hand, established institutions and entities might face a requirement of varying degrees of costs in assessing their current compliance with the expected market regulation and potential costs in ensuring ongoing and sustainable compliance.[273] To what extent the innovations of the virtual asset market in the EU may decrease or increase remains to be seen.

It is clear that the EU's regulatory approach towards virtual asset misuse and towards the virtual asset market has transformed significantly at various stages, most impressively the latest evolution that currently passes through the institutions of the EU - the MiCa regulation proposal, as a part of the EU's efforts in digitalising the financial sector, and the AML legislative package introduced last year, in order to strengthen the regulation and resilience of the EU market against criminal activities, the flow of funds for terrorism financing and money laundering. The EU has focused on requiring that service providers within the virtual asset market comply with AML and KYC standards. The manner that the EU opts for ensuring AML in a virtual asset market, is to integrate the market entities developing technologies - service providers, within the scope of existing AML legislation through terminology applicable to the exchange of virtual assets through VASPs. The EU has focused on the gate points where fiat money is exchanged for virtual assets and vice-versa as points of supervision, but the recent regulatory trends indicate that it is the EU's understanding that the market grows more complicated, and therefore aims to make other entities within the virtual asset market subjects to the regulation. Furthermore, the proposed MiCa regulation would require resilient resistance to cybercrime through IT standards on the behalf of VASPs and would prohibit market actors from participating in traditional white collar crime, as identified at the beginning of this chapter.

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[267] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure."
[268] Article 77, Title VI of the MiCa proposal.
[269] Article 78, Title VI of the MiCa proposal.
[270] Article 79, Title VI of the MiCa proposal.
[271] Article 80, Title VI of the MiCa proposal.
[272] Ferreiraa and Sandner, "EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure." and Monica Sah, "Let's talk crypto! The EU has published a proposal for the MiCA Regulation creating a pan-European regulatory regime for cryptoassets."Clifford Chance, Published: 05.10.2020. Available at: https://www.cliffordchance.com/insights/resources/hubs-and-toolkits/talking-tech/en/articles/2020/10/crypto-mica-regulation.html. Accessed: 05.05.2022.
[273] Monica Sah, "Let's talk crypto! The EU has published a proposal for the MiCA Regulation creating a pan-European regulatory regime for cryptoassets."

The regulatory approach is broadly inclusive in regard to companies and institutions operating within the EU virtual asset market, to the point that yet undeveloped virtual asset innovations would highly likely be within the scope of the regulatory framework. However, how can the regulations be enforced in response to decentralised virtual asset networks? While the legislative framework is inclusive of technology like this, it remains a question of who is responsible for supervision and reports in such networks without a clear centrepiece.

4.4 Challenges with regulation of decentralised systems

Achieving all encompassing legal regulation and enforcement in response to decentralised systems remains an impossibility. An example of this would be internet piracy as it had battled with implementing necessary regulations as it would possibly breach privacy and freedom of speech laws and even compromise the internet's underlying architecture.[274]

Nonetheless, the extensive research on the subject and the methods used for battling the cybercrime can similarly be applied to combating crimes involving virtual assets.[275] Influenced by the study published by the U.S. Patent and Trademark Office a combination of efforts is required to prevent the misuse of virtual assets from becoming mainstream and from compromising legitimate markets. Therefore a multifaceted legal, economical and political strategy is necessary to successfully combat such criminal activities.

Similarly to combating internet piracy the legal enforcement of virtual-asset related crimes can be classified into either the "supply" or "demand" side. The supply side of legal enforcement references to websites, software, payment processors, or protocols for criminal activities.[276] Alternatively, the demand side refers to actions or policies that aim to educate and penalise users who consume illegal services that are known to be utilised by criminals. Educating the users is necessary so that they are made aware of the damage caused by the crime and the possible consequences while the penalization of such crimes would not only act as a deterrent but would communicate to users that the related regulations are indeed being enforced that in turn would prevent the establishment of "a broken window" according to which an unpoliced crime would signal to the public that the crime is acceptable.[277] The combination of these two efforts would in turn result in the removal of criminal websites and enablers from clearnet and increased difficulty and costly to conduct virtual-asset related crimes by pushing them to the unregulated and risky dark edges of the internet where they themselves become vulnerable to other criminals and lack any legal protection without incriminating themselves.[278]

However, disincentivising illegal services is not sufficient, legal services must be attractive and readily available to replace the void in the market. This would essentially mean incentivising future blockchain innovations to be compliant to state legislations and to avert anonymity seeking technologies.[279]

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[274]BBC, "Sopa and Pipa anti-piracy bills controversy explained." BBC. Available at: https://www.bbc.com/news/technology-16596577. Accessed: 05.10.2022.
[275] Brett Danaher, and Michael D. Smith and Rahul Telang, "Piracy Landscape Study: Analysis of Existing and Emerging Research Relevant to Intellectual Property Rights (IPR) Enforcement of Commercial-Scale Piracy " *USPTO Economic Working Paper* No. 2020-02, Available at SSRN: https://ssrn.com/abstract=3577670.
[276] *Ibid*, p.38.
[277] *Ibid*, p.39.
[278] *Ibid*.
[279] *Ibid*, p.43.

Decentralisation means the absence of a single entity to regulate the system.[280] Due to the lack of centralised decision-making entities, decentralised blockchains and DAO's in many cases do not have a centralised body to control and manage data and as a result, it creates difficulty for legislators to pinpoint the primary actor behind the organisation or system in order to establish legal obligations.[281] As a result, legislators must first and foremost establish an enforceable body of rules and if possible identify or establish proper authority for the decentralised systems. Conversely doing so would go against the whole idea and principles of democratised and decentralised systems resulting in the EU straining and alienating technological developments in blockchain technology by demanding decentralised systems to incorporate themselves into a single legal entity and register that entity as a service provider inside the EU.[282] Such was the case in the U.S with the New York's Bitlicense law which resulted in virtual asset businesses moving out of the jurisdiction and blocking their respective customers' IP addresses of that jurisdiction.[283] Therefore this raises a question of the technological neutrality and compatibility of the MiCA proposal due to its centralised model as it attempts to establish liability to a single actor in a decentralised system.

Currently, in their present condition, the centralised and regulatable elements such as hosted wallets within the virtual asset market cannot compete with the level of security and control the decentralised elements provided as centralised and regulated elements require users to relinquish control to a third party without any guarantees such as deposit insurance schemes.[284;285] With the passing of the application of the travel rule to virtual asset transactions any service or technology that provides anonymity is essentially cut off from the conventional financial system, as a result, users utilising such services have access to off and on-ramp severed.[286] By cutting off this access instead of decreeing it to be unlawful the EU has managed to circumvent the responsibility of taking the gargantuan challenge of regulating and enforcing its regulation on privacy coins, anonymous wallets and cryptomixers.[287] However, although the EU did not ban services and technologies that provide anonymity, nonetheless by approving such a proposal it has become clear that the EU has abandoned its initial "wait and see" policy and taken a stance of risk mitigation while compromising its technological neutrality policy towards virtual assets.[288] Furthermore, by imposing such regulations, the costs necessary to maintain compliance will certainly surge which in turn limit innovation and centralise the

[280] Pavlidis, ''Europe in the digital age: regulating digital finance without suffocating innovation.'' p.11.
[281] *Ibid.*
[282] *Ibid*
[283] Pavlidis, ''Europe in the digital age: regulating digital finance without suffocating innovation.'' p.12.
[284] Fabio Panetta, "The present and future of money in the digital age." European Central Bank. Rome, 10.12.2021. Available at: https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211210~09b6887f8b.en.html. Accessed: 12.05.2022.
[285] CoinDesk, "Centralized Exchange (CEX) vs. Decentralized Exchange (DEX): What's the Difference?" CoinDesk. Available at: https://www.coindesk.com/learn/centralized-exchange-cex-vs-decentralized-exchange-dex-whats-the-difference/. Accessed: 05.05.2022.
[286] George Benedict, "EU Parliament Passes Privacy-Busting Crypto Rules Despite Industry Criticism." CoinDesk. Available at: https://www.coindesk.com/policy/2022/03/31/eu-parliament-votes-on-privacy-busting-crypto-rules-industry-rails-against-proposals/. Accessed: 05.05.2022.
[287] The U.S. Home Treasury. Requirements for Certain Transactions Involving Certain Convertible Virtual Currency or Digital Asset. Published: 18.12.2020.
Available at: https://home.treasury.gov/system/files/136/2020-12-18-FAQs.pdf.
[288] Bjarke Smith-Meyer, "Crypto campaign targets EU 'track-and-trace' bill at 11th hour." Politico. Published: 27.04.2022. Available at: https://www.politico.eu/article/crypto-campaign-target-eu-meps-transfer-funds-regulation/. Accessed: 05.05.2022.

market into the hands of a few central enterprises .[289] If internet piracy comparison is indeed valid then depending on the efficacy of the services these enterprises are able to provide to users, the market will either be dominated by few central enterprises or alternatively the users will be completely pushed to the anonymous decentralised markets outside of the EU's reach.

Interestingly the virtual asset market has somewhat begun regulating itself as decentralised tokens especially those that operate in proof of stake (POS) systems have begun to accumulate in the hands of few. In decentralised POS systems native tokens provide users with voting rights to take part in the decision making of the future of the blockchain. Due to the unregulated and free market nature of the decentralised blockchains wealth is beginning to accumulate into the hands of the few and with it the decision making rights of the whole system.[290] Interestingly the biggest whales of decentralised markets have been European institutions themselves and thus in essence having ultimate decision making authority within decentralised POS systems.[291]

In the case of Ethereum, a significant portion of the asset had been distributed to contributors and early investors and now with Ethereum shifting to a POS system it would essentially mean that these individuals have significant mining and decision-making powers within the Ethereum system.[292] This, if explored, provides an opportunity for the EU to "hijack" the decision-making rights of major blockchains by purchasing majority voting rights and therefore enabling the EU to customise the system into a more favourable shape. However, keeping in mind the global nature of virtual assets, similar access is provided to all countries therefore such policies could possibly trigger "an auction" between the states.

[289] Nathaniel Whittemore, "Hamstringing an Industry With Compliance Costs." CoinDesk. Published: 07.01 2020. Available at: https://www.coindesk.com/markets/2020/01/07/hamstringing-an-industry-with-compliance-costs/. Accessed: 05.05.2022.

[290] Sarwat Jahan and Ahmed Saber Mahmud, "What Is Capitalism?" *Finance & Development*, (2015): Vol. 52, No. 2. International Monetary Fund. Available at: https://www.imf.org/external/pubs/ft/fandd/2015/06/basics.htm.

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[292] Daniel Kuhn, "Vitalik Buterin opinion on Ethereum's 'Roads Not Taken'." CoinDesk. Published: 31.03.2022. Available at: https://www.coindesk.com/layer2/2022/03/31/vitalik-buterin-on-ethereums-roads-not-taken/. Accessed: 05.05.2022.

5. FUTURE LEGAL DEVELOPMENTS ON THE INTERNATIONAL LEVEL

Recognising the trends of continuous development of virtual asset technologies and bespoke international framework adoptions such as the EU proposed framework,[293] the financial crime risks explored in this paper and general concerns regarding the stability of existing financial systems being revolutionised by virtual assets, potential developments may be predicted within global policy making and regulatory efforts. As often identified in this paper, a great issue with virtual assets is the lack of coordinated standards.

In the case of EU regulatory efforts turning out successful, and relevant adjustments being implemented upon identification of fallbacks, an example framework would potentially emerge. This standard setting effort could be a leading point toward efforts in establishing new multilateral treaties, possibly at the level of the UN.[294] Arguments have been made that the establishment of such treaties is recognised as the most realistic solution in establishing coordinated global standards for integrating the global virtual asset realm within the overall financial framework.[295] A new treaty would not create hurdles in the functioning of existing treaties that have been commented as potential candidates in regulating virtual assets, such as the CISG or WTO treaties for example, and would address the challenges native to the virtual asset realm specifically.[296]

Academics advise such an approach due to the high extent of how revolutionising and disruptive the technology is by its nature, and fitting it within the already existing concept and hoping for effective outcomes is analogous to fitting a square peg in a circle.[297] The fact that within the context of AML the inclusion of virtual assets within legislative frameworks in the U.S.A., the EU and governments of many nations in the Asian Pacific region, examples being Hong Kong and Singapore, which have worked diligently in integrating virtual assets in their financial markets through licensing rules and general supervisory oversight of trading, are based on the same key principles with a few differences in the general understanding regarding the legal status of virtual asset- whether it's a currency, security, or a commodity (or some combination of the three), does indicate that international cohesion among these regions is to be expected at some level.[298]

CONCLUSION

This paper has managed in its first chapter to indicate the diverse nature of the virtual asset finance ecosystem as a variety of types of virtual assets and decentralised finance has been explored. The paper recognises that these financial innovations provide both economical benefits and new methods of collaborating to reach sustainability goals, the financial risks are

[293] European Commission. Anti-money laundering and countering the financing of terrorism legislative package.https://ec.europa.eu/info/publications/210720-anti-money-laundering-countering-financing-terrorism_en

[294] UN News "Sustainability Solution or Climate Calamity? the Dangers and Promise of Cryptocurrency Technology.". United Nations. Accessed May 12, 2022. https://news.un.org/en/story/2021/06/1094362.

[295] Macfarlane, "Strengthening Sanctions: Solutions to Curtail the Evasion of International Economic Sanctions through the use of Cryptocurrency."

[296] *Id.*

[297] *Id.*

[298] *Id.*

also identified, and an analysis of various types of financial crimes that have surfaced with the emergence of virtual assets is provided by the paper. Although the risks posed by virtual assets are evident, nonetheless the benefits it provides such as ease of accessibility, lower, faster and more secure transactions, and new investment methods are impressive enough for the EU to consider implementing policies that would attract the virtual asset market to the EU via stances such as technological neutral policies

In conclusion, to answer the first research question that is: how has the EU's attempts to regulate virtual assets evolved? The EU has made its aims clear that it intends to integrate virtual asset use and the virtual market within its regulatory framework with the goal of digitalising finance and re-working its AML framework. The integration of virtual assets within the scope of EU's legislation has been gradual. The level of integration and regulation of the EU has varied from its initial policy of seemingly ignoring it via a "wait and see" approach towards current policy of stronger focus on integration within AML and KYC rules and regulation by amending said rules and establishing MiCa Regulation to govern the European virtual asset market in a more broad and harmonised manner. In turn this brings us to the second and third research question, are the measures taken to mitigate the risk of financial crimes technologically neutral and is the EU legislation evolving in the right direction of mitigating and countering financial crimes in a new environment to combat the misuse of new technologies that circumvent traditional supervision measures in anti-money laundering?

With shift in policy in regards to AML/KYC integration of virtual assets, the EU has given the clarification needed for the speculators that it will be prioritising risk mitigation over market attraction and therefore somewhat compromising over its technological neutrality stance as the new KYC/AML compliance requirements would certainly make starting and creating a new virtual asset related business within the EU jurisdiction much more costly. The method of regulating the decentralised elements of virtual assets themselves has also been reflective of the same trend of favouring risk mitigation over technological neutrality with the travel rule application passing through the European Parliament. Additionally by not outright declaring decentralised elements of virtual assets illegal the EU has managed to avoid implementing costly and unenforceable regulations and instead by choosing to exert its influence over the intersections where virtual assets can be exchange for more traditional fiat currencies the EU has managed to significantly disincentivise the use of anonymous technologies and services that compromises the AML/KYC legislations. However based on the lessons learned from internet piracy, the success of such policies hugely depend on the efficacy of compliant virtual asset service providers and technologies as it is best to keep in mind that although legislations are local to jurisdictions, decentralised finance is global and the threat of alienating the market and future blockchain technologies is a possible scenario. As a result international cooperation in the field of virtual assets has become increasingly relevant to avoid a race to the bottom situation and to most efficiently disrupt and deter financial crimes.

Alternatively by having its institutions purchasing decentralised POS systems native tokens, the EU can in the future capture the said systems and vote them to voluntarily be compliant towards EU's regulatory framework.

With the introduction of the new proposed legislation that is the MiCa Regulation the EU also provides a much needed clarity on the definition and status of stablecoins. As described in the first chapter virtual assets can significantly vary by nature and may exist to serve a

specific need of the market and as a result a one size fits all policy appears to be abandoned in favour of more customised and appropriate legislations.

Therefore, the author concedes that although the proposed legislations are not ideal in the sense that technological neutrality will be compromised in their implementation. Nonetheless, under the current circumstances of severe risks posed by non-regulation, lack of legal certainty and technical inability to enforce legislations within the decentralised virtual asset realm it still remains as the best possible solution. That is certain when compared to implementation of a complete ban on any anonymous services and technologies.

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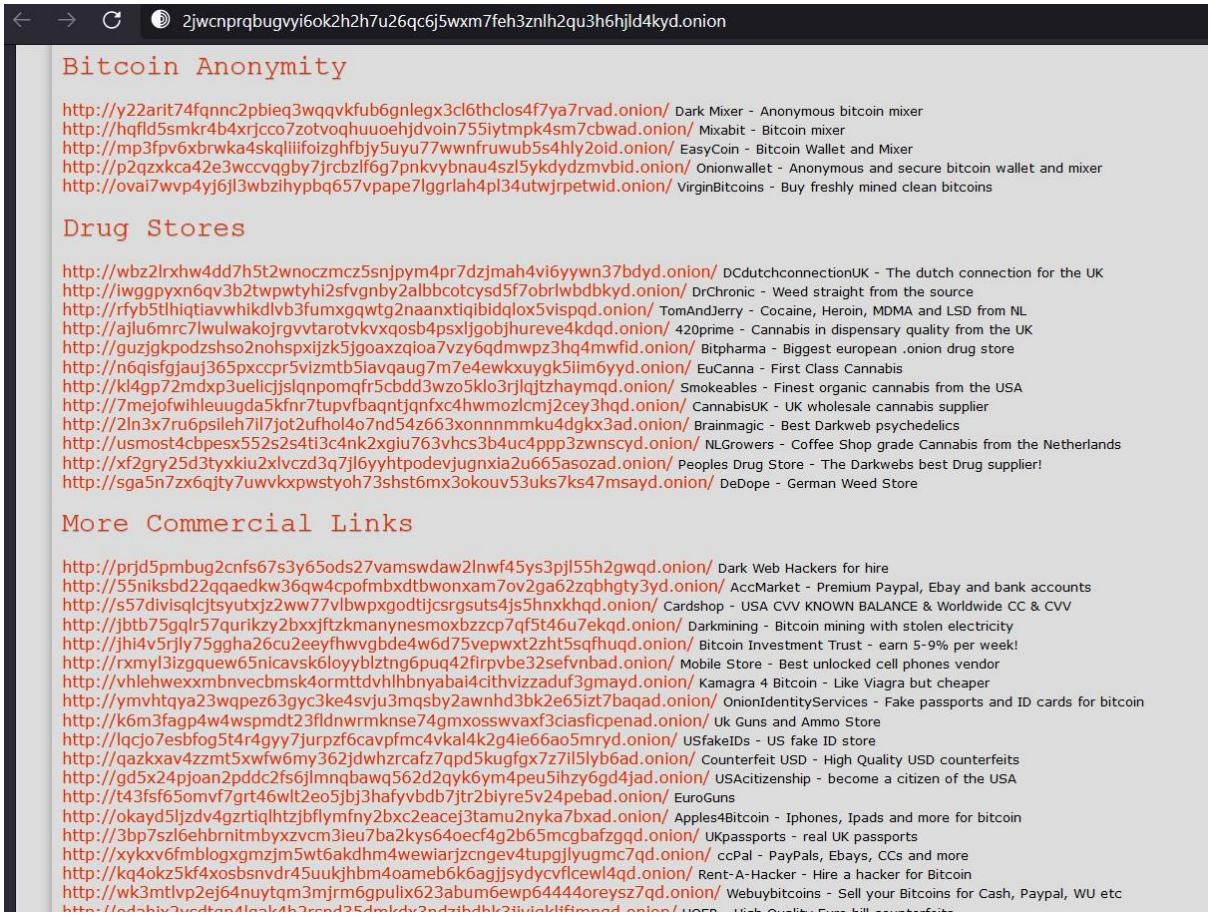
ANNEX I



Picture of a popular darknet wiki "Yet Another Hidden Wiki" captured by a snipping tool.