UNIVERSITY OF LAPLAND
LAPIN YLIOPISTO

SAME ACTIVITIES, SAME RISKS, SAME RULES – EU'S TCHNOLOGY NEUTRAL APPROACH TO CRYPTO-ASSETS AS FINANCIAL INSTRUMENTS

University of Lapland
Faculty of Law
Pro Gradu
Legal Informatics
Jenna Kajava
Fall 2023

Lapin yliopisto, Oikeustieteiden tiedekunta
Työn nimi: Same Activities, Same Risks, Same Rules – EU's Technology Neutral Approach to Crypto-Assets as Financial Instruments
Tekijä: Jenna Kajava
Koulutusohjelma/oppiaine: Oikeusinformatiikka
Työn laji: Pro gradu -tutkielma
Sivumäärä: XXVI + 77
Vuosi: 2023

Tiivistelmä:
Kryptovarat ovat vuoden 2008 Bitcoinin keksimisen jälkeen olleet vuosi vuodelta taloudelliselta kooltaan merkittävämpi ilmiö rahoitussektorilla. Euroopan Unioni on ollut pioneerina laatimassa kryptovaroihin liittyvää sääntelyä. Kryptovaroihin sovelletaan rahoitusalan sääntelyä aina silloin, kun kryptovara on tulkittavissa rahoitusinstrumentiksi. Tutkimukseni selvittää lainopin keinoin, milloin kryptovara on tulkittavissa rahoitusinstrumentiksi käyttäen esimerkkinä erityisesti arvopaperia. Tutkimuksen taustalla on selvä tiedonintressi oikeussäänte-lyn epäselvyyden vuoksi, sillä kyseistä rajanvetoa ei ole tehty laintasoisesti eikä viranomainen ole antanut tulkintaan liittyviä suosituksia. Toinen tiedonintressin tulokulma löytyy yhteiskunnalliselta saralta, sillä jokainen kryptovaroja tai niihin liittyvän palvelun tarjoajan on pohdittava kysymystä ennen kryptovaran tai siihen liittyvän palvelun tarjoamista yleisölle. Tutkimukseni aineisto koostuu sekä Euroopan Unionin tasolla säädetyistä asetuksista ja direktiiveistä, että kansallisista laeista esitöineen, ottaen kuitenkin huomioon sen, että rahoitusoikeus on laajalti EU-alueella harmonisoitu oikeudenala kansallisten säännösten siis pitkälti noudattelevan yhtenäistä linjaa EU-asetusten ja direktiivien kanssa. Tutkimuksen erityispiirteisiin kuuluu laaja viranomaismateriaalin käyttö tukevana aineistona.

Erittelen tutkielmassa ne määrittelevät piirteet, joiden vallitessa kryptovara on tulkittavissa rahoitusinstrumentiksi samalla systematisoiden aiheeseen liittyvää käsitetematiikkaa. Ensin yleisellä tasolla kryptovarojen luokittelua ja niihin kuuluvia ominaispiirteitä käsitellen. Tarkemmin systematisoin yhden rahoitusinstrumentin, arvopaperin, luokkaan kuuluvan kryptovaran piirteitä ja ominaisuuksia, jotka määrittelevät kryptovaran olevan arvopaperi. Hallitsevaksi piirteiksi nousivat standardisoitu lajiesinemäisyys, ja vaihdettavuus julkisilla markkinoilla. EU-sääntelyssä julkisista markkinoista käytettäessä termiä 'pääomamarkkinat', markkinat on tarkoitettu käsitettävän laajasti ja kattavan myös muunlaisen julkisen vaihdannan, kuin säännellyillä kauppapaikoilla tapahtuvan kaupan. Lainsäädäntö ei määrittele niitä oikeudellisia ominaisuuksia, joita kryptovaraan olisi kuuluttava, jotta se tulkittaisiin arvopapereiden luokkaan kuuluvaksi. EU:n viranomaisten teettämien tutkimusten ja arvioiden pohjalta on kuitenkin määritelty, että kryptovaraan tulee liittyä olennaisesti tuotto-odotus. Muita toissijaisia arvioinnissa tukena käytettäviä ominaisuuksia ovat omistus- ja hallintaoikeuden olemassaolo sekä niin sanottu kryptovaran sijoitusluonne.

Avainsanat: crypto-asset, financial instrument, security, blockchain, DLT, MiCA, MIFID II, kryptovara, lohkoketju, rahoitusväline, arvopaperi, johdannainen

TABLE OF CONTENTS

REFERENCES

Literature

(Aarnio 1997)

Aarnio, Aulis, Oikeussäännösten systematisointi ja tulkinta, p. 35–56, in Minun metodini (ed.) Häyhä, Juha WSLT 1997.

(Aarnio 2011)

Aarnio, Aulis, Essays on the Doctrinal Study of Law, Springer 2011.

(Armstrong – Hyde – Thomas 2022)

Armstrong, Dean KC – Hyde, Dan – Thomas, Sam, Blockchain and Cryptocurrency: international Legal and Regulatory Challenges, Bloomsbury Professional Plc. 2022.

(Benedetti – Caceres – Abarzúa 2023)

Benedetti, Hugo – Caceres, Christian – Abarzúa, Álvaro, Utility Tokens, p. 79–92, in The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges, (ed.) Baker, H.K., Benedetti, H., Nikbakht, E. and Smith, S.S., Emerald Publishing Limited, Bingley 2023.

(Chamberlain 1911)

Chamberlain, Lawrence, The principles of bond investment, H. Holt 1911.

(Chaum 1983)

Chaum, David, Blind Signatures for Untraceable Payments, p. 199-203, in Advances in Cryptology in Proceedings of Crypto, (ed.) David Chaum, Ronald L. Rivers, and Alan T. Sherman, Springer 1983.

(Collins 2011)

Collins, Patrick S, Regulation of securities, markets, and transactions a guide to the new environment, Wiley 2011.

(Collins 2020)

Collins, Jesse: Osake ja modernit arvopaperimarkkinat: yhtiö- ja arvopaperimarkkina-oikeudellinen tutkimus pörssiyhtiön osakkeen omistuksen oikeudellisen luonteen ja tiettyjen rahoitusvälineiden välisestä suhteesta, Alma Talent 2020.

(Crosser 2018)

Crosser, Nate, Initial coin offerings as investment contracts: Are blockchain utility tokens securities, Kansas Law Review 67/2018, p. 379–422.

(Dapp – Helbing – Klauser 2021)

Dapp, Marcus M. – Helbing, Dirk – Klauser, Stefan, Finance 4. 0 – Towards a Socio-Ecological Finance System: A Participatory Framework to Promote Sustainability, Springer Cham 2021.

(De Filippi – Wright 2019)

De Filippi, Primavera – Wright, Aaron: Blockchain and the Law – The Rule of Code, Harvard University Press 2018.

(Drescher 2017)

Drescher, Daniel, Blockchain Basics – A Non-Technical Introduction in 25 Steps, Apress 2017.

(Epstein 2005)

Epstein, Gerald A, Financialisation and the World Economy, Edward Elgar Publishing 2005.

(Ferran – Ho 2014)

Ferran, Eilis – Ho, Look Chaon, Principles of Corporate Finance Law, Oxford University Press 2014.

(Ferreira – Sander 2021)

Ferreira, Agata – Sandner, Philipp, EU search for regulatory answers to crypto assets and their place in the financial markets' infrastructure Elsevier 2021.

(Foster 2007)

Foster, John Bellamy, The financialization of capitalism, Monthly review Vol. 58, No. 11: April 2007, Available at DOI: https://doi.org/10.14452/MR-058-11-2007-04_1.

(Hautamäki – Atallah – Koskikare 2019)

Hautamäki, Jon – Atallah, Max – Koskikare, Karri, Virtuaalivaluutan tarjoaminen – käsikirja virtuaalivaluuttalain soveltamiseen, Edita Publishing Oy 2019.

(Harvey – Ramachandran – Santoro 2021)

Harvey, Cambell R. – Ramachandran, Ashwin – Santoro, Joey, DeFi and the Future of Finance Wiley 2021.

(Heckel – Waldenberg 2022)

Heckel, Markus – Waldenberg, Franz, The Future of Financial Systems in the Digital Age – Prospectives from Europe and Japan, Spinger 2022.

(Howard – Green 2008)

Davies, Howard – Green, David, Global Financial Regulation – The Essential Guide, Polity Press 2008.

(Hull 2012)

Hull, John C, Options, Futures, And Other Derivatives, Pearson Education Limited 2012.

(Husa – Mutanen – Pohjalainen 2008)

Husa, Jaakko – Mutanen, Anu – Pohjolainen, Teuvo, Kirjoitetaan juridiikkaa, Talentum 2008.

(Häyränen – Kajala 2013)

Häyrynen, Janne – Kajala, Ville, Uusi arvopaperimarkkinalaki, Helsingin Kamari Oy 2013.

(Johansson – Eerola – Innanen et. al. 2019)

Johansson, Patrik Elias – Eerola, Mikko – Innanen, Antti – Viitala, Juha, Lohkoketjut – tiekartta päättäjille, Alma Talent 2019.

(Jyränki – Husa 2012)

Jyränki, Antero – Husa, Jaakko, Valtiosääntöoikeus, Lakimiesliiton kustannus 2012.

(Kaisto – Paukku 2022)

Kaisto, Janne – Paukku, Eelis, Virtuaalivaluutat, niihin liittyvät palvelut ja asiakasvarojen säilyttäminen, Liikejuridiikkaa 3/2022 p. 8–44.

(Kaisto – Paukku – Riekkinen 2023)

Kaisto, Janne – Paukku, Eelis – Riekkinen, Juhana, Lohkoketjujuridiikan perusteet, Lapin yliopisto – Lauda 2023.

(Kallunki – Martikainen – Niemelä 2019)

Kallunki, Juha-Pekka – Martikainen, Minna – Niemelä, Jaakko, Ammattimainen sijoittaminen, Alma 2019.

(Kauppi 2019)

Kauppi, Niko, ICO as a Financing Method – Legal Status at the Interface of Investment-Based and Reward-Based Crowdfunding, Helsinki Law Review, 2/2019, p. 32–63.

(Knüpfer – Puttonen 2018)

Knüpfer, Samuli – Puttonen, Vesa, Moderni rahoitus, Alma Talent 2018.

(Konashevych 2019)

Konashevych, Oleksii, Why 'Permissioned' and 'Private' are not Blockchains, 2019, Available at SSRN: https://ssrn.com/abstract=3496468 or http://dx.doi.org/10.2139/ssrn.3496468.

(Kraus – Obrist – Hari 2019)

Kraus, Daniel – Obrist, Thierry – Hari, Olivier, Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law, Edward Elgar Publishing 2019.

(Kurkela 2019)

Kurkela, Matti S., Laki ja oikeus; lainoppi ja oikeustiede, Defensor Legis N:o 3/2019. p. 461–469.

(Lamport – Shostak – Pease 1982)

Lamport, Leslie – Shostak, Robert– Pease, Marshall, The Byzantine generals problem, ACM Transaction on Programming Language and Systems, Vol. 4, No. 3, 1982, p. 382–401.

(Lapavitsas 2011)

Lapavitsas, Costas, Theorizing financialization, Work, employment and society 25(4) 611-626 (2011), Available at: DOI: 10.1177/0950017011419708.

(Layr 2021)

Layr, Angelika K., Tokenization of assets: security tokens in Liechtenstein and Switzerland, Milan Law Review 2.1 (2021): 45-72, Available at: DOI: https://doi.org/10.13130/milanlawreview/16466.

(Leppiniemi – Kaisanlahti 2016)

Leppiniemi, Jarmo – Kaisanlahti, Timo, Tilinpäättäjän käsikirja, Alma Talent 2016.

(Lewis 2021)

Lewis, Anthony, The Basics of Bitcoins and Blockchains – An Introduction to Cryptocurrencies and the Technology that Powers Them, Mango Publishing 2021.

(Loesch 2018)

Loesch, Stefan, A guide to financial regulation for fintech entrepreneurs, Wiley 2018.

(Madir 2021)

Madir, Jelena, What is Fintech, p. 1–23, in Fintech – Law and Regulation, (ed.) Madir, Jelena, Edward Elgar Publishing, 2021.

(Mhlanga 2020)

Mhlanga, David, Industry 4.0 in Finance: The Impact of Artificial Intelligence (AI) on Digital Financial Inclusion, International Journal of Financial Studies 8, no. 3: 45/2020, Available at: https://doi.org/10.3390/ijfs8030045

(Mähönen – Villa 2020)

Mähönen, Jukka – Villa, Seppo, Osakeyhtiö II – pääomarakenne ja rahoitus, Alma Talent Helsinki 2020.

(Määttä 2015)

Määttä, Tapio, Metodinen pluralismi oikeustieteessä – ympäristöoikeudellisen tutkimuksen suuntaukset ja menetelmät, p. 135–160, in Oikeustieteellinen opinnäyte – Artikkeleita oikeustieteellisten opinnäytteiden vaatimuksista, metodista ja arvostelusta, (ed.) Tarmo Miettinen, Edilex-Series 2015/45.

(Määttä – Paso 2019)

Määttä, Tapio – Paso, Mirjami, Johdatus oikeudellisen ratkaisun teoriaan, Helsingin yliopiston oikeustieteellisen tiedekunnan julkaisuja 2019.

(Nakamoto 2008)

Nakamoto, Satoshi, Bitcoin: A Peer-to-Peer Electronic Cash System, 2008, Available at: https://bitcoin.org/bitcoin.pdf.

(Neuvonen 2019)

Neuvonen, Riku, Viestintä- ja informaatio-oikeuden perusteet, Kauppakamari 2019.

(Niskanen – Niskanen 2016)

Niskanen, Mervi – Niskanen, Jyrki, Yritysrahoitus, Edita Publishing Oy 2016.

(Nieminen – Anttila – Äärilä et. al. 2023)

Nieminen, Auvo – Anttila, Raimo – Äärilä, Leena – Jokinen, Mika – Pikkujämsä, Mikko, Arvonlisäverotus, Alma Talent 2023.

(Narayanan – Bonneau – Felten et. al. 2016)

Narayanan, Arvind – Bonneau, Joseph – Felten, Edward – Miller, Andrew – Goldfeder, Steven, Bitcoin and Cryptocurrency Technologies, Princeton University Press 2016.

(Palmer 2021)

Palmer, Shelly, Blockchain – Cryptocurrency, NFTs & Smart Contracts, Digital Living Press 2021.

(Parkkonen, Mårten 2014)

Parkkonen, Jarmo – Knuts, Mårten, Arvopaperimarkkinalaki, Talentum, Helsinki 2014.

(Pavlidis 2022)

Pavlidis, Georgios, The digital transformation of the global green bonds market: New-fashioned international standards for a new generation of financial instruments, p. 263–279, in Data governance in AI, FinTech and LegalTech: law and regulation in the financial sector, (ed.) Lee, Joseph – Darbellay, Aline, Edward Elgar Publishing, publisher 2022.

(Peráček 2021)

Peráček, Tomáš, A few remarks on the (im)perfection of the term securities: a theoretical study, Juridical Tribunee Vol 11, Issue 2, June 2021.

(Pistor 2013)

Pistor, Katharina, A Legal Theory of Finance, Journal of Comparative Economics, Vol. 41, No. 2, 2013, Columbia Public Law Research Paper No. 13-348

(Raitio – Tuominen 2020)

Raitio, Juha – Tuominen, Tomi, Europan unionin oikeus, Alma Talent 2020.

(Sun – Wu – Kwok 2019)

Sun, Weimin – Wu, Xun – Kwok, Angela, Security Tokens and Stablecoins Quick Start Guide: Learn How to Build STO and Stablecoin Decentralized Applications, Packt Publishing 2019.

(Talus – Penttinen 2016)

Talus, Kim – Penttinen, Sirja-Leena: Eurooppaoikeudelliset oikeuslähteet ja niiden tulkinta oikeustieteellistä opinnäytetyötä kirjoittaessa, p. 223–245, in Oikeustieteellinen opinnäyte – artikkeleita oikeustieteellisten opinnäytteiden vaatimuksista, metodeista ja arvosteluista, (ed.) Tarmo Miettinen, Edita Publishing Oy 2016.

(Teixeira – Rotta 2012)

Teixeira, Rodrigo – Rotta, Tomas, Valueless Knowledge-Commodities and Financialization: Productive and Financial Dimensions of Capital Autonomization, Review of Radical Political Economics, 44(4), p. 448-467, 2012, Availablte at: https://research.gold.ac.uk/id/eprint/26870/.

(Tepora 2022)

Tepora, Jarno, Rahoitusmuodot ja vakuudet, Kauppakamari 2022.

(Tuori 2002)

Tuori, Kaarlo, Critical Legal Positivism, Taylor & Francis Group 2002.

(Tuori 2007)

Tuori, Kaarlo, Oikeuden ratio ja voluntas, WSOYpro 2007

(Van der Linden – Shirazi 2023)

Van der Linden, Tina – Shirazi, Tina, Markets in crypto-asset regulation: Does it provide legal certainty and increase adoption of crypto-assets? Financial Innovation 9:22, 2023, Availablet at: https://doi.org/10.1186/s40854-022-00432-8.

(Varhela – Virtanen 2022)

Varhela, Markku – Virtanen, Pertti, Markkinoinnin pelisäännöt, Alma Talent 2022.

(Voutilainen 2019)

Voutilainen, Tomi, Oikeus tietoon – informaatio-oikeuden perusteet, Edita Publishing 2019.

Online sources

(Adrian – He – Narain 2021)

Adrian, Tobias –He, Dong –Narain, Aditya, Global Crypto Regulation Should be Comprehensive, Consistent, and Coordinated, December 9, 2021. [https://www.imf.org/en/Blogs/Articles/2021/12/09/blog120921-global-crypto-regulation-should-be-comprehensive-consistent-coordinated] (August 18, 2023).

(Beers 2021)

Beers, Brian, Over-the-Counter Derivative, 2021 [https://www.investopedia.com/ask/answers/052815/what-overthecounter-derivative.asp], (August 14, 2023).

(Brodesser 1999)

Brodesser, Jens-Ingo, First Monday Interviews: David Chaum, First Monday 4, no. 7 (July 5, 1999), [https://journals.uic.edu/ojs/index.php/fm/article/view/683/593] (April 29, 2023).

(Coghlan 2023)

Coghlan, Jesse, SEC lawsuits: 68 cryptocurrencies are now seen as securities by the SEC, June 6, 2023, [https://cointelegraph.com/news/sec-labels-61-cryptocurrencies-securities-after-binance-suit], (August 3, 2023).

(CoinDesk)

Coindesk.com [https://www.coindesk.com] (August 8, 2023).

(CoinMarketCap)

Coinmarketcap.com [https://coinmarketcap.com] (August 8, 2023).

(Cointelegraph)

Cointelegraph.com – How does blockchain solve the byzantine generals problem? [https://cointelegraph.com/learn/how-does-blockchain-solve-the-byzantine-generals-problem] (May 6, 2023).

(DAOstack 2018)

DAOstack, An Operating System for Collective Intelligence – White Paper V1.1, April 22nd, 2018 [https://daostack.io/wp/DAOstack-White-Paper-en.pdf] (August 14, 2023).

(Diem)

Diem: An Introduction to the Diem Blockchain. [https://www.silvergate.com; and https://www.diem.com/en-us/] (August 8, 2023).

(Felsenthal – Hahn 2018)

Felsenthal, Mark – Hahn, Ryan, The World Bank press reliese: Financial Inclusion on the Rise, But Gaps Remain, Global Findex Database Shows, April 19, [https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows] (August 15, 2023).

(Filecoin)

Filecoin.com [https://filecoin.io] (August 17, 2023).

(Finanssiala Ry 2021)

Finanssiala Ry, Kysely: Suomalaiset luottavat pankkeihin enemmän kuin oikeusjärjestelmään 17.8.2021, [https://www.finanssiala.fi/uutiset/kysely-suomalaiset-luottavat-pankkeihin-enemman-kuin-oikeusjarjestelmaan/] (15.8.2023)

(FIN-FSA online news 17.3.2022 – 4/2022)

Finanssivalvonnan verkkouutinen 17.3.2022 – 4/2022: EU:n rahoitusalan sääntelyviranomaiset varoittavat kuluttajia kryptovarojen riskeistä [https://www.finanssivalvonta.fi/tiedotteet-ja-julkaisut/verkkouutiset/2022/eun-rahoitusalan-saantelyviranomaiset-varoittavat-kuluttajia-kryptovarojen-riskeista/] (March 14, 2023).

(FIN-FSA online news 20.12.2022 – 21/2022)

Finanssivalvonnan verkkouutinen 20.12.2022 – 21/2022: Virtuaalivaluuttamarkkinoilla epävarmuutta - Finanssivalvonta selvittää suomalaisten tarjoajien yhteyttä ongelmiin joutuneisiin toimijoihin [https://www.finanssivalvonta.fi/tiedotteet-ja-julkaisut/verkkouutiset/2022/virtuaalivaluuttamarkkinoilla-epavarmuutta--finanssivalvonta-selvittaa-suomalaisten-tarjoajien-yhteytta-ongelmiin-joutuneisiin-toimijoihin/] (March 14, 2023).

(Frankenfield 2023)

Frankenfield, Jake, Decentralized Applications (dApps): Definition, Uses, Pros and Cons, April 6, 2023, [https://www.investopedia.com/terms/d/decentralized-applications-dapps.asp] (July 24, 2023).

(Hayes 2022)

Hayes, Adam, Adjustable Peg: What it Means, How it Works, Example, 2022 [https://www.investopedia.com/terms/a/adjustable-peg.asp] (August 8, 2023)

(Hughes 1993)

Hughes, Eric, A Cybherpunk's Manifesto, March 9, 1993, [https://www.activism.net/cypherpunk/manifesto.html] (May 4, 2023).

(Ivey 2023)

Ivey, Alice, Primary vs. secondary markets: Key differences, 2023 [https://cointelegraph.com/news/primary-vs-secondary-markets-key-differences] (August 20, 2023).

(Kenton 2022)

Kenton, Will, Crawling Peg Definition, Purpose, Effect on Currencies, 2022 [https://www.investopedia.com/terms/c/crawlingpeg.asp] (August 8, 2023)

(Kordez 2017)

Kordez, Primoz, The Economics of Blockchain Protocols, 2017, [https://medium.com/@primoz.kordez/the-economics-of-blockchain-protocols-18bca548e596] (August 17, 2023).

(Lehtonen – Pirttivaara – Aura 2022)

Lehtonen, Kristo – Pirttivaara, Marja – Aura, Heikki, Web 3.0 and progress towards a new internet – What is it about and what does it offer us? [https://www.sitra.fi/en/articles/web-3-0-and-progress-towards-a-new-internet-what-is-it-about-and-what-does-it-offer-us/] (May 10, 2023).

(Lewis 1994)

Lewis, Peter H., Attention Internet Shoppers: E-Cash Is Here, Business Day, New York Times, October 19, 1994, [http://www.nytimes.com/1994/10/19/business/attention-internet-shoppers-e-cash-is-here.html] (April 28, 2023).

(Lyons et. al. 2019)

Lyons, Tom, et. al., Legal and regulatory framework of blockchains and smart contracts – a thematic report prepared by the European Union Blockchain Observatory and Forum 2019, [https://www.eublockchainforum.eu/sites/default/files/reports/report_legal_v1.0.pdf] (August 3, 2023).

(Nykänen 2023)

Nykänen, Marja, Editorial: Luottamus rahoitusjärjestelmään rakennetaan pitkäjänteisellä työllä [https://www.eurojatalous.fi/fi/2023/1/luottamus-rahoitusjarjestelmaan-rakennetaan-pitkajanteisella-tyolla/] (August 15, 2023).

(Pesme 2022)

Pesme, Jean, The World Bank Feature Story: COVID-19 Boosted the Adoption of Digital Financial Services, July 21, 2022, [https://www.worldbank.org/en/news/feature/2022/07/21/covid-19-boosted-the-adoption-of-digital-financial-services] (August 15, 2023).

(Puhakka 2018)

Puhakka, Iiris, FIN-FSA Blog: Turvaa lainsäädännöstä? Näkökulmia virtuaalivaluutan tarjoajia koskevaan lainsäädäntökehikkoon, 3.12.2018 – 12/2018, [https://urn.fi/URN:NBN:fi:bof-201901141031] (June 15, 2023).

(Ross 2023)

Ross, Verena, ESMA European Capital Markets: need for strength in uncertain times, 25 May 2023 ESMA24-225943895-195

(Sharma 2023)

Rakesh, Sharma, Non-Fungible Token (NFT): What It Means and How It Works, April 6, 2023, [https://www.investopedia.com/non-fungible-tokens-nft-5115211] (August 16, 2023).

(Steemit)

Steemit.com [https://smt.steem.com] (August 17, 2023).

(Taylor 2015)

Taylor, Adam, What are the economic costs of asset price bubbles? World Economic Forum, September 2, 2015, [https://www.weforum.org/agenda/2015/09/what-are-the-economic-costs-of-asset-price-bubbles/] (July 27, 2023).

(Voshmgir 2020)

Voshmgir, Shermin, Tokens, Cryptocurrencies & other Cryptoassets, 2020, [https://blockchainhub.net/tokens/] (July 24, 2023).

(WorldBank 2019)

Media release: World Bank Issues Second Tranche of Blockchain Bond via Bond-I, August 16, 2019, [https://www.commbank.com.au/guidance/newsroom/world-bank-blockchain-bond-bond-i-201908.html] (August 19, 2023).

LEGISLATION

EU

Regulations

(CSDR)

Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012.

(DLTR, DLT Pilot Regime)

Regulation (EU) 2022/858 of the European Parliament and of the Council on a pilot regime for market infrastructures based on distributed ledger technology and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU.

(DORA)

Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011.

(EMIR)

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

(MiCA)

Regulation (EU) 2023/1114 of the European Parliament and of the Council on markets in crypto-assets, and amending Regulations (EU) No 1093/2020 and (EU) 1095/2010 and directives 2013/36/EU and (EU) 2019/1937.

(MiFIR)

Regulation (EU) no 600/2014 of the European Parliament and of the Council on markets in financial instruments and amending Regulation (EU) No 648/2012.

Directives

(5AMLD)

Directive (EU) 2018/843 of the European Parliament and of the Council amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering of terrorist financing and amending Directives 2009/138/EC and 2013/36/EU.

(EMD 2)

Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (Second Electronic Money Directive).

(MiFID II)

Directive 2014/65/EU of the European Parliament and of the Council, on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.

(PSD 2)

Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Second Payment Service Directive).

Finland

Act on the Exercise of Freedom of Expression in Mass Media (460/2003).

Act on the Openness of Government Activities (621/1999).

Act on Virtual Currency Providers (572/2019).

Credit Institutions Act (610/2014, as amended).

Investment Services Act (747/2012, as amended).

Limited Liability Companies Act (624/2006, as amended).

Promissory Notes Act (622/1947, as amended).

Securities Market Act (746/2012, as amended).

Official sources

EU

COM (2017) 134, final, Annex to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – European Interoperability Framework – Implementation Strategy.

COM (2020) 591, final, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Digital Finance Strategy for the EU.

COM (2021) 574, final, Proposal for a decision of the European Parliament and of the Council establishing the 2030 Policy Programme: "Path to the Digital Decade".

EBA (2014) Report to the European Commission on the perimeter of credit institutions established in the Member States.

EBA (2018) Fintech Roadmap – Conclusions from the consultation on the EBA's approach to financial technology.

EBA (2019) Report with advice for the European Commission on crypto-assets.

EIF (2017) New European Interoperability Framework – Promoting seamless services and data flows for European public administrations, ISBN 978-92-79-63756-8.

ESMA (CESR) (2009) Questions and Answers: MiFID complex and non-complex financial instruments for the purposes of the Directive's appropriateness requirements, CESR/09-559.

ESMA (CESR) (2010) Questions and Answers: Understanding the definition of advice under MiFID, CESR/10-293.

ESMA (2015) Call for evidence: Investment using virtual currency or distributed ledger technology | ESMA/2015/532.

ESMA (2017) Report: The Distributed Ledger Technology Applied to Securities Markets | ESMA50-1121423017-285.

ESMA (2017) Questions and Answers: Relating to the provisions of CFDs and other speculative products to retail investors under MiFID, ESMA35-56-794.

ESMA (2019) Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391.

ESMA (2019) Advice on Initial Coin Offerings and Crypto-Assets – Annex 1 Legal qualification of crypto assets – survey to NCAs.

ESMA (2022) Report on the DLT Pilot Regime On the Call for Evidence on the DLT Pilot Regime and compensatory measures on supervisory data, ESMA 70-460-111.

ESMA (2022) Questions and Answers: On MiFID and MiFIR commodity derivatives topic, ESMA70-872942901-36.

ESMA (2022) Questions and Answers: On MiFID and MiFIR market structure topics, ESMA70-872942901-3.

ESMA (2023) Questions and Answers: On the implementation of Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, ESMA 70-460-189.

ESMA (2023) Questions and Answers: On the Securitisation Regulation, ESMA 33-128-563.

ENISA (2021) CRYPTO ASSETS – An Introduction to Digital Currencies and Distributed Ledger Technologies.

Finland

FIN-FSA (2019), Finanssivalvonnan määräykset ja ohjeet 4/2019 – Virtuaalivaluutan tarjoajat.

HE 184/2001 vp, Hallituksen esitys Eduskunnalle laeiksi arvopaperi-markkinalain ja kaupankäynnistä vakioiduilla optioilla ja termiineillä annetun lain muuttamisesta ja eräiksi niihin liittyviksi laeksi HE 184/2001.

HE 32/2012 vp, Hallituksen esitys eduskunnalle arvopaperimarkkinoita koskevaksi lainsäädännöksi HE 32/2012.

HE 151/2017 vp, Hallituksen esitys eduskunnalle laeiksi sijoituspalvelulain muuttamisesta ja kaupankäynnistä rahoitusvälineillä sekä eräiksi niihin liittyviksi laeiksi 151/2017.

HE 167/2018 vp, Hallituksen esitys eduskunnalle laeiksi pankki- ja maksutilien valvontajärjestelmästä ja eräiksi siihen liittyviksi laeiksi HE 167/2018.

International Sources

Cryptoassets Taskforce UK: Final Report (October 2018), [http://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752070/cryptoassets_taskforce_fina_report_final_web.pdf].

FCA (2019) Guidance on Cryptoassets Feedback and Final Guidance to CP 19/3, Policy Statement PS17/22, UK.

U.S. District Court Southern District of Florida: Rensel v. Centra Tech, Inc., D.C. Docket No. 1:17-cv-24500-RNS (June 29, 2021).

U.S. Securities and Exchange Commission – Crypto Assets and Cyber Enforcement Actions, [https://www.sec.gov/spotlight/cybersecurity-enforcement-actions], (August 3, 2023).

U.S. Supreme Court of Justice: SEC v W.J. Howey Co., 328 U.S. 293 (1946) (“Howey”).

ABBREVIATIONS

5AMLD	Directive (EU) 2018/843 of the European Parliament and of the Council amending Directive (EU) 2015/849 and Directives 2009/138/EC and 2013/36/EU on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing (the 5th Money Laundering Directive
AIF	Alternative Investment Fund
AML/CFT	Anti-money Laundering and Countering the Financing of Terrorism
CSD	Central Securities Depositories
CSDR	Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012
CPP	Central Counterparty
DAO	Decentralised Anonymous Organisation
DApp	Decentralised Application
DeFi	Decentralised Finance
DLT	Distributed Ledger Technology
DLT SS	DLT settlement system
DLT TSS	DLT trading and settlement system
DLTR	Regulation (EU) 2022/858 of the European Parliament and of the Council on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU (DLT Pilot Regime)
DORA	Digital Operational Resilience Act

FSB	Financial Stability Board
FIN-FSA	Finnish Financial Supervisory Authority
Fintech	Financial Technology
EBA	European Banking Authority
EEA	European Economic Are
EEOTC	Economically Equivalent Over the Counter
EIF	European Interoperability Framework
EMD2	Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (Second Electronic Money Directive)
ESMA	European Securities and Markets Authority
ENISA	The European Union Agency for Cybersecurity
EU	European Union
ICO	Initial Coin Offering
IMF	International Monetary Fund
KYC	Know Your Client
MiCA	Regulation (EU) 2023/1114 of the European Parliament and of the Council on markets in crypto-assets, and amending Regulations (EU) No 1093/2020 and (EU) 1095/2010 and directives 2013/36/EU and (EU) 2019/1937
MiFID II	Directive 2014/65/EU of the European Parliament and of the Council, on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU
MiFIR	Regulation (EU) no 600/2014 of the European Parliament and of the Council on markets in financial instruments and amending Regulation (EU) No 648/2012

MTF	Multilateral Trading Facility
NCA	National Competent Authority
NFT	Non-Fungible Token
OTC	Over the Counter
PSD2	Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Second Payment Service Directive)
P2P	Peer-to-Peer
SEC	U.S. Securities and Exchange Commission
SPV/SPE	Special Purpose Vehicle / Special Purpose Entity
TEU	Treaty on European Union
TSS	Trading and Settlement Systems
UCIT	Undertakings for the Collective Investment in Transferable Securities
VC	Virtual Currency

TABLES

1 INTRODUCTION

1.1 Background and Relevance of the Study

Crypto-assets are potentially changing the international monetary and financial system in profound ways.[1] The potential of the Peer-to-peer systems and technology underneath it, is seen as a fundamental and foundational rather than merely disruptive technology.[2] The main frontier issues related to crypto-assets are precisely in financial regulation. So called cryptocurrencies are one of the most important applications of blockchain technology in finance, although this is not the first time when digitalisation is motivating legislative development in the financial sector.[3] The financial sector is at the forefront of applying blockchain technology alongside big data and artificial intelligence. The question of whether and how crypto-assets should be subject to financial regulation has recently crept up as a problematic question.[4]

According to survey carried out two years ago Finns trust banks more than the legal system.[5] Referring to the most recent global turbulence, first with the COVID pandemic and now with the Russia's war against Ukraine, the Bank of Finland has stated that Finland's banking sector is well placed to withstand the real-life stress tests that may lie ahead if the economy deteriorates further. In addition, Banks' resilience has been strengthened by imposing additional capital requirements based on macro-prudential regulation to cover systemic risks, and the resilience of the financial system has been enhanced through a new contingency system for overnight payments. It ensures the availability of bank accounts in all

[1] Adrian – He – Narain 2021.
[2] Johansson – Eerola – Innanen et. al. 2019, p. 33. Disruptive technology refers to technological innovation that has the potential to replace old business models with more efficient solutions in the blink of an eye. The authors underline the potential of blockchain technology as a new foundation for entire economic and social systems. However, the uptake of such technologies is likely to be slow and gradual.
[3] Digitalisation and technology have previously been motivating MiFID II regulation on risk management measures, market abuse purposes and the disruption resilience of trading systems in algorithmic trading and high-speed algorithmic trading, among others. Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on Markets in Financial Instruments Online and amending Directive 2002/92/EC and Directive 2011/61/EU [OJ L 173/350, 12.6.2014, (63)].
[4] The problem of interpretation is universal and not limited to Finland and the European Union.
[5] Finanssiala Ry 2021, [https://www.finanssiala.fi/uutiset/kysely-suomalaiset-luottavat-pankkeihin-enemman-kuin-oikeusjarjestelmaan/] (last accessed August 15, 2023).

circumstances.[6] However, although we have relatively stable financial and banking services in the EU and especially in Finland, the situation is not the same all over the world. Globally, around 1.4–1.7 billion adults are still unbanked, and even being banked does not guarantee access to financial services. Yet two-thirds of these unbanked person own a mobile phone that could help them access financial services. Digital technology is going to take advantage of existing cash transactions to bring people into the financial system.[7] Crypto-assets has their potential place in this future of digital finance.

The Finnish Financial Supervisory Authority (**FIN-FSA**) has warned consumers and investors about the lack of ex-post safeguards for crypto-asset-related investment activities, as crypto-assets and related products and services are generally not covered by the current EU financial services rules.[8] The government's proposal *HE 167/2018* states that virtual currency providers operate at the interface of the financial system and virtual currencies pose risks to the financial system and investors. And national authorities are rightly concerned about potential risks posed to the financial system and to its customers in terms of consumer protection, the clarity and consistency of regulatory and legal frameworks, the adequacy of existing financial safety nets, and potential threats to financial integrity. As technology changes financial service features and market structure, financial regulation must adapt to remain effective. In turn, regulation could also have an important influence on the development of technology.[9]

Finnish national legislation seems to leave a considerable amount of discretion to the crypto-asset marketers. It is left to the issuer of the crypto-asset to make and include in its marketing material an assessment of the nature of the token and the distinction between a so-called virtual currency, a security, and other financial instrument. The same crypto-asset may also be considered, on the other hand, as all of these at the same time. However, the nature of the virtual currency or cryptocurrency determines the content of the disclosure and marketing material related to the issuance of the asset in question, as well as their possible prior

---

[6] Nykänen 2023, [https://www.eurojatalous.fi/fi/2023/1/luottamus-rahoitusjarjestelmaan-rakennetaan-pitkajanteisella-tyolla/] (last accessed August 15, 2023).
[7] Vid. Pesme 2022, [https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows]; and Felsenthal – Hahn 2018, [https://www.worldbank.org/en/news/press-release/2018/04/19/financial-inclusion-on-the-rise-but-gaps-remain-global-findex-database-shows] (last accessed August 15, 2023).
[8] FIN-FSA online news 17.3.2022 – 4/2022.
[9] Madir 2021, p. 16.

approval of their content by FIN-FSA.[10] National Competent Authorities (**NCAs**) of the Members States of European Union (**EU**) has also noted that the qualification of all crypto-assets as financial instruments would have unwanted collateral effects and the distinguish between the different types of crypto-assets is needed. This for the reason that first, the existing regulation was not drafted having these instruments in mind, second, acknowledging them as financial instruments would grant them potentially unwanted legitimacy, and third, the needed supervisory tools and resources may not be in place.[11]

The European Union administration elected in 2019 has set an agenda for financial markets, including the development of a legislative framework for the crypto-asset market. The president of the European Commission Ursula von der Leyen has emphasized the European drive to harness opportunities of the digital age and investment in in blockchain technologies. To this end, EU has proposed a FinTech Strategy to support new digital technologies in financial system.[12] Many of the Commission's initiatives have already been completed, are entered into force, and some are already being implemented.

1.2 Research Questions and Exclusions

It has been recognised that most crypto-assets fall outside the scope of European Union financial services legislation and create challenges in terms of, among other things, investor protection, market integrity, energy consumption and financial stability. By contrast, other crypto assets qualify as financial instruments within the meaning of the Directive 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 (**MIFID II**). Insofar as crypto-assets qualify as financial instruments under that Directive, a full set of Union financial services legislation, including Regulations (EU) No 236/2012[13], (EU) No 596/2014[14],

[10] Puhakka 2018, [https://urn.fi/URN:NBN:fi:bof-201901141031].
[11] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 21.
[12] Ferreira – Sander 2021, p. 2.
[13] Regulation (EU) No 236/2012 of the European Parliament and of the Council of 14 March 2012 on short selling and certain aspects of credit default swaps.
[14] Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC.

(EU) No 909/2014[15] and (EU) 2017/1129[16] and Directives 98/26/EC[17] and 2013/50/EU[18] of the European Parliament and of the Council potentially apply to issuers of such crypto-assets as well as to firms conducting activities related to such crypto-assets.[19]

So, at EU level, it has been recognised not only, that not all crypto-assets can be interpreted as financial instruments, but also that crypto-assets that can be interpreted as financial instruments are potentially not fully covered by the existing financial regulatory framework. In other words, it has been identified that there are (1) crypto assets that cannot be interpreted as financial instruments, (2) crypto assets that can be interpreted as financial instruments, and (3) other so-called traditional financial instruments.[20] A particular problem in the operation of crypto-asset transactions has been the identification of the distinction between 1 and 2, as both national and Union-wide legislation does not provide an unambiguous answer. But also, what is the actual difference between 2 and 3 as well. However, drawing and identifying this distinction is a primary interest, both for companies just starting out in the crypto-related business and seeking to enter the market, and for service providers already operating in the market.[21]

The lack of clarity in the legal landscape creates uncertainty in the industry, both nationally and internationally. The entry of foreign crypto related service providers into the Finnish market may be hampered or be even prevented by the lack of clarity on the obligations of the service provider due to the unclear legal situation. Such obligations include various prior authorisation and/or licensing obligations, consideration of consumer protection legislation

[15] Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012.
[16] Regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 on the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market, and repealing Directive 2003/71/EC.
[17] Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems.
[18] Directive 2013/50/EU of the European Parliament and of the Council of 22 October 2013 amending Directive 2004/109/EC of the European Parliament and of the Council on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market, Directive 2003/71/EC of the European Parliament and of the Council on the prospectus to be published when securities are offered to the public or admitted to trading and Commission Directive 2007/14/EC laying down detailed rules for the implementation of certain provisions of Directive 2004/109/EC.
[19] Regulation (EU) 2022/858, recital (2).
[20] ESMA Call for evidence: Investment using virtual currency or distributed ledger technology, 2015, p. 8.
[21] Ross 2023, p. 4. Verena Ross, Chair of the European Securities and Markets Authority has recently expressed concern on the crypto-asset regulation especially in relation to lighter investor protection, market integrity and reporting obligations, compared to traditional financial regulation.

and investor protection, as well as various aspects of both marketing and a wide range of risks, cyber and financial. The lack of clarity of obligations is likely to increase both the upfront legal costs for the business and the ex-post risk in the event of an inadequate or even incorrect interpretation of the legal situation. The complexity and complexity of financial regulation, the number of obligations, both ex ante (know your client, anti-money laundering, licensing, and authorisations), and those to be considered during the operating period (preservation of client assets, marketing, consumer, and investor protection), is massive. Locating the activity in this regulatory field is crucial.

Since there are so many forms of financial instruments in the capital market, it is not appropriate go through all the individual financial instruments in this paper. That's why the research questions are:

1. What does it mean when a crypto-asset is considered to be developed for investment purposes and how these tokens fit into the overall crypto-asset taxonomy;
2. What characteristics and features crypto-asset needs to have in order to be considered as a transferable security; and
3. What characteristics and crypto-asset needs to have in order to be considered as a derivative.

In more detail, the first research question aims to systematise the classification of crypto-assets, and in particular to demonstrate what is meant when talking investment type crypto-assets and/or financial type crypto-assets. In addition, it clarifies the relevance of the positioning in the taxonomy for the applicable regulation, as well as frames the hierarchy of applicable regulation in relation to situation where a crypto asset has characteristics of several different categories of crypto-assets, showing which characteristics are given most weight when assessing the legal form of crypto-asset and the most appropriate regulation. We will find answer to the first question and its sub-questions, by locating the ontology of crypto investments in the overall financial market field and understanding their nature and purpose in the financial sector. Defining the main categories, and forming the basic taxonomy, into which regulation divides crypto-assets. By summarizing the information of these two findings, to summarise what is meant (and what is not) when we mean investment type crypto-assets. The second and third research questions aim to answer, when crypto-asset is qualified as these forms of financial instruments, transferable security and derivative. In order to answer these questions, it is necessary to identify those common characteristics of

transferable security as well as those legal features of crypto-asset that implies the characterisation of a security, and how can crypto-asset be qualified as a derivative.

Overall, the research objectives can be summarised as to clarify the definition of financial type crypto asset as well as systematise the taxonomy of crypto-assets issued for investment and financial purposes in the legal regulatory landscape. This thesis can be seen as a contribution to the systematisation of the conceptual semantics related to crypto-assets. As a fairly new legal phenomenon, the concepts related to cryptos are still unclear, both in legal and in common language. And since language creates reality, there is a particular place for legal research on this subject.

Some exclusions had to be made in relation to the research questions and the thesis. First of all, the geographical scope of the study covers the EU, while maintaining a national perspective whenever needed. A purely national perspective would give a very limited and distorted picture of the research questions in the context of a widely harmonised financial regulation in the EU. The thesis positions oneself in the area of private law at the interface between legal informatics and financial law. The purpose of this thesis is not to focus on aspects of securities law beyond what is relevant, as the chosen perspective in this thesis is the perspective of crypto-assets, not capital markets. The done research in securities law is also quite extensive up to the doctoral level. Doctor of Laws *Jesse Collins* has carried out a comprehensive study of securities market law in 2020. In addition, Master of Laws *Jonathan Mainz* has specifically studied the Regulation (EU) 2023/1114[22] (**MiCA**) and its consumer protection questions[23] in 2022, but the subject of this thesis covers MiCA only indirectly and even there only subsidiary, as MiCA expressly excludes from its scope crypto-assets that qualify as financial instruments as defined in Directive MIFID II.[24]

Moreover, the thesis does not take a broader position on virtual currencies, beyond the mandatory mention, not least because it is expected that national legislation on virtual currencies will soon be rendered obsolete by EU regulation. Any crypto phenomena other than those

[22] Regulation (EU) of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, amending Regulations (EU) No 1093/2010 and (EU) 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937.
[23] Name of the Jonathan Mainz's thesis is The Regulation Paradox of the Crypto-Asset Industry – A Critical Analysis on How the European Union is Going to Resolve the Conflicts of Interest and Regulatory Challenges When Integrating the New Asset Class to the Scope of Regulation (2022) and it can be found at Edilex.fi.
[24] MiCA recital (9)

related to financial law and broadly defined, monetary and financial policy, are excluded from the scope of the study. Thus, although in common language cryptos are usually treated as one big mass, meaning also NFT tokens[25] and virtual currencies, the thesis excludes all research other than that directly related to financial law. Moreover, although the thesis provides a fairly comprehensive treatment of the technical background of cryptos, the presentation chosen is related to the need to provide a background to crypto-assets and the financial element of crypto-assets and to clarify the legislative and technical direction taken by the EU, rather than to provide a comprehensive presentation of the programming side of cryptos.

1.3 Legal Dogmatics and Jurisprudential Research

The research questions and their objectives set out in the Chapter 1.2 are answered by the method of legal dogmatics. This thesis has a legal dogmatic, *de lege lata*, methodological approach, which means examining the law from the perspective of the law in force. The final chapter of the thesis, *conclusions*, deals with the *de lege ferenda* -position, that produces analogous solution recommendations and different solution models for the legislator, but which is a fairly standard by-product of legal dogmatic, and cannot be regarded as a methodological choice of this thesis.[26]

What can be said about legal research and jurisprudence in general is that it is inherently revelatory and retrospective in nature. The knowledge already exists, it just needs to be discovered and uncovered, clarified and systematised, with an understanding of the interrelationships and problematic interfaces. A good research question will help to find these points of intersection between clear and unclear legal situation, which cause the above-mentioned problems of interpretation. Conventionally, for example in science, a method can be thought of as the rule of calculation underlying a study. This is not the case in law. The study of law is a matter of judgement. *Aarnio* (1997) describes this as ‘Weighing and balancing’.[27]

[25] Sharma 2023, Non-fungible tokens (NFTs) are unique cryptographic tokens that exist on a blockchain and cannot be replicated NFTs can represent digital or real-world items like artwork and real estate, and individuals' identities, property rights, and more, [https://www.investopedia.com/non-fungible-tokens-nft-5115211] (last accessed August 16, 2023).
[26] Määttä 2015, p. 151.
[27] Aarnio 1997, p. 35.

The legal dogmatic approach is characterized by an emphasis on the perspective of the person who applies the law, the so-called internal perspective of the law, in the guidance of attitudes such as the ideology of the court participant and the judge.[28] The object and research question of the legal dogmatic is the content of the law in force. The aim of the legal dogmatic is twofold: to interpret the content of legal rules and to systematise the law in force.[29] Legal dogmatic as a method can be divided into practical side, which provides interpretative recommendations to assist the legislator, and theoretical side, which focuses on the development of general doctrines and the systematization of the law, after all interacting with each other. The methods of practical legal dogmatic include doctrines of legal sources, interpretation doctrines and argumentation doctrines.[30] Practical legal dogmatics seeks to break down traditional concepts and terms in sub-concepts. *Aarnio* describes concepts and terms as a lens through which we view the reality of law.[31] And I cannot disagree with him. Our verbal expression in general sets limits to our understanding and explanation of the world around us. Art begins where words stops but we cannot describe jurisprudence with art. High-quality legal dogmatic research creates a consensus on the content of law in relation to the community. On the other hand, by correctly locating concepts and terms, we can also practice the other part of legal dogmatics – systematisation.

A key part of the systematisation of law is to divide the legal order into different fields of law. Systematising the law facilitates the conceptual management of the legal order and the understanding of the relationships between the different subdivisions. The existence of different fields of law is a prerequisite for systematisation, but at the same time the fields themselves are products of systematisation.[32] In order to be considered as an independent field of law, a particular field of law needs not only a specific subject of regulation, but also its own specific norms and the general doctrines that structure these norms. The general doctrines are generally considered to consist of legal concepts, legal principles and legal dogmatic theories specific to each field of law.[33]

[28] Vid. Aarnio 2011, p. 20; and Tuori 2002, p. 286.
[29] Husa – Mutanen – Pohjolainen 2008, p. 20.
[30] Määttä – Paso 2019, p. 7–8, 11–12.
[31] Aarnio 1997, p. 44.
[32] Jyränki – Husa 2012, p. 73.
[33] Tuori 2007, p. 110.

Thus, legal research, and legal dogmatic in particular, could be described as starting from a single point of ontology and branching out from that point in different directions – usually through and by means of concept definitions and additional concepts. The method of legal dogmatic is working with the building blocks of law and regulation that already exist, so that it can at most reveal gaps; in other words, it can prove that there are gaps. What can be achieved by legal dogmatic is a chain of reasoning based on verifiable data, at the very most, a chain of reasoning that is as thorough and critical as possible and that can be followed up by objective evaluation. However, this approach does not answer the *de lege ferenda* -question – what the regulatory condition should be. Especially if we see the study of law from the perspective of realism and behaviourist idealism, where scientific theory can only contain three types of propositions: logical deductions, and propositions derived from or based on experience - logic and positivism, and where the role of jurisprudence is only to predict the behaviour of the judge.[34] The arguments for the need for new regulation are meaningless if they are based only on the view that there is a lack of precise regulation. Gaps in the legal situation do not necessarily mean the same thing as the need for regulation. However if, and because we do, we generally take the view that a gap or lack of clarity equals the need for complementary regulation, the pace of regulatory growth will accelerate, and legal regulation will become more complex, with further divergence between different fields of law. Goals, values, visionary opinions, and needs, guide the way things should be. This is why law is a better instrument than a pioneer.

Kurkela (2009) has written on interpretation of law, and that increasingly social phenomena and the rapidly growing sophistication of business, finance and technology, are raising problems and categories of problems that are not known or even recognised by the law, leaving the practitioner to rely on legal principles and common sense. The legislative process is too slow and incomplete to keep up to date, resulting in a growing grey or white area outside the letter of the law. When the area outside the letter of the law grows much faster in relative terms than the area covered by the letter of the law, the practice of law approaches legislation as a *lex specialis* and, at the same time, predictability may be reduced.[35] Legal research has a place in closing this gap between slow legislative process and social change.

[34] Aarnio 1997, p. 47. Aarnio has written about *Alf Ross* who is known for his so-called prediction theory, which is dominated by behaviorist idealism.
[35] Kurkela 2009, p. 462.

1.4 Source Material

The source material on this thesis is formed in the way indicated by the legal source doctrine. Legal sources are those sources where legal rules can be found. The hierarchy of norms refers to the order and degree of binding force of the different levels of legal sources. A lower-level norm cannot contradict a higher-level norm. If such a conflict occurs, the higher norm overrides the conflicting lower norm.[36] The main material of the thesis consists of European Union level regulation although reference is made to domestic material where necessary. This specific material has been selected because some national legislation can be expected to expire soon, and EU in general plays a pioneering role in crypto-asset-related legislation by being one of the first to create comprehensive regulatory framework for crypto-related activities.

According to the Article 5 (1) of the Treaty on European Union (**TEU**) the EU's competence is determined by the *principle of conferral* (*powers*). Article 5 (2) of the TEU specifies, that in accordance with the principle of conferral powers, the Union acts only within the limits of the powers conferred on it by the Member States in the Treaties and in pursuit of the objectives set out in those Treaties. European law supersedes national law if there is a conflict between them. European law therefore takes precedence over national law. The principle of primacy is a conflict resolution rule i.e., it determines which rule from which legal order applies. The principle of primacy ensures that European law rules are valid and have the same content in all Member States. However, it should be noted that the principle of primacy does not create a hierarchy between the legal systems of the Member States and those of the European Union. Member States are sovereign, and the principle of primacy applies only within the limits of the principle of conferred competence.[37]

The source material of the thesis primarily is based on EU secondary law i.e., the legal material created by the EU institutions in the exercise of the powers conferred on them by the EU Treaties, below the primary levels of EU law and international law. The main provisions fall into the category of regulations and directives. In more particular, the main regulation referred to at EU level are Directive 2014/65/EU of the European Parliament and of the Council, on markets in financial instruments and amending Directive 2002/92/EC and

[36] Talus – Penttinen 2016, p. 225.
[37] Raitio – Tuominen 2020, p. 218, 235–236.

Directive 2011/61/EU (**MiFID II**, or just **MiFID**), Regulation (EU) 2023/1114 of the European Parliament and of the Council on markets in crypto-assets, and amending Regulations (EU) No 1093/2020 and (EU) 1095/2010 and directives 2013/36/EU and (EU) 2019/1937 (**MiCA**), and Regulation (EU) 2022/858 of the European Parliament and of the Council on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU (**DLTR, DLT Pilot Regime**).

An EU regulation is directly binding in all Member States. It enters into force directly when it is published in the Official Journal of the EU. A regulation does not need to and may not be implemented into national law but is applied as such. Regulations are used, for example, to ensure that in cross-border situations the rules are identical throughout the Union. The Directive is only binding in terms of the result to be achieved. Directives are implemented into national law, which leaves Member States a margin of discretion as to both the legal form and the precise content. As a result, national differences in regulation may well exist in the areas covered by directives. Of course, sometimes directives are so detailed that there is in fact very little room for maneuver at national level.[38]

In addition to legally binding instruments, the EU can adopt soft-law standards. These include recommendations and opinions. These instruments are part of a wider range of soft law instruments, including guidelines, Commission communications and resolutions.[39] The special feature of the thesis is a considerable large amount of soft-law material, mainly guidelines, standards and opinions issued by competent authorities. This is due both to the novelty of the study and to the nature of the research questions. There is guidance from the EU authorities, in particular from European Securities and Markets Authority (**ESMA**), and European Banking Authority (**EBA**), but from FIN-FSA as well. The Authority bases its competence to issue guidance on a legislative mandate.

At national level, especially, the Securities Market Act (746/2012, as amended), the Investment Services Act (747/2012, as amended) and the Virtual Currency Act (572/2019, as amended, **VCA**) and the legislative drafting material of these acts are referred to where necessary. However, according to the main rule of the statement by the FIN-FSA, the Investment

[38] Talus – Penttinen 2016, p. 228–229.
[39] Talus – Penttinen 2016, p. 233.

Services Act or the Securities Markets Act do not in principle apply to virtual currency providers. Thus, for example, the general concept of investor protection or deposit protection is not applicable to virtual currency activities.[40] The current regulation of virtual currency providers is based on the EU's Directive (EU) 2018/843 of the European Parliament and of the Council amending Directive (EU) 2015/849 and Directives 2009/138/EC and 2013/36/EU on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing (the 5th Money Laundering Directive, **5AMLD**) and is much more limited than, for example, the regulation of investment activities – for example, there are no provisions on investor protection and the obligation to inform customers is relatively general.[41] The national regulation of crypto assets has been designed to provide a framework for the registration of virtual currency providers and, above all, for compliance with anti-money laundering regulations.[42] The legislative framework based on Money Laundering Directive requires Member States to require registration of providers of virtual currency exchange services and wallet services.[43] Our national regulation also covers identifiable virtual currency issuers.[44]

Concerning the literature used in the thesis to discuss and support the argumentation, also non-national and non-EU legal literature sources has been used. Although the problem of the applicability of international legal literature is recognised, the reasons for this choice are entirely based on the global topical nature of the research questions and the lack of national and EU sources. The very nature of crypto-assets is such that they are a phenomenon that transcends legal systems, and the simultaneous topicality of the problem of their legal interpretation throughout international legal studies provides a justifiable reason for relying on source material written in other legal systems. It is also appropriate to address that international literature is used in conceptually abstract interpretative studies, where the content of the source material itself must be understood as an ontological reflection on crypto-

[40] The virtual currency provider is subject to separate obligations under Section 11 of the Virtual Currency Act to safeguard customer funds so that the funds defined in the section are not mixed with the funds of another service user, service provider or its own funds. In its regulations and guidelines (4/2019), the Financial Supervisory Authority has therefore clarified the obligation to hold client assets and also extended the definition of assets to include the holding and protection of private cryptographic keys, p. 10.
[41] FIN-FSA: Online News 20.12.2022 – 21/2022.
[42] Puhakka 2018, [https://urn.fi/URN:NBN:fi:bof-201901141031] (last accessed June 15, 2023).
[43] Directive (EU) 2018/843 of the European Parliament and of the Council amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering of terrorist financing and amending Directives 2009/138/EC and 2013/36/EU.
[44] HE 167/2018 vp, p. 48.

economics at a higher level, and not as an interpretative recommendation directly linked to a particular legal system.

1.5 Terminology and Structure of the Thesis

Difficulties in defining crypto-assets and determining when they should be subject to existing regulations has been widely reported by national authorities. The issue of ambiguous terminology and unclear classification has challenged regulators' ability to define and enforce regulatory perimeters. This results from the fact the most crypto-assets defy traditional legal and regulatory taxonomies.[45] One objective of the thesis is to bring clarity and systematise itself the terminology and definition of crypto-assets. All necessary terms are defined, and the related theory is presented, in the natural chapters of the thesis, so that the reader always has the information needed for that part of the text cumulatively collected. It is, however, appropriate to clarify few main points related to terminology used in the thesis especially concerning terms *token* and *crypto* and *virtual- /cryptocurrency.*

There is no congruent definition for a *token*, but technically it is an entry of information in a distributed ledger technology (**DLT**).[46] *The European Blockchain Observatory* and Forum defines token as a type of digital asset that can be tracked or transferred on a blockchain and often used as a digital representation of assets, such as commodities, stocks or physical goods, or to incentivize market participants in maintaining and securing blockchain networks.[47] Token can be considered as the broadest of all concept, and encompassing cryptos in the financial sector and as well as all other blockchain-based applications considering other areas of law. The term *crypto* or *crypto-asset*[48] is intended, depending on the context, to refer to the umbrella concept all token types covering blockchain and or distributed technology -based portable digital value, but mainly in the meaning of finance law excluding, for example, NFTs. Terminological overlays have been outlined in Table 1. to clarify the understanding of the conceptual jungle of the thesis.

---

[45] Ferreira – Sander 2021, p. 10.
[46] Layr 2021, p. 49.
[47] Lyons et. al. 2019, p. 18. [https://www.eublockchainforum.eu/sites/default/files/reports/report_legal_v1.0.pdf] (last accessed August 20, 2023).
[48] There are many ways to conceptualise crypto-asset, and one of them is UK's Government's Taskforce Report's definition according to which: *a cryptoasset is a cryptographically secured digital representation or contractual rights that uses some type of DLT and can be transferred, stored or traded electronically.*

In addition, the term virtual currency[49] is used almost like a synonym with crypto-asset in our national legislation. However, a direct correlation between these concepts cannot and should not be made, hence virtual currency is just a particular sub-type of crypto-asset. The concept of virtual currency appears in the thesis only in the context of national virtual currency regulation and is derived from Fifth Money Laundering Directive.

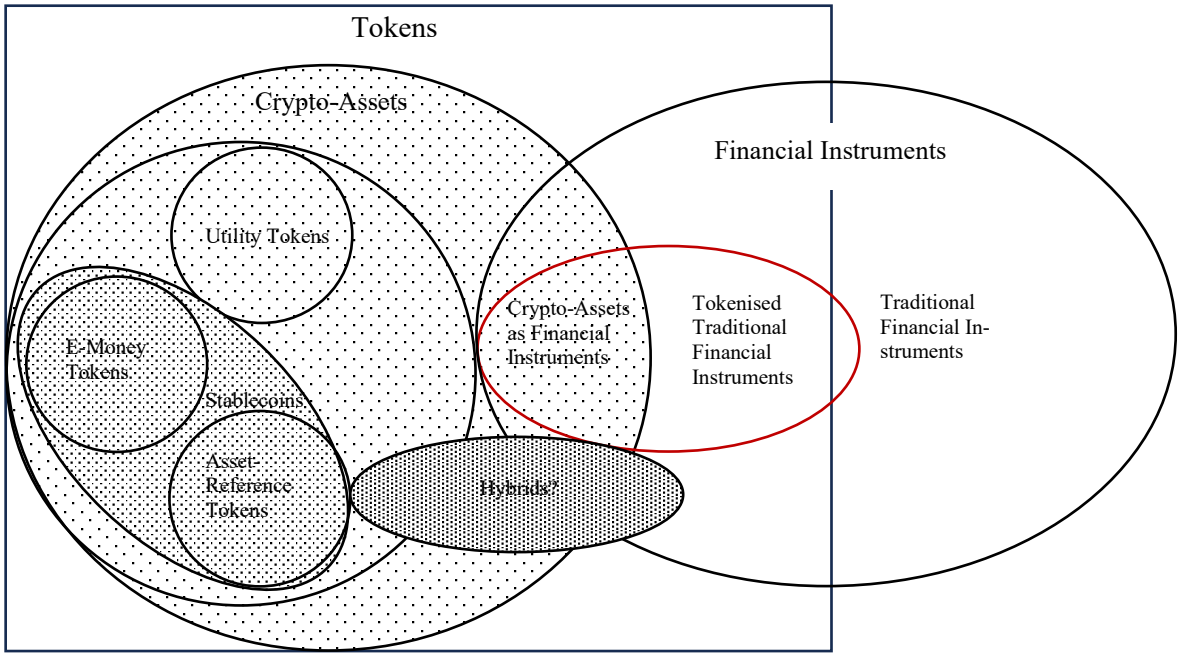


Table 1. Holistic outline of the terminology used in the thesis.

The structure of the thesis is such that the Chapter 2 of the thesis presents the relevant historical and technological background influencing the research questions. In addition, it introduces EU's main principles and overall approach to digital finance regulation. An understanding of these also helps to justify the relevance of the research questions and the methodological choices made in the thesis. Chapter 3 focuses mainly to the first research question and localises financial type crypto-assets, investment tokens, in the overall crypto-asset taxonomy. Chapter 4 dives deeper particularly to the research question 2 and transferable securities, and the overlapping characters and features of crypto-assets to be assessed as such,

[49] International equivalent for virtual currency is cryptocurrency. It is generally though that cryptos as Bitcoin, Ether, Binance, Polkadot and Dogecoin, to mention few, are among the most well well-known cryptocurrencies. Cryptocurrencies were first and foremost created to provide an alternative to traditional fiat currencies issued by governments and enable fast, secure, and anonymous internet payments. (Vid. van der Linden – Shirazi 2023, p. 5).

also taking into account national legislation. Chapter 5 focuses on development in the financial sector – hyper financialisation and some hybrid forms of financial type crypto-assets, derivatives, and what it adds to the subject under discussion. Finally, the Chapter 6 concludes the thesis, summarises the results of the thesis in the light of the research questions, and evaluates the achievement of the research objectives. It also assesses the problems that the thesis has identified in relation to the topic and identifies possible legislative measures, as well as possible areas for further research.

2 FROM CYBERPUNKS' FREEDOM IDEOLOGY TO FINTECH

2.1 History of Internet and the Invention of Bitcoin

It would be worthy to briefly review *why* cryptos and the underlying technology DLT (which we will return to in the Chapter 2.2) have become such a big fuss in the financial sector. Let's take a moment to look at the bigger picture: cryptos are part of a wider phenomenon of decentralised finance (**DeFi**). We have lived for centuries in a world with centralised finance sector of which problems DeFi offers to solve. There are considered to be five key problems in centralised finance: 1) centralised control over the baking systems; 2) limited access to banking and financial services; 3) Inefficiency, not least in transaction costs; 4) lack of interoperability; and 5) opacity, lack of transparency.[50] Then in a smaller scale, using DLT for the entire payments value chain aims to provide several benefits: 1) the use of DLT enables real-time settlement with other assets or DLT-based currencies (i.e., delivery-vs-payment); 2) DLT would support the tokenization of all kinds of assets in addition to money; 3) by using DLT, trust would be shifted from institutions, such as commercial banks, central banks, and other financial institutions, to technology as executing a transaction would not necessarily require an intermediary, and so on, counterparty risk is, thereby, significantly reduced or altogether removed; 4) business processes could be operated more seamlessly by removing system breaks, and automation can be increased.[51]

But in order to understand the bigger picture, it is necessary to briefly reverse to the history, to where it all started. Although cryptos have only entered the public debate mainly in the last ten years, their history dates to the early days of the internet and is still closely linked to development of third generation of the web – Web 3.0[52]. In the twenty-first century instead

[50] Harvey – Ramachandran – Santoro 2021, p. 4–5.
[51] Vid. Heckel – Waldenberg 2022, p. 100–101; Salomon – Witzig (ed. Kraus, Obrist, Hari) 2019, p. 20.
[52] Web 3.0 is blockchain based, decentralized web, that does not need a central entity or intermediary to carry out transactions. In the history of internet Web 1.0 in 1990, the first-generation of the web, was static, meaning that the content remained the same for every user. Data was stored in one server / computer at a time. Web 2.0 came in the early 2000s. In Web 2.0 websites are dynamic and interactive, meaning that pages can appear differently to different people a different time. Data comes from users and is accumulated and centralised in the hands of large technology companies. Users are paying for the "free" services with their personal data which becomes the property of big tech companies. The transition to Web 3.0 began in the late 2010s. In Web 3.0 customer and user of the content also is the only owner of the content they share. In totally decentralised system everyone has the same access to the information in the web. (Lehtonen – Pirttivaara – Aura 2022, [https://www.sitra.fi/en/articles/web-3-0-and-progress-towards-a-new-internet-what-is-it-about-and-what-does-it-offer-us/] last accessed February 24, 2023). This thesis will not discuss web 3.0 beyond this mention.

of relying on a centralized server – parties began experimenting with peer-to-peer (**P2P**) networks[53], which relied on a decentralised infrastructure where participants in the network acted as both a supplier and a consumer of informational resources. This model gained mainstream popularity with the launch of Napster's software. By running the software anyone could download music files from other users and simultaneously serve music files to others. After Napster, a second generation of peer-to-peer networks, such as Bit Torrent and Gnutella, emerged. These enabled people to share information, such as music and movies, about files located to their personal computers, without the need for centralised indices.[54]

So-called cyberpunks realized the power of peer-to-peer networks and encryption, viewing both as tools to counteract erosions of personal freedom and liberty.[55] Their dream was anonymous cash and untraceable payment system. Starting in 1983, cyberpunks and other cryptographers began exploring the use of public-private key cryptography to build new monetary system. *David Chaum* proposed a system to enable the creation and transfer of electronic cash that would not require users to hand over personal information.[56] Chaum's system eventually turned into DigiCash, a company that Chaum launched in 1994.[57] DigiCash relied on public-private key cryptography to issue a digital currency, using a digital signature system invented by Chaum to validate transactions between parties.[58] However, it operated via a client-server model, which required that Chaum's company double-check and validate every transaction on the network. The success of DigiCash was intimately tied to, and entirely dependent on, the fate of one company.[59]

In the history, there have been two main problems regarding decentralised monetary systems: bysantin generals' problem and double spending problem. Digital money, like any money, is associated with issues regarding trust. Especially digital money in decentralised manner has historically suffered with what is known as byzantine general problem[60]. It is a

[53] More about the technical implementation of peer-to-peer network in the Chapter 2.2 Blockchain and Distributed Ledger Technology on page 18.
[54] De Filippi – Wright 2018s, p. 16-18.
[55] Hughes 1993, [https://www.activism.net/cypherpunk/manifesto.html].
[56] Chaum 1983, p. 199–203.
[57] Lewis 1994, [http://www.nytimes.com/1994/10/19/business/attention-internet-shoppers-e-cash-is-here.html] (last accessed February 18, 2023).
[58] Chaum 1983, p. 199–203.
[59] Brodesser 1999, [https://journals.uic.edu/ojs/index.php/fm/article/view/683/593] (last accessed February 18, 2023).
[60] In short, the game theory analogy behind the Byzantine Generals Problem is that several generals are besieging Byzantium. They have surrounded the city, but they must collectively decide when to attack. If all

game theory problem, which describes the difficulty decentralised parties have in arriving at consensus without relying on a trusted central party when implementing reliable computer systems. Only decentralized systems are susceptible to the Byzantine generals' problem, as they lack a dependable source of information and have no way of confirming the information they get from other network users. In centralized systems, an authority is trusted to disseminate accurate information while preventing the spread of erroneous or fraudulent information across the network. For example, in the traditional financial system, banks are trusted to provide clients with accurate balances and transaction histories. If a bank tries to deceive or mislead its consumers, the central bank or government is authorized to restore faith.[61]

Spending digital money or any other digital assets more than once is a problem arisen with digital goods. Double spending problem refers to the fact that forwarding to all elements of a peer-to-peer system requires time, thus not all peers have the same ownership information at the same time. Because not all peers have up-to-date information, they are prone to be exploited by anyone who already has the latest information. The result is that one may be able to transfer ownership more than once, resulting in double spending. Double spending problem is a specific example of violated system integrity.[62] This is one of the reasons why we have huge central authorities such as corporations and banks to maintain integrity and trust between operating parties.

In 2008 started a new era when an anonymous creator, who called himself *Satoshi Nakamoto*, released a white paper[63] that described a protocol of Bitcoin – the original[64] cryptocurrency. Soon after he releaser the initial code for Bitcoin as well.[65] The original idea of Bitcoin was to serve as an electronic payment service that would allow online payments to be sent directly from one party to another without going through a financial institution. Nakamoto underlined the issues relating to financial institutions acting as trusted third parties to process electronic payments. The costs of mediation increase transaction costs which

---

generals attack at the same time, they will win, but if they attack at different times, they will lose. The generals have no secure communication channels with one another because any messages they send or receive may have been intercepted or deceptively sent by Byzantium's defenders. How can the generals organize to attack at the same time and by which communication method. (Lamport – Shostak – Pease 1982 p. 382–384.)

[61] Cointelegraph.com: How does blockchain solve the byzantine generals' problem? [https://cointelegraph.com/learn/how-does-blockchain-solve-the-byzantine-generals-problem] (last accessed May 6, 2023).

[62] Drescher 2017, p. 50–52.

[63] Nakamoto 2008.

[64] Any other cryptocurrency than Bitcoin is called altcoin. The most popular altcoin is Ethereum's Ether (ETH). (Palmer 2021, p. 24.)

[65] Narayanan – Bonneau – Felten et. al. 2016, p. 18.

limits minimum practical transaction size and cuts off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-reversible services. With the possibility of reversal, the need for trust spreads. With the requirement to know your customer, the customer needs to give more information about them than they would otherwise need. What Nakamoto wanted to represent was an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. [66] In his white paper Satoshi proposes a solution to the double-spending problem described above by using a peer-to-peer distributed timestamp server to generate computational proof to the chronological order of transactions. As well as he managed to tackle the byzantine problem.

Bitcoin is mostly referred to as an electronic asset in literature and it is important to remind that most of the time when people are discussing on cryptos they are not using legally correct and coherent terms. Bitcoin derives both value and utility. For the first time in history there was a system that could send value from A to B, without the physical movement of items or using specific third-party intermediaries. Anyone can buy bitcoins, own them, and send them to other people. Every Bitcoin transaction is recorded and shared publicly in plain text on Bitcoin's blockchain. Anyone can in theory create, mine, bitcoins for themselves too.[67]

We have now learned the story behind the Bitcoin, which has caused so much public fuss in the past years, how the idea of decentralised payment system started to seed in the groups of cyberpunks, and how decentralised finance aims to solve the problems of centralised finance. We have also identified the main problems that were standing in the way of decentralized money – the byzantine generals' problem and double spending problem[68] – and that Satoshi Nakamoto came up with the solutions to these problems: blockchain. However, blockchain with its technical features, has shaken up the old ways of thinking in legal world. Its real-life use cases have long since leaked over Bitcoin creating the most innovative and disruptive ways to connect people and transfer, manage and own asset. The next chapter will shortly describe what blockchain actually is, and how legislative measures defines it or whether it is actually targeted at all.

[66] Nakamoto 2008, p. 1.
[67] Lewis 2021, p. 149-152.
[68] Although Bitcoin is digital, it works more like a physical cash. For each payment it must be specified which coins are spend, and that is by referring to which specific bitcoins was received earlier and spend now in the transaction. All Bitcoins are traceable. (Lewis 2021, p. 184–186).

2.2 Blockchain and Distributed Ledger Technology

It is not necessary to dive extremely deep into the technical details on blockchain other than understanding the background in the approach of the legislation. However, the technical chapter is relatively important considering that the technology itself is the one that has disrupted and caused headaches for the legislator trough the new innovations it has enabled. These new innovations implemented through the blockchain technology have not necessarily fit within the interpretation of the old legislation without problems. In addition, the legislator's attempt to regulate blockchain innovations can have a significant interpretative impact when analysing later the nature of investment instruments in more detail.

Shortly, blockchain is a purely distributed peer-to-peer system of ledgers that utilizes a software unit that consist of an algorithm, which negotiates the informational content of ordered and connected blocks of data together with cryptographic and security technologies on order to achieve and maintain its integrity.[69]

It may be easiest to conceptualise the purpose of blockchain as a part of a bigger software. There are two major architectural approaches for software systems which are firstly centralised[70], where the components are located around and connected with one central component, and secondly distributed, which is a network of connected components without having any central element of coordination of control.[71] In a centralised software, none of the components is directly connected with all other components, but all are connected at least indirectly. Peer-to-peer networks, which blockchain is, are special kind of distributed systems that consist of individual and equal nodes[72], which make their computational resources, such as storage capacity and processing power, directly available to all other members of the network without having any central coordination.[73]

---

[69] Drescher 2017, p. 35. Vid. Konashevych (2019) who defines blockchain as follows: The blockchain is a technology that operates with a distributed ledger in a public peer-to-peer network in a competitive and decentralised manner to produce and circulate cryptocurrency and store an immutable achieve of transactions and some other users' data, p. 12.

[70] It has been said that the system is always a centralized system (not truly decentralized) if you are able to bring down the whole system on a single button.

[71] Rewinding backwards to page 14 it can be seen that web 2.0 and its webpages are examples of centralised, centrally controlled, systems and web 3.0 of decentralised system.

[72] Alternative term for computer that is part of the distributed network.

[73] Drescher 2017, p. 14.

Layer	1. Functional Aspects (What)	2. Non-functional Aspects (How)
A. Application ***Features that user needs and sees***	Taking photos Making phone calls Sending emails Browsing the Internet Sending chat messages	The graphical user interface looks beautiful Easy to use Chatting is fast
B. Implementation ***Means to an end and not visible***	Saving user data internally Making a connection to the nearest mobile connector Accessing pixels in the digital camera	Store data efficiently Saving energy ***Maintaining integrity***[74] Ensure user privacy

Table 2. Example of Layering a Mobile Phone and locating the purpose of blockchain in software development (maintaining integrity).[75]

When one is designing a software system, it is possible to choose freely which architectural style will be used. As a result, distributed as well as centralised systems can be created with identical functionality on the application layer (vid. section A. in the Table 2.). There are so called hybrid architectures which are in some which have a decentralised system within the centralised system (vid. Table 3.). However, centralised and distributed systems are total opposites of each other – so called antipodes[76]. There is obliviously always to be found some hybrids in the middle ground. It is possible to build centrality inside the distributed system and distribution inside the centralised architecture. The choice between centralised and decentralised systems is only a way to achieve the wanted outcome (section B in the Table 2.). Architectural choice may have consequences on how to achieve certain functional and non-functional aspects of a system. For example, centralised and distributed systems have very different approach to ensure integrity (circled in the Table 2.).

[74] Blockchain is a tool for achieving integrity in distributed software systems so, it can be seen as a tool to achieve a non-functional aspect of the implementation layer (Drescher 2017, p. 17).
[75] Drescher 2017, p. 5.
[76] Drescher 2017, p. 15.

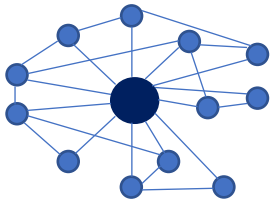
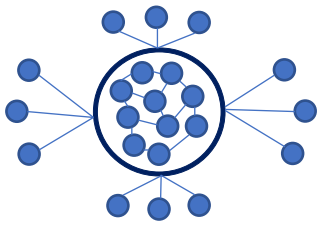
A. Centrality within a distributed system	**B. Distributed system inside the centralised system**
	
All nodes are connected with central component and the system is distributed only on a superficial view. In reality, the system is central.	All nodes have only one direct connect to the central component that have distributed system inside in it.

Table 3. Visualisation on mixing distributed architecture with centralised architecture.[77]

The blockchain is a tool for achieving integrity in distributed software systems.[78] In a centralised system the central bookkeeper, coordinator, a single point of authority for example a financial institution, validates and orders transactions and balances in order to ensure the software is safe, secure and reliable. Same central actor faces the regulatory burden. In a blockchain based system, anyone anywhere is able to be a bookkeeper without asking permission and maintain the same complete books of records than everyone else. It is a network where everyone is able to join and leave anytime. The more people share a secure system and its information, the less vulnerable that information is to manipulation. In order to multiple bookkeepers stay in sync with each other when ordering transactions, transactions are not recorded in order one by one but in batches called blocks. A bit like filling one page first with text before turning a new, clean next page. Blocks, created much less frequently than transactions inside of them, are then formed as a chain. Each block has a unique block number *hash* by which it attaches to the previous block and the next block attaches to it.[79]

Even when there is actually no mention of a blockchain or 'block chain' at all in the original whitepaper of Satoshi Nakamoto[80] this is also the key element why there is so much potential in the blockchain. Purely distributed peer-to-peer systems have a huge commercial potential

[77] Drescher 2017, p. 15.
[78] Drescher 2017, p. 14–17.
[79] Lewis 2021, p. 159–163, 177.
[80] Lewis 2021, p. 153.

as they can replace centralised systems and change whole industries due to disintermediation. However, the blockchain is only a means to an end that helps to achieve the wanted disintermediation.[81]

Centralisation allows restriction of the right to create blocks and enables retroactivity. In the tech world permissioned and private distributed ledgers are not even considered as a blockchain in their real sense because of the lack of immutability, transparency, accountability, etc.[82] If you can alter the history, you undermine the whole idea of a blockchain. A centralised DLT ledger can be rewritten, which makes is non-immutable. No other technology can ensure such a level of the immutability of data which is one of the advantages of blockchain. Completely centralised system might be safer but will never achieve the same level of reliability and credibility that blockchain can. If there happens to become a mistake in a blockchain, there is nothing you can do to correct it – alternation of the block is (almost) impossible.[83] In private or permissioned DLT those who control the network verify transactions on entry and therefore, non-compliant transactions are not allowed to pass through, and retroactive change is possible.

You may wonder why we are in this deep in the technological review – wasn't this just supposed to be a shortest possible mandatory overview on the subject. Yes it was, but it is essential to recognize that not all distributed systems are blockchains, what is the difference between a blockchain and non-blockchain distributed system, and why the difference between them is so important from a legal point of view. European Securities and Markets Authority has considered that a more precise distinguish between permissioned and permissionless DLTs may be necessary. In particular, ESMA has identified specific governance issues with permissionless DLTs, which makes them less suitable to the processing of financial instruments, at least in their current form.[84] For blockchain based technologies to reach their potential, they must be fully brought within public policy and legal frameworks.[85]

[81] Drescher 2017, p. 24.
[82] Konashevych 2019, p. 5.
[83] Armstrong – Hyde – Thomas 2021, p. 19.
[84] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 37.
[85] Madir 2021, p. 14.

2.3 Legislative Intervention

2.3.1 European Union's Approach to DLT

The European Union has expressed and confirmed its policy interest in promoting the development and adoption of breakthrough technologies in the financial sector, including blockchain and distributed ledger technology.[86] Although the EU mentions blockchain technology in its policies, its legislative proposals focus solely on DLT most of the time not even mentioning blockchain. For example, in its proposal the DLT Pilot Regime it defines in Article 2 of the DLT Pilot Regime as follows:

> *'Distributed ledger technology' or 'DLT' means a technology that enables the operation and use of distributed ledgers; and 'distributed ledger' means an information repository that keeps records of transactions and that is shared across, and synchronised between, a set of DLT network nodes using a consensus mechanism.*

Another example is from MiCA where Article 3 Definitions, subsection 1 states that 'distributed ledger technology' or 'DLT technology' means a technology that enables the operation and use of distribution ledgers. In addition, MiCA defines 'distributed ledger' as an information repository that keeps records of transactions and that is shared across, and synchronised between, a set of DLT network nodes using a consensus mechanism.

As described earlier, solely controlled DLT is centralized and therefore requires as much attention to cybersecurity as any other centralized technology. A consortium DLT is decentralised for its members, but will always be centralised for outside users, if designed for public use. It can already be seen how the European Union has been active in its cybersecurity regulation. The Digital Operational Resilience Act (**DORA**) was published in the Official Journal of the European Union as Regulation (EU) 2022/2554[87] and it shall apply from 17 January 2025. In order to achieve a common level of digital operational resilience within the EU, DORA lays down uniform requirements concerning the security of network and information systems supporting the business processes of financial entities. According to the

[86] MiCA recital (1).
[87] Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011.

Article 1 of Chapter 1 of the DORA it includes requirements applicable to financial entities in relation to: information and communication technology (ICT) risk management; reporting of major ICT-related incidents and notifying, on a voluntary basis, significant cyber threats to the competent authorities; reporting of major operational or security payment-related incidents to the competent authorities; digital operational resilience testing; information and intelligence sharing in relation to cyber threats and vulnerabilities; measures for the sound management of ICT third-party risk; requirements in relation to the contractual arrangements concluded between ICT third-party service providers and financial entities; rules for the establishment and conduct of the Oversight Framework for critical ICT third-party service providers when providing services to financial entities; rules on cooperation among competent authorities, and rules on supervision and enforcement by competent authorities in relation to all matters covered by this regulation.

European Union legislation is evolving in such a way that regulation is being directed towards DLT rather than blockchain technology.[88] It is only speculation what is the meaning of this, but one reason may be that DLT is more generic term. On the other hand, DLT enables intermediaries. By targeting legislation at entities that use a particular technology in their operations, legislation can be kept technology-neutral, while obligations and responsibilities can be assigned to someone.

2.3.2 Principle of Technology Neutrality

It is natural that the principle of technology neutrality has been much discussed around blockchain and DLT, when these applications are solely technological means to an end when maintaining integrity in software as examined in Chapter 2.2. Technology neutrality is an essential element also when interpreting which regulatory regime crypto-assets and tokens fall under at any given time. In this reflection, emphasis is given to the underlying real-life functions rather than the technical implementation of the function.

Technology neutrality is a strong legislative principle both in nationally and in EU wide. Traditionally it has been present in the field of communication and information law. As can be recognised, information is a platform and form independent, meaning that same

[88] Kaisto – Paukku – Riekkinen 2023, p. 11.

information can simultaneously lie for example in computer in binary numbers, in television as pixels of a picture or as a spoken language in conversation. [89] In the context of the financial sector, the value measure can also be thought of as technology-neutral. The same value can be expressed as a number in a bank account, a fiat currency in a wallet and a commodity on a store shelf. Informative content can be divided into platforms where users can both create content and add content to them. This multifunctionality has led to the emergence of different types of neutrality in the debate. Traditionally, technology neutrality has meant that regulation is not affected by the technology used. Content neutrality is the same for content. Net neutrality has emerged as the newest concept, which refers to the prohibition imposed on operators not to slow down users' connections when they are using certain content.[90]

Another example of technology neutrality is from Act on the Exercise of Freedom of Expression in Mass Media (460/2003, **Freedom of Speech Act**) which regulates organised traditional mass media. It therefore excludes bilateral communication and other types of communication that are not mass communication in their basic form. Some of the provisions of the Freedom of Speech Act also apply, for example, to books, blogs, vlogs and other forms of communication that are not traditional mass media. In s respect, the applicability of the Freedom of Expression Act is open to interpretation. In almost all cases, the law is very technology neutral. When the Freedom of Expression Act was adopted, mass media included print media, television and radio programmes, online publications and parts of other forms of communication. In the case of radio and television broadcasting, separate legislation also needs to be taken into account, which lays down licensing and other conditions for the provision of electronic communications. The Freedom of Expression Act is based on the principle of media and technology neutrality, i.e. it covers print, electronic mass media and online messages.[91] In addition, the concept of a document in the Act on the Openness of Government Activities(621/1999, **Public Access Act**) is media- and technology-neutral in that it does not matter what media or methods are used to store the information or how it can be accessed. Thus, any information that is stored and reproducible falls within the scope of the concept of a document.[92]

[89] Neuvonen 2019, p. 25.
[90] Neuvonen 2019, p. 25.
[91] Neuvonen 2019, p. 128.
[92] Voutilainen 2019, p. 49.

Technology neutrality appears in several national political legislative and strategic projects. For example, the Ministerial Working Group on Digitalisation, the Data Economy and the Development of Public Administration has recently decided to send the draft Digital Compass for Finland out for consultation. The aim is to create a common national vision and objectives for digitalisation and the data economy up to 2030. One of the leading themes it his project was technology neutrality as a guiding principle for legislation and choices.[93] In addition, domestic legal scholars have rightly pointed out that, in general, when looking at different types of crypto-assets and related tokens, one should not be fooled by the new technological environment of DLT. In many cases, a seemingly new token issued already has a counterpart in the physical world that is now only partially implemented in a new way in a new technical environment.[94]

In the European Union level technology neutrality is stated even more clearly than in national level. Technological neutrality is one of the underlying principles of European Interoperability Framework (**EIF**).[95] The European commission has stated that laws and regulations shall be technology neutral. This has been argued on the grounds that regulations tied to a particular technology may quickly become obsolete and require further amendment. Also, technology-specific regulations lead to dependency on specific manufacturers, developers, suppliers or distributors of technology or services. It guarantees freedom of choice by not forcing users into using any specific technology. This leads to the conclusion that laws and regulations do not require the use of any specific technology and do not favour nor discriminate against any technology.[96]

Other areas than financial regulation where technology neutrality influences under the surface is in telecommunications. Technological neutrality in telecoms is a principle that should guide digital policy in the EU and the Member States. However, this should not affect the Union's need to ensure its prosperity by ensuring the highest performance, resilience, security and sustainability of its digital communications infrastructure. All technologies that can help achieve the telecoms connectivity and green objectives, including current and future

[93] Finnish Government Press Release on 25 March 2022 – Ministerial group outlines Finland's draft digital compass for consultation.
[94] Kaisto – Paukku – Riekkinen 2023, p. 66.
[95] The European Interoperability Framework (EIF) is part of the Communication (COM(2017)134) from the European Commission adopted on 23 March 2017. The framework gives specific guidance on how set up interoperable digital public services.
[96] COM (2017) 134, final, p. 12–13.

developments in fibre, Wi-Fi, satellite, 5G and 6G technologies, should be treated on an equal footing, with due regard to their specific objective characteristics.[97] The objective of the Connecting Europe Facility is to accelerate investment in trans-European networks and create leverage to attract funding from both the public and private sectors, while improving legal certainty and respecting the principle of technology neutrality. The Connecting Europe Facility aims help to fully exploit the synergies between the transport and energy sectors and the digital economy, thus making the Union's action more efficient and minimising implementation costs. [98]

2.3.3 Technology Neutrality in Fintech Regulation

Technology neutrality is a leading concept in the EU Digital Finance Strategy published in 2020. The purpose of the digital finance strategy is to ensure that the EU regulatory framework for financial services is fit for the digital age. This includes enabling the use of innovative technologies and making the framework compatible with prevailing best practice in software production and deployment. It has been recognized that EU rules should be more technology neutral and innovation friendly and should be able to adjust to innovations more rapidly, while continuing to respect all the rules ensuring their safe and secure functioning and user protection.[99] Technological neutrality can be pursued via three main avenues: 1) when reviewing existing EU measures/developing new measures and during ongoing monitoring of prudential regulation and supervisory guidance, typically designed at the entity rather than the activity level; 2) understanding how sandboxing[100] regimes and other aspects of authorisations are working to create the space for emerging technologies while maintaining robust and consistent entry criteria; 3) sharing of supervisory knowledge and experience

[97] COM (2021) 574, final, 7b.
[98] (EU) 2021/1153 (2).
[99] Digital Finance Strategy for the EU (COM(2020) 591 final), 4.2. Adapting the EU regulatory framework to facilitate digital innovation. See also ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 20, where National Competent Authorities of EU member states broadly agreed on that crypto-assets that meet the relevant conditions of financial instrument should be treated and regulated as such, as regulation should be technology neutral.
[100] Regulatory sandboxes generally refer to regulatory tools allowing businesses to test and experiment with new and innovative products, services or businesses under supervision of a regulator for limited period of time. Regulatory sandboxes have a double role: 1) they foster business learning, i.e., the development and testing of innovations in a real-world environment; and 2) support regulatory learning, i.e. the formulation of experimental legal regimes to guide and support businesses in their innovation activities under the supervision of a regulatory authority. These are widely used in financial technologies for designing new financial services. (European Parliamentary Research Service: Artificial Intelligence act and regulatory sandboxes, June 2022, p. 2).

in assessing, and responding to, new technologies, which is critical in promoting technological neutrality in the daily work of supervisors.[101]

Some examples how technology neutrality is taken into account as the underlying legislative principle in the EU DLT-related Fintech-legislation is DLT Pilot Regime which states that:

> *When applying that Regulation, the principles of technology neutrality, proportionality, the level playing field, and 'same activity, same risks, same rules' should be taken into account in order to ensure that market participants have the regulatory space to innovate, in order to uphold the values of transparency, fairness, stability, investor protection, accountability and market integrity, and in order to ensure the protection of privacy and personal data as guaranteed by Articles 7 and 8 of the Charter of Fundamental Rights of the European Union.*[102]

In addition to DLT Pilot Regime, it is stated in MiCA that Union legislative acts on financial services should be guided by the principles of 'same activities, same risks, same rules' and of technology neutrality.[103]

So, legislative strategy adopted by the European Commission in financial regulation is technology neutral. According to Better Finance[104] (The European Federation of Investors and Financial Services Users) it is considered, that in order to ensure a consistent regulation of financial services and products regardless of whether these are provided in a traditional or digitally innovative manner, new assets and services that embody the same characteristics and provide the same functions as traditional ones should be regulated the same. Technology neutral approach not only ensures legal certainty and clarity on the applicable law but creates a level playing field across the EU and eliminates the risks of regulatory arbitrage and gold plating, stimulates the integration of local markets and upholds a high standard of investor protection.[105]

---

[101] The EBA'S Fintech Roadmap – Conclusions from the consultation on the EBA's approach to financial technology (15 March 2018), p. 11.
[102] Regulation (EU) 2022/858, recital (10).
[103] MiCA recital (9).
[104] Better Finance acts as an independent financial expertise centre to the direct benefit of European financial services users. Better Finance is the public interest non-governmental organisation advocating and defending the interests of European citizens as financial services users at European level to lawmakers and the public in order to promote research, information and training on investments, savings and personal finances. (better-finance.eu).
[105] Better Finance: Position on Crypto Assets and Distributed Ledger Technology – Regulations on Markets in Crypto-Assets and the EU Pilot Regime for Distributed Ledger Technology (DLT) based market infrastructures, p. 10.

It could be said that the principle of technology neutrality is the main underlying influence why crypto-assets that fall under existing Union legislative acts on financial services is considered to remain regulated under the existing regulatory framework, regardless of the technology used for their issuance or their transfer, rather than the specific crypto-asset regulation MiCA. MiCA expressly excludes from its scope crypto-assets that qualify as financial instruments as defined in MIFID II, those that qualify as deposits as defined in Directive 2014/49/EU of the European Parliament and of the Council[106], including structured deposits as defined in MIFID II, those that qualify as funds as defined in Directive (EU) 2015/2366 of the European Parliament and of the Council[107], except if they qualify as electronic money tokens ('e-money tokens'), those that qualify as securitisation positions as defined in Regulation (EU) 2017/2402 of the European Parliament and of the Council[108], and those that qualify as non-life or life insurance contracts, pensions products or schemes and social security schemes. Having regard to the fact that electronic money and funds received in exchange for electronic money should not be treated as deposits in accordance with Directive 2009/110/EC of the European Parliament and of the Council[109], e-money tokens cannot be treated as deposits that are excluded from the scope of the MiCA.[110]

In Chapter two, we took a comprehensive look at the technology behind crypto-assets, not least because it is this new technology that has created all these problems of legal interpretation. We went through what DLT means and how the EU has hit upon this particular term, rather than blockchain. We also learned about the principle of technology neutrality, what does it mean, and how important guiding principle it has been and is for the EU, both in technology-related information law legislation in general, and now in the context of fintech regulation. In next chapter we will look at the first research question and aim to find answers to its main objectives by examining what it means when a crypto-asset is considered to be

[106] Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes (OJ L 173, 12.6.2014, p. 149).
[107] Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).
[108] Regulation (EU) 2017/2402 of the European Parliament and of the Council laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation, and amending Directives 2009/65/EC, 2009/138/EC and 2011/61/EU and Regulations (EC) No 1060/2009.(EU) No 648/2012 (OJ L 347, 28.12.2017, p. 35).
[109] Directive 2009/110/EC of the European Parliament and of the Council son the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (OJ L 267, 10.10.2009, p. 7).
[110] MiCA recital (9).

developed for investment purposes and how these tokens fit into the overall crypto-asset taxonomy.

3 CRYPTO-ASSET TAXONOMY

3.1 Crypto with Financial Use versus Financial Type Crypto

3.1.1 The Distinction Between the Scope of MiFID II and MiCA

It has been recognized that some crypto-assets, in particular those that qualify as financial instruments as defined in MIFID II, fall within the scope of existing Union legislative acts on financial services. MiFID II comes as a package with its associated regulation on markets in financial instruments (**MiFIR**)[111]. The range of application of the MiFID is wide: it applies to all investment firms and banks that operate in its area in addition to some other market participants. The Directive covers authorisation and operating conditions for investment firms, regulated markets, and data reporting service providers across the entire Single Market of EU.[112]

Activities based on existing banking infrastructures are governed by existing legal and regulatory frameworks hence banks and other financial institutions are closely regulated, supervised, and bound by regulations designed to mitigate risks and ensure that adequate protections for customers are in place.[113] Therefore, a full set of Union rules already applies to issuers of such crypto-assets and to firms conducting activities related to such crypto-assets.[114] As been stated, other crypto-assets, however, fall outside of the scope of Union legislative acts on financial services. At present, before the application of MiCA, there are no rules, other than those in respect of anti-money laundering, for the provision of services related to such unregulated crypto-assets, including for the operation of trading platforms for crypto-assets, the exchange of crypto-assets for funds or other crypto-assets, and providing custody and administration of crypto-assets on behalf of clients.[115]

It has been seen as unwanted outcome to qualify all crypto-assets as financial instruments as it would have unwanted collateral effects. Classification between the different types of crypto-assets is needed and understandable considering the variety of crypto-assets being

[111] Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012.
[112] Loesch 2018, p. 211.
[113] Heckel – Waldenberg 2022, p. 98.
[114] MiCA recital (3).
[115] MiCA recital (4).

issued, as well as the existing regulation was not drafted having these instruments in mind, acknowledging all crypto-assets as financial instruments would grant them potentially unwanted legitimacy, and the needed supervisory tools and resources may not be in place.[116]

The Markets in Crypto-Assets Regulation institutes uniform EU market rules for crypto-assets. The regulation is subject to cover crypto-assets that are not currently regulated by existing financial services legislation. Key provisions for those issuing and trading crypto-assets cover transparency, disclosure, authorisation and supervision of transactions. According to some scholars, there are two fundamental objectives of financial regulation: systemic protection and consumer protection.[117] The new legal framework for these specific type crypto-assets supports market integrity and financial stability (systemic protection) by regulating public offers of crypto-assets and by ensuring consumers are better informed about their associated risks (consumer protection). Although excluding financial type crypto-assets from its scope, MiCA identifies the capital-raising potential of crypto-assets by stating that crypto-assets allow innovative and inclusive way of financing.[118]

3.1.2 Crypto-Asset with Financial Use and Crypto-Finance

The European Commission has considered at the drafting stage of the MiCA that in addition to financial type crypto-assets there may also be other crypto-assets, while not considered as financial instrument, that can still potentially have a financial use.[119] However, diving into more ontology question: what do we mean by financial use, and financing? To summarise the ideology of finance in our market-based business environment, it could be said to include the accumulation of financial resources, generally for business and new innovation and product development, business growth and expansion, and general business maintenance, either in the form of equity funding, with debt instrument or some hybrid form of mezzanine capital in between.[120] An integral part of the business is the problem of ex-post nature of profits – the funding gap due to delays in the real process. Starting business or an entity expanding its market share or presence in some way needs initial investment before the activity starts

[116] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 4.
[117] Davies and Green 2008, p. 191.
[118] MiCA recital (2).
[119] MiCA recital (10; 23).
[120] Knüpfer – Puttonen 2018, p. 32–42.

to generate profits in the future.[121] Funding can involve, among others, the essential roles of borrower and lender, the interest rate paid as the price of funding and the investors' expected return on the capital invested. Financing can be sought from private investors, banks and financial institutions, or from capital markets through different types of crowdfunding.[122]

Iris H-Y Chiu (2021) refers to such financing as 'productive' financialisation of a capitalist economic system.[123] Productive financialisation essentially supports the creation of financial assets. According to the legal theory of finance[124], it is the creation of legally recognised and enforceable financial claims that make finance possible for allocation to the productive economy. This means that companies rely on debt and equity which create financial claims both in terms of recurring repayments and interest, and right to collateral, and in terms of rights of distribution and governance in corporations.[125] *Financialisation* is often defined as the increasing role of financial motives, financial markets, financial actors, and financial institutions in the operation of the domestic and international economies.[126] It has been stressed the increasing weight of financial activities in the economy as capital favours investment in finance rather than production. Capital becomes disconnected from established institutions and systems of business.[127]

In addition to the productive financialisation, we have variety of secondary financial instruments, based on speculative or short-term profit seeking behaviour. *Chiu* refers aptly to such financing phenomenal as 'hyper' financialisation.[128] It is notorious for so-called market bubbles or price bubbles and crashes. The term 'bubble'[129] traditionally refers to a situation in which asset prices increasingly deviate away from their fundamental value. Bubbles often

[121] Mähönen – Villa 2020, p. 81–84.
[122] Tepora 2022, p. 21–63.
[123] Chiu 2021, p. 251–252.
[124] Pistor 2014, p. 315.
[125] Ferran – Ho 2014, chapter 15 of Part III.
[126] Epstein 2005, p. 3.
[127] Lapavitsas 2011, p. 614, 617. Vid. Foster 2007, and Teixeira – Rotta 2012, p. 2, 11–12, who write about financialization and that it consists of at least two main aspects: (i) the unprecedented dynamics that financial activities achieved after the 1970s (the emergence of the information society); (ii) the crowding out of non-financial investments by financial investments. Both of these aspects are ways to contradictorily valorise capital without producing new surplus value or new use-values. Financialization autonomizes capital from its own support.
[128] Chiu 2021, p. 251–252.
[129] Taylor 2015, [https://www.weforum.org/agenda/2015/09/what-are-the-economic-costs-of-asset-price-bubbles/] (last accessed July 17, 2023).

end with a crash in asset prices.[130] However, development of speculative financial assets has been seen to support productive economic activity, and larger secondary markets and liquidity underpin investor confidence in participating in the creation financial claims, allowing exit for investor.[131] Relating to secondary stock markets, it has been suggested that deep and liquid stock exchanges are conductive to dispersed ownership; since they profit from high-volume trading, they are likely to blossom through the activity of many small stockholders who revise their portfolio and as a result keep trading.[132] It has been noticed that in many blockchain projects the profits of the developers often do not result from the dividends or fees charged on transactions, but from an increase in the value of tokens financing the total or partial development of a business or from advisory services to a foundation which supports the development of the project.[133]

It can be noticed in crypto-related research, the terms such as *crypto-finance*[134] and *crypto economy* appears regularly, as opposed to or as concept living side by side, but not as a synonym, to real economy. Good example, what is meant with these terms, gives so called DeFi loans[135] which have seemed to encourage hyper-financialisation and do not seem to be related to any enterprise development compared to productive financialisation in the crypto economy led by ICO boom (Initial Coin Offering, **ICO**). Activities like DeFi loans have raised concerns on criticized hyper-financialisation, and its short-termism nature, in the crypto-economy. Although productive financialisation and hyper-financialisation are tied together, it is a real concern if the latter financial development takes over other forms of innovation.[136]

---

[130] Some economists address the issue of differentiation between productive investments and financial investments and that is has long been known to be false assumption that the investor purchases a financial claim to real assets from the entrepreneur who then uses the money thus acquired to expand production. There is no necessary direct connection between productive investment and the amassing of financial assets. In time the possible contradiction goes no further than a speculative bubble. (Vid. Foster 2007, p. 6).
[131] Chiu 2021, p. 252.
[132] Vincenzo 2012, p. 47.
[133] Lyons et. al. 2019, p. 18. [https://www.eublockchainforum.eu/sites/default/files/reports/report_legal_v1.0.pdf] (last accessed July 18, 2023).
[134] Dapp – Helbing – Klauser 2021, p. 20–21, writes about Finance 4.0 and cryptoeconomics referring to the same phenomena. The core idea of the Finance 4.0 system is to propose design principles and a technological infrastructure for a socio-ecological finance system that aims to maintain the commons and reduces negative externalities.
[135] DeFi peer-to-peer loans are organized by platform operators which construct liquidity pools, without any involvement of conventional financial intermediaries. These operators pool together countless number of users' crypto-assets in liquidity pools so that other users can borrow these by providing their own crypto-asset collateral. Although structured as debt claims, it is still just a question without an answer whether these loans are similar to the productive financialisation of real economy lending where a bank lends to small or larger enterprises in order to carry out productive activities. (Vid. Chiu 2021, p. 253–254.)
[136] Chiu 2021, p. 253–255.

3.2 Investment Tokens

3.2.1 Investment Type Crypto-Asset

Next, we are going to examine the classification of crypto-assets. The basic classification is based on guidelines established by an EU authorities and boundaries set by legislation and common opinions of national authorities. The European Banking Authority has drafted basic taxonomy for crypto-assets in 2019. EBA classifies crypto-assets in three main categories: 1. Payment/exchange/currency tokens; 2. Investment tokens; and 3. Utility tokens (Vid. Table 4.).[137] However, EBA has recognised the difficulty in drawing precise boundaries between different crypto-asset-categories as some assets have features spanning more than one of the listed categories.[138] Crypto-assets can have characteristics that enables their use for more than one purpose, such as means of exchange, investment, and access, and at any single point in the lifecycle of the asset, and some have characteristics that change during the lifecycle.[139] Another consideration beside the blur line between different crypto-asset classification, is the fact that the frontier between crypto-assets and traditional financial assets is blurring as some traditional financial assets are starting to be issued and transacted on DLT and the business models are evolving.[140]

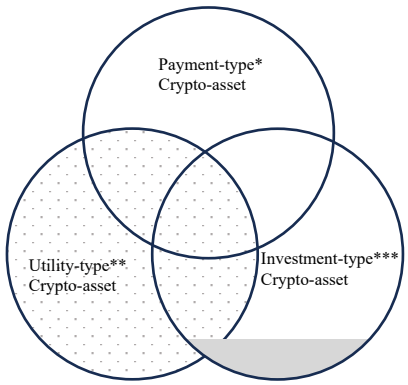


Table 4. Potential mapping of crypto-assets. (EBA Report with advice for the European Commission on crypto-assets 2019) *Payment-type crypto-asset: meant to be used as a means of payment or exchange for goods or services that are external to the ecosystem in which they are built. ** Utility-type

[137] This is only one way to classify crypto-assets. For example, UK's Cryptoasset Taskforce made different kind of framework for crypto-assets by classifying these as follows: A. Exchange token; B. Security token; and C. Utility token, but the main characteristics for each token were described very similar than in EBAs classification. (Vid. Cryptoasset Taskforce: final report (October 2018).
[138] EBA Report with advice for the European Commission on crypto-assets 2019, p. 7.
[139] EBA Report with advice for the European Commission on crypto-assets, 9 January 2019, p. 7.
[140] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p 13.

crypto-asset: provides some utility function other than as a means of payment or exchange for external goods or services. ***Investment-type crypto-asset: resembles financial instrument.

In its taxonomy EBA considers tokens on the basis on how and what purpose they are used and is using the term 'investment' instead for example a 'financial' token.[141] Investment tokens are considered as a type of cryptos that represents rights, such as ownership, or entitlements similar to dividends, of an underlying asset or investment contract. These tokens are often issued through blockchain technology or other forms of DLT and can represent various traditional assets, such as real estate, stocks, bonds, or commodities. The main idea behind investment tokens is to provide a digital representation of ownership or investment rights.[142] Investment-type crypto-assets may have some profit rights attached, like equities, equity-like instruments, or non-equity instruments.[143] Investments tokens typically provide rights, usually in form of ownership rights and/or entitlements similar to dividends. For example, in the context of capital raising, asset tokens may be issued in the context of an ICO which allows businesses to raise capital for their businesses to raise capital for their projects by issuing digital tokens in exchange for fiat money or other crypto-assets.[144] EBA's classification seems to be relatively simple if we consider the asset classes as static things. However, they only take on their true form in relation to their actual purpose – not what they are as a static form when created in the first place, but what they are used for.

The assessment of the different token categories is somewhat divergent across the EU Member States, but some consensus can be seen in the data collected by ESMA from the survey it did in 2018 with a National Competent Authorities. The results of the survey related to specific financial instruments are discussed in more detail in the Chapter 4, but based on the results of the survey, Table 5 summaries different types on tokens used as an example, their characteristics and possible grouping into different main token classes. Section A, for informative purposes, indicates the name of specific token; section B describes shortly the

[141] Observation like this is made because if we look closely, financing and investing are two different activities. Investing usually means, for example, buying, owning, and selling shares or other investments objects with the intention of making a profit. The main principle is to buy at a lower price and sell at a higher price, thus generating a profit (see e.g. Kallunki – Martikainen – Niemelä, 2019). When talking about financing, we usually mean raising of funds to carry out a spesific project. In business, it is an aspect of business activity whose function is to maximise the return on assets and minimise the cost of finance. Although these activities may be mirroring images of each other, they are not necessarily related (see e.g. Niskanen – Niskanen 2016).
[142] EBA Report with advice for the European Commission on crypto-assets, 9 January 2019, p. 7.
[143] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 8.
[144] EBA Report with advice for the European Commission on crypto-assets 2019, p. 7.

nature of the crypto-related activity that has been intended to carry out; section C describes how the token is used in the said activity; section D gathers some main observations on the features that have influenced to the final categorization of the token in terms of potential regulation to be applied to it in section E.

The following observations can be made from the Table 5. First of all, it is obvious that tokens can be used in a very wide range of applications and for a wide variety of activities from crowdfunding a construction project of aquarium or creating a digital banking service, to a sharing economy-based cloud service and as a means of payment, to list a few. Half of the listed tokens were judged to be some form of hybrid token e.g., having characteristics for more than one main token class, formed by EBA. When the token was intended to a. raise funds, and b. had an expected return, it was considered to be pure investment type crypto-asset. Merely being a medium of exchange did not indicate that the token was a means of payment and so on a payment type crypto-asset. When a token gave access to a service, it was considered to indicate the characteristics of a utility crypto-asset. Ownership per se did not imply the characteristics of an investment crypto-asset. One of the most interesting observation is, that an asset-reference token may have similar characteristics than a derivate.

A. Crypto-asset	B. Service	C. Token	D. Observations	E. Potential Classification
FINOM (FIN)	Uses blockchain technology to provide fully integrated financial services and online payments.	Included the following rights: 1) the right to receive a share of the company's profits in the form of a dividend; 2) the right to participate n the management of the company; 3) the right to a share in the company's assets.	Profit and dividend right, management and control. Value expectation of the token chained to a value creating entity.	Potential investment type crypto-asse Potential transferable security
Polybius Bank (PLBT)	The aim is to offer all the traditional bank without physical branches, using digital technology.	The ICO raised funds to develop the bank's infrastructure and services. PLBT entitles the holder to 20% of the annual revenue for the financial year. The crypto-asset does not give its owner control.	Profit right. Value expectation chained to a value creating service.	Potential investment type crypto-asset Potential transferable security
Crypterium (CRPT)	Intention to set up a crypto bank.	Cryptocurrencies can be used to pay transaction fees. They also entitle you to a share of the monthly capital gains accrued from transaction fees. In addition, some future services may initially be available at a discounted or free of charge to those with crypto assets, as well as some other "priority treatment" services.	Means of payment, right to profit, special treatment as an "owner".	Potential investment /utility hybrid 50/50 whether to classify as transferable security
PAquarium (PQT)	The aim is to build the largest aquarium in the world.	Permission to pay 20% of the operational revenue of the aquarium to crypto-asset holders. Possible voting rights at a later date. Lifetime free access to the aquarium.	Profit right, management and control. Value expectation of the token chained to a value creating entity.	Potential investment / utility /payment hybrid Potential transferable security
Filecoin (FIL)	A Distributed database network that turns cloud computing into an algorithmic trading platform	Tokens provide access to unused storage capacity for computers worldwide. Enablers of unused space receive in exchange Filecoins, which can be sold for cryptocurrency or fiat money.	Tool for an exchange, right to participate to the activity. exchange economy.	Utility crypto-asset Not classified as a financial instrument
AlchemyBITE (ALL)	A crypto-asset backed by other crypto-assets.	The value of a crypto-asset is determined by the crypto-assets that support and sustain it. 70-75% of the value is determined by the crypto-assets that support it, while the remainder is supported by assets that are related to the crypto-assets, such as shares in companies that develop the crypto-asset.	Means of payment. Value chained on trust in specific crypto-assets and related entities.	Potential investment /payment hybrid Potential Derivative

Table 5. Examples of tokens and related services and their interpretation by National Competent Authorities of EU member states used by ESMA to assess different categories of crypto-assets. (Data from *ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs* 2019, s. 23–28).

Earlier interpretation of the European market authorities on investment tokens can be found as well. In 2015 ESMA published a paper on 'investments using virtual currency or distributed ledger technology'. Already back then, ESMA was aware that many investors seem to consider crypto-assets less as a payment instrument and more as a financial asset, even when the token were in the first place ostensible created as means of payment.[145] ESMA was mainly interested in three categories of investment type crypto-assets: 1) investment products which have crypto-asset as an underlying; 2) investment in token-based assets/securities, and the transfer of those assets/securities; and 3) other uses of the distributed ledger in relation to investment.[146] Let's look at these in more detail.

The first category meant 'traditional' investments which do not necessarily require the investor to use any token to make the investment but give the investor exposure to one or more crypto-assets. Examples would be financial instruments such as a collective investment scheme or potentially non-registered derivatives such as options and contracts for difference (CFDs) that use crypto-asset as an underlying or reference to determine the amount payable under the financial instrument or invest in crypto-asset related businesses and infrastructure. The second category encompass 'traditional' financial assets such as shares, funds, etc. that are, however, issued and traded using distributed ledger technology. In this case the investor is likely to need to purchase one or more crypto-asset in order to make the investment, the asset/security invested in (which is constituted using the token and associated technology), and transactions made and recorded through the distributed ledger associated with the crypto-asset rather than through 'traditional' exchanges, custodians, CSDs or registrars. The third category encompass any other use of the 'blockchain' technology, which might not be limited to crypto-asset investment products or crypto-asset-based assets/securities. For example, a distributed ledger technology could be used to record offers, transactions in or transfers of ownership or other rights in a 'traditional' security, whether by 'traditional' or

[145] Glasser et al (2014).
[146] ESMA Call for evidence: Investment using virtual currency or distributed ledger technology 2015, p. 7.

new-entrant providers. In this context, the technology might not be dependent on the use of a token.[147]

3.2.3 Tokenisation of Traditional Financial Instruments

Referring to the ESMA's classification from 2015, it should be clarified that traditional financial instruments can be issued in DLT form. The EU has enacted the novel DLT Pilot Regime that entered into force on 23 March 2023 in this regard. The DLT Pilot aims at developing the trading and settlement for 'tokenised' securities, i.e. digital representations of traditional securities.[148] Why financial assets are tokenised is that it has the potential to enhance the liquidity of certain financial assets such as listed shares or syndicated loans, by making ownership easier and faster by making post-trade processes more efficient, enhance reporting and data management capabilities while it may also reduce the need for intermediaries.[149] In addition, DLT also facilitates the use of smart contracts, which automate the execution of contract obligations, thereby potentially reducing risks and costs.[150]

The so-called 'tokenisation' of financial instruments is the digital representation of financial instruments on distributed ledgers or the issuance of traditional asset classes in tokenised form to enable them to be issued, stored and transferred on a distributed ledger.[151] Tokenisation is a method that converts rights to an asset into a digital token. It is effectively a means to represent ownership of assets on DLT. And in its traditional sense in finance law, it refers precisely to the technical conversion of traditionally known financial instrument. Full set of the characteristics of the DLT financial instrument remain the same as the traditional financial instrument, with the only difference being the technology used for the respective issuances. There are two ways in which financial instruments can be issued on DLT – by digitally

[147] ESMA Call for evidence: Investment using virtual currency or distributed ledger technology 2015, p. 7.
[148] The DLT Pilot covers DLT shares, UCITS and bonds (Article 3 (1) of the Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/).
[149] ESMA Report on the use of DLT in the context of securities markets 2017, p. 2.
[150] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 18.
[151] DLT Pilot Regime, recital (3).

representing a financing instrument on DLT and by issuing a traditional asset class in tokenised form.[152]

Virtually any traditional financial instruments can be tokenised. In that case the financial instrument is often referred as *DLT financial instrument.* Article 2, point (11), DLTR defines DLT financial instruments as financial instruments that (should be crypto-assets that qualify as financial instruments and which)[153] are "issued, recorded, transferred and stored using distributed ledger technology". That definition does not entail that DLT financial instruments are to be traded using DLT, but rather that the DLT are to be used for maintaining accounts and records pertaining to the title over a financial instrument and to facilitate the transfer of such titles between market participants.

Partial tokenisation is linked as part of the total issuance of a financial instrument being issued as a DLT financial instrument, with some part of the issuance of that instrument existing as a traditional financial instrument, without any reliance on distributed ledger technology.[154] The DLT Pilot Regime starts from the premise that is does not directly prohibit partial tokenisation of an issuance. When laying down the conditions for allowing derogations from Regulation (EU) No 909/2014 of the European Parliament and of the Council on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012 (**CSDR**) in its Article 5(2), the DLTR acknowledges in point (b)(ii) of that Article the possibility for only a part of an issuance to be recorded on a distributed ledger. Where the tokenisation pertains to only a part of an existing issuance that is already registered with a central security depositor (**CSD**), the operator of the DLT SS or the DLT TSS is to ensure the integrity of the issue in accordance with Article 37 CSDR or Article 5(2), point (b), DLTR, whichever is applicable.[155] Partial tokenisation is relevant in practice with different

[152] ESMA Questions and Answers – On the implementation of Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology 2023, p 20, 17.
[153] DLT Pilot Regime, recital (8).
[154] ESMA Questions and Aswers on the implementation of Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology 2023, p. 18.
[155]

financial instrument, such as with bonds[156].[157] The DLTR does not explicitly address the question on whether any entity other than the issuer can tokenise part of an issuance. However, as noted, the DLTR does not exclude tokenisation of existing financial instruments by DLT market infrastructures.

Blockchain bonds are one of the innovations of tokenisation. From a technical point of view, blockchain bonds rely on open source blockchain technologies. The World Bank and the Commonwealth Bank of Australia issued a flagship blockchain bond, called Bond-i, issued originally in 2018. The issuance relied on blockchain technology for the issuance of bonds and their transfer through the instrument's life cycle.[158] More specifically, blockchain was used for the primary issuance of bonds, the bond auction, the bid capture, the bookbuild, and allocation of bonds and subsequent secondary market operations. Another advantage of the project is that it allows for enhanced and real-time visibility of transactions, at least to authorised participants. Second, an end-to-end blockchain bond was issued in 2019 (USD 20 million, one-year maturity) by the Spanish bank, Banco Santander. The issuance relied on the public open-source Ethereum blockchain; the bonds were securely tokenised in a permissioned manner, and they remained on the blockchain until the end of their maturity.[159] Because of the digitalisation and automation of bond issuance, the number of intermediaries involved in the process has been significantly reduced. Third, the European Investment Bank issued its first digital bond in April 2021 (€100 million, two-year maturity), employing the Ethereum blockchain platform for registration and settlement.[160] There have questions whether a tokenised bond can be regarded as different from the original underlying financial

[156] A bond is a well-established form of crowdfunding from the capital markets (Vid, e.g. Chamberlain 1911). 'Covered bond' is term used for a number of financial instruments with different characteristics. Traditional covered bonds are corporate bonds with an enhancement in the form of a recourse to a ring-fenced pool of assets that remains on the balance sheet of the issuer. This pool of assets secure or "covers" the bond if the issuer becomes insolvent. (CESR Q&A MiFID complex and non-complex financial instruments for the purposes of the Directive's appropriateness requirements, p. 12).
In the national legal system, they are regulated by the Act on Mortgage Credit Banks and Covered Bonds (151/2022, as amended).
[157] ESMA Report on the DLT Pilot Regime On the Call for Evidence on the DLT Pilot Regime and compensatory measures on supervisory data, p. 16.
[158] Media release: World Bank Issues Second Tranche of Blockchain Bond via Bond-I: [https://www.commbank.com.au/guidance/newsroom/world-bank-blockchain-bond-bond-i-201908.html] (last accessed August 19, 2023).
[159] Media release: Santander launches the first end-to-end blockchain bond: [https://www.santander.com/en/press-room/press-releases/santander-launches-the-first-end-to-end-blockchain-bond] (last accessed August 19, 2023).
[160] Pavlidis 2022, p. 272–273.

instrument.[161] The DLT Pilot Regime does not specify what is the relationship between the underlying financial instrument, i.e. the instrument that was issued, recorded, transferred and stored outside a distributed ledger, using traditional financial infrastructure, and the DLT financial instrument that came into existence through tokenisation.

This chapter, in addition to positioning the crypto-economy in the general finance and investment world, discussed the bigger-picture taxonomy of different crypto-asset made by authorities. In addition, we have excluded DLT financial instrument from our scope by defining it on the basis of the DLT Pilot Regime. We discovered that EBA and ESMA have found there to be three main categories on tokens – investment, payment and utility. It can also be seen why legislator and authorities have make such an effort to classify tokens – locating tokens is extremely challenging due to their hybrid nature. Next chapter discusses in more depth about the soon to become regulatory approach to the two latter categories, and how the EU legislator has decided to separate payment and utility tokens from investment tokens of an exclusion technique. After the next chapter the thesis will dive deeper to the characteristics of investment token from a regulatory perspective and switch the terminology to *financial type crypto-asset* which is more suitable term in the regulatory context than investment token, which is mostly used by banking and market authorities of the European Union.

3.3 Utility Tokens and Payment Tokens

3.3.1 Utility-Type Crypto-Asset

MiCA defines a crypto-assets, as a digital representation of a value or of rights that have the potential to bring significant benefits to market participants, including retail holders of crypto-assets. Representations of value include external, non-intrinsic value attributed to a crypto-asset by the parties concerned or by market participants, meaning the value is subjective and based only on the interest of the purchaser of the crypto-asset.[162] MiCA introduces three subcategories for crypto-assets including (i) utility tokens which are crypto-assets intended to provide access to a good or a service, and two different types of stablecoins

[161] ESMA Questions and Answers On the implementation of Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, p. 19.
[162] MiCA recital (2).

called (ii) e-money tokens shortly meaning a token purporting to reference the value of a fiat currency, and (iii) asset-referenced tokens meaning a token purporting to reference the value of several fiat currencies, one or more commodities or crypto-assets or a combination of these.

Utility token defined in Article 3 paragraph 1 subparagraph 9 of the MiCA means a type of crypto-asset which is intended to provide digital access to a good or service, available on DLT, and is only accepted by the issuer of that token. The token, or the right attached to it, may also be transferable. Utility token may also be a way of finance projects, development of the product or service, reward and incentivize early adopters and network promoters, align economic incentives between supply, demand, and the marketplace, and enhance network effects among all participants.[163] In many cases, the token does not immediately confer a right to the product or service hence the products and services are to be developed with the funds raised through the offering (initial coin offering) of such utility token[164].[165] In international legal literature utility tokens are separated from so called tokenized securities and term decentralised application (‘**dApp’**)[166] token is sometimes used in relation to utility tokens. Utility tokens, like Ethereum’s Ether, are often used as a currency internal to the decentralised application and are the grease in the wheels of an incentive structure created to promote beneficial behaviour on the dApp and the existence of the utility token is essential to the functioning of the system.[167]

Decentralised cloud-storage application[168] that allows people to trade excess storage capacity on their computer systems for tokens is good example for utility token service. Although the utility token may appreciate as the usefulness of the application is proved, its primary

[163] Benedetti – Caceres – Abarzúa 2023, p. 79.
[164] Many crypto-asset has been issued trough so-called ICO. ICOs are a way to issue digital tokens in exchange for fiat currencies or other crypto-assets. ICO can be described as a hybrid form of crowdfunding as they have features in particular of crowdfunding and Initial Public Offerings. (Vid. ESMA Advice Initial Coin Offerings and Crypto-Assets 2019, p. 11; and Kauppi 2019, p. 34).
[165] Kaisto – Paukku – Riekkinen 2023, p. 64.
[166] Decentralized applications, or dApps, are software programs that run on a blockchain or peer-to-peer (P2P) network of computers instead of on a single computer. DApps (also called "dapps") are thus outside the purview and control of a single authority. Decentralized Applications (dApps): (Vid. Frankenfield 2023, [https://www.investopedia.com/terms/d/decentralized-applications-dapps.asp], last accessed July 24, 2023); (Vid. Voshmgir 2020, [https://blockchainhub.net/tokens/], last accessed July 24, 2023.
[167] Vid. (https://smt.steemit.com). Steemit grants tokens to those who create and promote quality content. Demonstrating the blockchain social networking application (last accessed August 17, 2023).
[168] Vid. Filecoin: A decentralized storage network (https://filecoin.io).

function is as an internal currency that incentivizes people to buy and sell excess storage capacity on their computers in exchange for tokens.

Simply put, utility tokens have consumptive use value and a commercial purpose, and they are not fundamentally intended to be relied on as a passive investment vehicle.[169] Utility tokens can be used on the application to engage in transactions and earn rewards, while increasing the value of the network and therefore the token at resale due to network effects.[170] Utility tokens have been compared to gambling chips, tradable gift cards, software licenses, franchise agreements, sporting event tickets, and more. The concept of utility tokens aligns with the essence of blockchain technology: pseudonymous actors interacting in a distributed ecosystem designed to promote mutually beneficial behaviour with the token acting as an internal currency.[171]

Utility tokens covered by MiCA have only *non-financial purposes* related to the operation of a digital platform and digital services.[172] National Competence Authorities across EU Member States have collectively excluded pure utility-type crypto-asset outside the concept of financial instrument. It has been seen that the rights such tokens convey seem to be too far away from the financial and monetary structure of a transferable security or a financial instrument. However, said does not mean, utility-type crypto-asset could not be some type of hybrid, which could also be assessed in another way on case-by-case basis.[173] The nature of the token would be assessed primarily from the perspective of the primary characteristics of an investment token i.e., a financial instrument.

3.3.2 Payment-Type Crypto-Asset

Beside the utility tokens, the other two subcategories of MiCA's crypto-assets, are both considered as stablecoins. These are shorty described in MiCA's recitals as crypto-assets that aim to maintain a stable value in relation to an official currency, or in relation to one or several assets such as gold, via protocols, mostly algorithmic, that provide for the increase

[169] Crosser 2018, p. 393.
[170] Kordez 2017, [https://medium.com/@primoz.kordez/the-economics-of-blockchain-protocols-18bca548e596] (last accessed August 17, 2023).
[171] Crosser 2018, p. 394.
[172] MiCA recital (9).
[173] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 3.

or decrease in the supply of such crypto-assets on response to changes in demand.[174] Stablecoins are designed to hold a stable value and can therefore be designed to use as a medium of exchange to pay for good and service. Stable needs to be understood in relative terms, so the price of the stablecoin is stable in specific asset it is pegged to, not in absolute terms. Since the volatility[175] of the crypto-assets is much higher than that of gold or fiat currencies, the stablecoin value can still be considered as relatively stable. For their stability and real economic use as medium of exchange, stablecoins are not considered to be just for the speculation rather than potential to become global currencies.[176]

MiCA regulates to types of stablecoins: e-money tokens and asset-reference tokens with a precise difference between them. According to MiCA Article 3 definitions 'electronic money token' or 'e-money token' means a type of crypto-asset that purports to maintain a stable value by referencing the by referring to the value of a fiat currency that is legal tender and which the main purpose is to be used as a means of exchange. According to paragraph 2 of Article 48 of the MiCA e-money tokens shall be deemed to be electronic money.[177] According to the Article 43 (1) of the MiCA, an issuer of an e-money token must be authorised as a credit institution or as an electronic money institution, and issuers are subject to the full e-money regulatory regime, including capital, safeguarding, and conduct of business requirements. The function of e-money token is considered to be very similar to the function of electronic money as defined in Electronic Money Directive 2009/110/EC. Like electronic money, such crypto assets are electronic surrogated for coins and banknotes and are likely to be used for making payments.[178] So, e-money tokens are crypto-assets primarily intended

[174] MiCA Recital (41).
[175] High price volatility is an issue preventing crypto-assets from being widely accepted in real economic activities. In addition to price volatility, studies have also show volatility spill over effects between different crypto-assets, especially Bitcoin and Litecoin have most dominant roles in that. (Vid. Ji – Bouri – Lau –Raubaud 2019, p. 36.
[176] Sun, Weimin, et al, 2019, p. 100–103.
[177] Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (e-money directive, or second electronic money directive, **EMD2**) lays down the rules for the pursuit of the activity of electronic money issuance and defines categories of electronic money issuers that member states in the EU shall recognize. It also defines electronic money to mean as electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in payment service directive (Directive 2007/64/EC), and which is accepted by a natural or legal person other than the electronic money issuer. Tokenized e-money is a DLT-based form of e-money (Heckel – Waldenberg 2022, p. 101.)
[178] MiCA recital (18).

as means of exchange that purport to maintain a stable value by reference to other forms of capital.

MiCA seeks to provide legal certainty and creates a regulatory regime for all crypto-assets that have as their main purpose to serve as a mean of exchange and that refer to a single fiat currency. To avoid regulatory arbitrage between e-money and e-money tokens, MiCA proposes that e-money tokens that are indistinguishable from e-money be subject to two regimes – the new MiCA and the EMD2. However, DLT-based instruments may fall under a number of different regulatory frameworks, including regulations governing banks, e-money issuer, or investment funds, A number of characteristics determine the applicable regulatory regime, including the existence of the claim against the issuer, a guarantee of redeemability, credit provision, or asset management function. Some of the instruments may fall outside the existing regulatory frameworks. For the record, crypto-assets are not recognised in any of the EU Member States or by the European Central Bank as fiat money, deposits or as other repayable funds.[179]

According to MiCA Article 3 (3) 'asset-reference token' means a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities or one or several crypto-assets, or a combination of such assets.[180] By stabilising their value, those asset-referenced tokens often aim at being used by their holders as a means of payment to buy goods and services and as a store of value. The class of asset-reference tokens covers all other crypto-assets whose value is backed by assets, other than e-money tokens.[181] Stablecoins that reference the euro are an alternative, privately issued and token-based form of the digital euro. Since they may currently fall outside of the regulatory regime of the EMD2, they may not provide the holders with the right of redemption or claim against the issuer.[182]

There are alternative ways to categorise stablecoins. One way is classifying those as collateralised and uncollateralized stablecoins. Collateralisation just means that a borrower

[179] EBA Report with advice for the European Commission on crypto-assets, 2019, p. 12. (Vid. EBA Report to the European Commission on the perimeter of credit institutions established in the Member States, 2014).
[180] Official currency is also defined in Article 3 of MiCA as an official currency of a country that is issued by a central bank or other monetary authority.
[181] MiCA recital (9; 18).
[182] Heckel – Waldenberg 2022, p. 101

pledges an asset to the lender as a surety to guarantee a debt being repaid in the future. If the borrower defaults on their obligations, the lender has the option to take over the collateralised asset. Collateralisation is common when securing loans in financing world from the risk of default. Collateralised asset-reference tokens can be either commodity-collateralised, fiat-collateralised, or crypto-collateralised. In commodity-collateralised stablecoins the underlying asset can be a single or a basket of commodities such as gold which guarantee the value of stablecoin. Ownership of stablecoins represents a claim to the collateral, and owner can exchange their stablecoin for its backing commodity based on predefined conversion rate. Fiat-collateralised stablecoins are fully backed by basket of fiat currencies. Crypto-collateralised stablecoins on the other hand, are being collateralised by one or a basket of other crypto-assets. Non-collateralised stablecoins refers to stablecoins which price is pegged but they are not backed by collateral.[183]

As defined in MiCA when the value of an e-money token is pegged to only one official currency, an asset-reference token can be pegged many more ways. In general, there are in practice four different types of price-fixing method for stablecoins: 1) crawling peg; 2) adjustable peg; 3) basket peg; and 4) commodity peg. A crawling peg is a system of exchange rate adjustments in which a token with a fixed exchange rate is allowed to fluctuate within a narrow band of rates. Depreciation or appreciation is allowed to happen gradually.[184] An adjustable peg is an exchange rate policy in which a token is pegged or fixed to a major currency such as the U.S. dollar or euro, but which can be readjusted to account for changing market conditions or macroeconomic trends with built-in flexibility.[185] A basket pegged token is being pegged to a weighted average of its main trading partner's currencies. Diversification of a peg like this type makes the token more stable. A commodity peg refers to a token being pegged to a precious commodity, such as gold. Gold is an old standard to stabilise also fiat currencies during the nineteenth and early twentieth century.[186]

It can be stated that payment type crypto-assets are very unlikely to fall under the definition of financial instrument. NCAs have referred to Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on Payment Services in the Internal

[183] Sun, Weimin, et al, 2019, p. 103–106.
[184] Kenton, 2022. [https://www.investopedia.com/terms/c/crawlingpeg.asp].
[185] Hayes, 2022. [https://www.investopedia.com/terms/a/adjustable-peg.asp].
[186] Sun, Weimin, et al, 2019, p. 104.

Market (**PSD2**) when defining instrument of payments. Article 4.1 (14) of PSD2 defines 'payment instrument' as a personalised device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used in order to initiate a payment order. MiFID II does not provide a definition of instruments of payment but specifies in Article 4.1 (44) that the concept of 'transferable securities' excludes 'instruments of payment'.

It seems like MiCA's pure e-money token without a doubt falls under payment type crypto-asset. However, it is not that clear if all stablecoins will be considered as payment type crypto-asset. In MiCA, the use as a medium of exchange, is explicitly mentioned as a defining element of e-money tokens. Asset-reference token does not have the same wording in its definition. Referring generally to stablecoins, first-generation crypto-assets[187] have rarely been usen as payment instruments because of their high volatility, low scalability, and insufficient number of users to generate network externalities necessary for payment instruments to be used. Instead, they have remained speculative investment targets, although there are plenty of new-generation payment instruments, e.g. Diem[188], in the market.[189] To be classified as instruments of payments, crypto-assets should be intended solely for payment purpose without combining investment purpose.[190] Referring to the chapter 3.2, both ESMA and NCAs' have stated that some crypto-assets which value is backed with other crypto-assets, may be considered as investment tokens (vid. Table 5.).

Now we have taken a closer look of MiCA and what does it means when it excludes financial type crypto-assets outside its scope. It has now been defined what narrow scope of tokens – utility token and payment token – it regulates. MiCA does not define the circumstances under which a crypto-asset is considered a financial instrument, it presents the asset classes that are at least, in their pure form, excluded from the definition of financial instrument. MIFID II lists financial instruments. Now we will enter more deeply into the concept of

[187] First-generation crypto-assets such as Bitcoin.
[188] Diem (former Libra) was a blockchain based payment system which promised to be secure, scalable, and reliable. Diem payment system included Diem Coins that are backed by a reserve of assets made up of cash or cash equivalents and very short-term government securities. The Diem Association (originally the Libra Association) shut down in January 2022 and sold the project to Silvergate Bank which announced on March 8, 2022 that it is going to wind down its operations and liquidate. [https://www.silvergate.com / https://www.diem.com/en-us/] (last accessed August 7, 2023).
[189] Heckel – Waldenberg 2022, p. 52, 106.
[190] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 12.

financial type crypto-asset, where it exists, how it has been attempted to be defined both nationally and in EU and where its interfaces exist.

4 CRYPTO-ASSETS AS TRANSFERABLE SECURITIES

4.1 Transferable Security

4.1.1 Characteristics of Transferable Security

There is currently no legal definition of crypto-assets in the EU financial securities laws. A key consideration of the legal qualification of crypto-assets is whether they may qualify as MIFID II financial instruments hence the existing financial regulation establishes a comprehensive regulatory regime governing the execution of transactions in financial instruments.[191]

To determine the legal status of crypto-assets and determine possible applicability of EU financial regulation ESMA undertook a survey of National Competent Authorities[192] in the summer of 2018[193] with the aim to collect detailed feedback on the possible legal qualification of crypto-assets as financial instruments. The survey questions were designed to determine the way in which a given Member State had transposed MiFID II into its national law, and based on that transposition, whether a sample set of six crypto-assets issued in an initial coin offering qualified as 'financial instruments' under their respective national laws. Also, there were questions on other national rules likely to apply to crypto-assets and the possible future regulatory treatment of crypto-assets and ICOs. There was broad agreement among NCAs that the crypto-assets that meets the necessary conditions to qualify as a financial instrument should also be primarily regulated as such according to the principle of technology neutrality.[194] The sample crypto-assets used in the survey were existent crypto-assets that are available to European investors. They reflected differing characteristics that ranged from investment-type to utility-type, and hybrids of investment-type, utility-type and

[191] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 19.
[192] A National Competent Authority – or regulatory authority – are organisations that have the legally delegated or invested authority, or power to perform a designated function, normally monitoring compliance with the national statutes and regulations in each EU Member States. In Finland, such authority is Financial Supervisory Authority (FIN-FSA) which role is to supervise the activities to financial market participants as provided in the Act on the Financial Supervisory Authority (878/2008, as amended) and elsewhere in the national law. In addition, the FIN-FSA shall also promote good conduct in financial markets and public awareness of financial markets. (Section 2 of the Act on Financial Supervisory Authority).
[193] It is worth noting that the survey was conducted in 2018 and first proposal of MiCA was published after that in 2020.
[194] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 2.

payment-type crypto-assets. Pure payment-type crypto-assets were not included in the sample set on purpose as they are unlikely to qualify as financial instruments.[195]

We already looked at the overall taxonomy of cryptos, also referring to the survey, in Chapter 3.2. Now we will focus on the findings related to financial instruments. Crypto-assets are most commonly interpreted as securities when considering their nature as financial instruments. According to the survey of ESMA, first of all, the crypto-asset under consideration, had to meet the basic characteristics of a transferable security in order to be qualified as financial instrument. Common features of such tokens where to be found in the form of interchangeability, shared characteristics and in some cases some further criteria such as book entry system or securities account where needed.[196]

Directive on markets in financial instruments (MiFID II) has a definition for financial instruments. 'Financial instruments' are defined in Article 4(1)(15) of MiFID II as those "instruments specified in Section C of Annex I". These are inter alia 'transferable securities', 'money market instruments', 'units in collective investment undertakings' and various derivative instruments. For the essential financial instruments the definitions will be detailed later in the thesis. Although crypto-assets can, at least in theory, represent any class of financial instrument and its hybrids, this thesis focus mostly on the definition of transferable security because of its most common occurrence and its relevance also in the international context. The legal nature of cryptos has also being debated outside the European continent, and most often in relation to securities.[197] However, as will be seen, the final consideration is always case-by-case assessment and some more complex issues may arise over time, particularly in relation to derivatives. We will look that speculative financial instruments, derivatives, closer in Chapter 5.

---

[195] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 19. ESMA has stated that the results reflected of the above-mentioned survey should not be extrapolated to the entire crypto-asset universe, in particular, payment-type crypto-assets.

[196] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 5.

[197] Especially the United States Security and Exchange Commission (SEC) has announced multiple (total of 68 in summer 2023) charges against crypto-asset providers accusing their cryptocurrencies being a security. The SEC has repeatedly claimed that nearly all cryptocurrencies are securities. (U.S. Securities and Exchange Commission – Crypto Assets and Cyber Enforcement Actions, [https://www.sec.gov/spotlight/cybersecurity-enforcement-actions], (last accessed August 3, 2023). See also Coghlan 2023, [https://cointelegraph.com/news/sec-labels-61-cryptocurrencies-securities-after-binance-suit], (August 3, 2023).

So, what are these transferable securities? Despite the diversity of opinions on the concept of a security in legal literature, it can be concluded that there can be found at least two united characteristics characterising a security. The first is the instrument representing a security. Progresses based on a more general concept of the instrument as a physical substrate. As a rule, it is an instrument in the classical meaning of a word, that is to say, a letter of paper. However, the nature of the physical substrate itself is not essential, it can be any capable of becoming a vehicle of information. The second is then a close-fitting of the type of rights attached to this instrument, described as an incorporation. The instrument makes the valuable legal consequences associated with it.[198]

EU legislation refers to securities in several different contexts. The Takeover Directive 2004/25/EC of EU[199] defines security in the Article 2 as 'securities' shall mean transferable securities carrying voting rights in a company. However, regarding the Takeover Directive, it should be noted that this is not a definition of a security per se. The Transparency Directive and the Prospectus Regulation do not define a security, but simply refer to a MiFID as well. MiFID lists examples if different types of commonly known security types, as well as vaguely defining its general, shared characteristics. "*Transferable securities*" under Article 4(1)(44) of MiFID II, means those "*classes* of securities which are negotiable on the capital market, with the exception of instruments of payment, such as:

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

4.1.2 Interchangeability

The preamble to the MiFID II definition of a security focuses on its negotiability on the main capital market and the fact that it belongs to a specific class of securities. These three elements: negotiability, issue to the public and fungibility, can be seen as the main elements in the definition of transferable security.

[198] Perácek 2021, p. 141–142.
[199] Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids.

What these so called '*classes'* are, is not defined broadly in the EU member states. Independently of whether the term 'class' has been introduced at national level, NCAs reported a similar interpretation, namely to form a class, units (i.e. crypto-assets in the cases presented) need to be *interchangeable* (some referred to the terms 'fungible/replicable with one another' or 'identical'), issued by the same issuer, show similarities and give access to the same (equal) rights to the same group of investors. Such rights can include the right to receive a portion of company's profit in the form of dividends, the right to participate in community management, e.g., voting rights, the right over a portion of company's assets or rights to share any surplus in the event of liquidation.[200] In its usual meaning of the word, fungibility means that the two assets are interchangeable and of equivalent value. for example, in in case financial instruments with the same economic and legal features are partially registered with a traditional CSD and partially with a DLT settlement system (**DLT SS**)[201] or a DLT trading and settlement system (**DLT TSS**)[202], they are being considered fungible in the economic and legal sense.[203]

In addition to the above criteria, it is considered that the security must fall within one of the categories of securities listed in the MiFID criteria. The first category of securities mentioned in the MiFID II definition of a security is that of shares in companies, which can be considered as the archetype of a transferable security in the securities market. Although European capital markets and trading on regulated markets are highly harmonised, the content of the rights and obligations conferred by shares and the legal status of shareholders are determined to a large extent by national company law specificities, which means that market participants have to take into account, even when operating in capital markets, sometimes even significant national differences. An example is the question of the company's interests, already mentioned above. Whereas in Germany the interest of the company is largely identified with

[200] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 5.
[201] According to the Article 2 (1) paragraph (7) of the DLTR, DLT SS means a settlement system that settles transactions in DLT financial instruments against payment or against delivery, irrespective of whether that settlement system has been designated and notified in accordance with Directive 98/26/EC, and that allows the initial recording of DLT financial instruments or allows the provision of safekeeping services in relation to DLT financial instruments.
[202] According to the Article 2 (1) paragraph (10) of the DLTR, DLT TSS' means a DLT MTF or DLT SS that combines services performed by a DLT MTF and a DLT SS.
[203] ESMA Questions and Answers: On the implementation of Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology 2023, p.

the purpose of making a profit, in Germany the idea of the interest of the company in the company itself is more prominent.[204]

The nature of transferable security of crypto-assets has also been the subject of much discussion on the other side of the sea and is has been strongly linked to the concepts such as legal entity as an intermediary and the profit-making purpose of the work done by a third party. The Supreme Court of the United States apply a test whether an offering constitutes an "investment contract", when it assesses whether it has a security-like-investment under the consideration. In assessing this, they use the test developed by old case law (Howey Test: in case of SEC v. W.J. Howey Co.). The Howey Court defined an investment contract as a "scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party" and the definition "embodies a flexible rather than a static principle, one that is capable of adaption to meet variable schemed devised by those who seek the use of the money of others on the promise of profits".[205]. The Howey test can be broken into following parts: 1) an investment of money; 2) in a common enterprise; [206] 3) the efforts made by those other than the investor are the undeniably significant ones, those essential managerial efforts which affect the failure or success of the enterprise".[207]

4.1.2 Negotiability on the Capital Markets

One of third NCAs completed the interpretation of a 'class' by the following criteria: to form a class, units should share the same *characteristics*, e.g., have the same nominal value, and/or represent standardized issued units, meaning that the *contents/attributes of each security are not individually negotiated* with investors, which allows them to be easily traded on a capital market. Negotiability can be defined as the transferability on the basis of at least unilateral expression of will or as any patrimonial right, regardless of its name, which, because of its own legal configuration and system of transfer, is susceptible to being traded in a generalised impersonal way in a financial market.[208]

---

[204] Collins 2020, p. 109–110.
[205] SEC v. W. J. Howey Co., 328 U.S. 293, 298–99 (1946).
[206] U.S. District Court Southern District of Florida: Rensel v. Centra Tech, Inc., D.C. Docket No. 1:17-cv-24500-RNS (June 29, 2021).
[207] Crosser 2018, p. 401-402.
[208] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 5.

Transferability and negotiability are the possibility of transferring a security in general. In addition, the requirement of negotiability and the condition of belonging to a class of securities are linked to the ease of trading on capital markets. Negotiability refers to the possibility of easily realising the transferability of a security. If the securities in question are of a kind that is capable of being traded on a regulated market or multilateral trading facility (**MTF**), this will be a conclusive indication that they are transferable securities, meaning that securities that are tradable on a regulated market or MTF clearly meet the requirement of transferability.[209] However, negotiability on the above-mentioned markets is not a prerequisite for assessing the negotiability of a security, since what matters is its negotiability on capital markets.[210] The concept of capital markets is not defined in detail in EU securities market law, but is meant to be understood more broadly than traditional financial markets (exchanges, brokers, post-trade market infrastructure, etc.), and it is meant to include all contexts where buying and selling interest in securities meet.[211]

Negotiability refers to the fact, that the characteristics of the security and the rights it confers must be determined in accordance with predetermined conditions, and the holder of the security must not incur personal liability for the obligations of the entity issuing the security. Each security must confer standardised rights on its holder under predetermined conditions. In other words, individual securities issued to the public do not differ in their commercial characteristics and investors are therefore not concerned which securities they hold.[212] This so-called standardisation requirement is considered necessary for the efficient price formation and trading of securities in securities markets – the existence of several identical securities is also a prerequisite for the emergence of a market price for a security. This is in line with the view that standardised asset and property rights recognised by the legal system create better conditions for exchange and a functioning market than individually negotiated ad hoc contractual arrangements between market participants.[213]

[209] Collins 2020, p. 109.
[210] ESMA (CESR) Questions and Answers: MiFID complex and non-complex financial instruments for the purposes of the Directive's appropriateness requirements 2009, p 9.
[211] Ross 2023, European Capital Markets: need for strength in uncertain times, p. 3.
[212] Häyrynen – Kajala 2013, p. 67; Parkkonen – Knuts 2014, p. 14.
[213] Collins 2020, p. 111.

The abstract possibility of being traded is considered sufficient for the financial type crypto-asset, even if there is not yet a specific market for the product, the assets have not effectively been transferred or traded, or even if there is a temporary lock-up. The standardisation and fungibility of the crypto-asset may indicate negotiability. However, negotiability has not been assessed on stand-alone basis rather in the context of the general assessment of the nature of the security.[214] Negotiability requirement is closely related to capital market requirement. And as mentioned earlier, capital market needs to be understood broadly as the place, where buying and selling interests meet – not necessarily as a regulated market, MTF or systematic internalisation.

ESMA's preliminary view is that where crypto-assets qualify as financial instruments, platforms trading crypto-assets with a central order book and/or matching orders under other trading models are likely to qualify as multilateral systems and should therefore operate as regulated markets (RMs) or as multilateral trading facilities (MTFs) or organised trading facilities (OTFs). Where the operators of these platforms are dealing on own account and executing client orders against their proprietary capital, they would not qualify as multilateral trading venues but rather as broker/dealers providing the MiFID II services of dealing on own account and/or the execution of client orders.[215]

4.2 Virtual Currency or Security

4.2.1 Virtual Currency Act

Let's take a closer look at our national legislation in Finland, because the case-by-case classification of a crypto-asset as a financial instrument is the responsibility of an individual national authority and will depend on the specific national implementation of EU law and the information and evidence provided to the authority.[216] In addition, some EU member states have domestic categories of financial/investment products that are broader than MiFID financial instruments, addressing products that are deemed to have an investment purpose or expectation of returns.[217] However, majority of the EU member states have no special

[214] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 7.
[215] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 25.
[216] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 19.
[217] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 3.

criteria under the national legislation to identify transferable securities in addition to those set out under MiFID.

In Finland, crypto-asset legislation has primarily focused on the Act on Virtual Currency Providers (2019/572, **Virtual Currency Act** or **VCA**) which interpreted in the light of the EBA's classification, applies specifically to the first category (payment/exchange/currency tokens). National virtual currency regulation contains two important intersections between financial regulation and virtual currency regulation. The first, according to the main rule in the statement by the Financial Supervisory Authority, the Investment Services Act, the Credit Institutions Act (610/2014, as amended) or the Securities Markets Act do not in principle apply to virtual currency providers. Thus, for example, the general concept of investor protection or deposit protection is not applicable to virtual currency activities.[218] The same rule is also the starting point for EU regulation.

The current regulation of virtual currency providers is based on the EU 5th Money Laundering Directive and is much more limited than, for example, the regulation of investment activities - for example, there are no provisions on investor protection and the obligation to inform customers is relatively general.[219] The national regulation of crypto assets has been designed to create a framework for the obligation of registration of virtual currency providers and, above all, for compliance with anti-money laundering regulations.[220]

The definition of virtual currency in Section 2(1) of the Virtual Currency Act corresponds to the definition of virtual currency in the Fifth Money Laundering Directive. According to the Virtual Currency Act, virtual currency is: (a) a value in digital form; (b) not issued by a central bank or other authority; (c) not a legal tender; (d) usable by a person as a means of payment; and (e) capable of being transferred, stored, and exchanged electronically. Virtual currency is always in digital form.[221] The definition of virtual currency under the Virtual Currency Act is clarified in Article 2(2) of the same Act by excluding electronic money within the meaning of Article 5(6a) of the Payment Institutions Act (297/2010).

[218] FIN-FSA online news 20.12.2022 – 21/2022.
[219] FIN-FSA online news 20.12.2022 – 21/2022.
[220] Puhakka 2018, [https://urn.fi/URN:NBN:fi:bof-201901141031].
[221] HE 167/2018 vp, p. 84.

The national definition of virtual currency is technology neutral. The government proposal explicitly states that virtual currency may have an identifiable issuer *or* its existence may be based on a decentralised system, such as the blockchain technology behind Bitcoin.[222] A prerequisite for a virtual currency is that it can be used as a means of payment, even though it cannot be legal tender. [223] A virtual currency is by nature a commodity. [224] It must be transferable and exchangeable and stored in electronic form. A commodity in digital form is in effect a unique code that can be transferred and stored. [225]

4.2.2 Virtual Currency as Financial Instrument

According to Section 12 of the Virtual Currency Act if a virtual currency is a financial instrument within the meaning of Chapter 2, Section 2 of the Securities Markets Act (746/2012), the said Act *also* applies to it. This is the only intersection provided by the VCA in relation to financial regulation. The Section is intended to be informative only and contains an informative reference to the Securities Markets Act. A virtual currency may meet the definition of a financial instrument of Section 2 of Chapter 2 of the Securities Market Act, in which case the provisions of that Act apply to such currency, for example the obligation to draw up a prospectus.[226] The assessment of whether a virtual currency is a financial instrument is actually left to the definition of a financial instrument.

The definition of the financial instrument contains in Securities Market Act, and it refers to a large extent to the definition of a transferable security in MiFID II. According to the Section 2 of Chapter 2 of the Act financial instrument means a security and other financial instrument within the meaning of Section 14 of Chapter 1 of the Investment Services Act (747/2012). The provision of the Investment Services Act is based on Annex I, Part C of the

---

[222] Vid. for example, the Government Bill to Parliament for an Act on the Control System for Bank and Payment Accounts and Certain Related Acts HE 167/2018 vp, p. 84, Hautamäki - Atallah - Koskikare 2019, p. 32-34 and Keskitalo 2022, p. 45-46, where it is admittedly considered reasonable to link the concept of virtual currency specifically to blockchain technology. Cf. the European Union's regulatory approach, where a technology-neutral approach to crypto assets and currencies is chosen.
[223] Legal tender means a means of payment which must be accepted by a creditor if the means of payment is not agreed between the creditor and the debtor. (Vid. Proposal for a Regulation of the European Parliament and of the Council on the legal tender of euro bank notes and coins, Explanatory Memorandum, p. 7).
[224] In legal linguistics, a commodity can be a good or a service, an intangible or tangible good. The word is most commonly used in consumer law, but is also widely used in other commercial law, accounting and taxation. Vid. e.g. Leppiniemi - Kaisanlahti 2016, p. 125; Varhela - Virtanen 2022; Nieminen – Anttila – Äärilä et. al., 2023.
[225] HE 167/2018 vp, p. 84.
[226] HE 167/2018 vp, p. 85.

MIFID II.[227] "Financial instruments", defined in Article 4(1)(15) of MiFID II, are "instruments specified in Section C of Annex I." These are inter alia as already listed 'transferable securities', 'money market instruments', 'units in collective investment 'undertakings' and various derivative instruments."

In Finnish civil law, a security is generally understood to be a document the possession of which is a precondition for the exercise of the right which it confers.[228] However, this does not limit the application of the law to physical documents only, but for the purposes of the law, possession is also equated with entry in a book-entry or securities account.[229]

In national law, the relevant definition of a security in this context is contained in Section 1 of Chapter 2 of the Securities Market, the content of which naturally corresponds to a large extent to the definition of a security in MiFID II discussed above. However, it should be mentioned that the Securities Market Act introduces a fourth paragraph to the definition of a security, according to which a unit trust or other comparable unit of a collective investment undertaking within the meaning of the Investment Fund Act (213/2019, as amended) is a security falling within the scope of the Securities Market Act. the Securities Markets Act only applies to these to a limited extent, as the disclosure obligations in this respect are mainly regulated by the Investment Fund Act. National legislation in Finland uses the term 'security' over transferable security but meaning the same thing because of the EU origin of the term.

Securities Market Act emphasises the requirement of exchangeability and transferability. According to the introductory phrase of the provision, "a security is defined in this Act as a security which is negotiable, and which has been or will be put into public circulation together with a number of securities with rights of the same content." Security must therefore be of the nature of a variety instrument. In this context, the term "kind" means that the securities issued or to be issued to the public cannot be distinguished from each other in terms of

[227] HE 151/2017, p. 132–133.
[228] HE 32/2012, p. 101 and HE 184/2001, p. 21.
[229] HE 32/2012, p. 101-102. According to the preamble to the definition of a security in the previous law (HE 184/2001, p. 21), for the definition to apply, the owner had to be able to obtain proof of his ownership, such as a share certificate, a book-entry account statement or other similar proof. This proof was also referred to in the definition in the previous law. The definition in Chapter 2, Section 1 of the AML no longer refers to evidence, since the evidence obtained (e.g. a statement of a book-entry account) was not necessarily a security in its own right, even under the previous law.

their commercial characteristic.[230] This means precisely that the securities issued must be standardised. The definition in consistent with MiFID. In summary, whether the definition of a security is considered from the perspective of national or EU regulatory standards, the securities market context requires that a security be or be made available to the public, negotiable and of a particular kind.

Exchangeability essentially means that the transferee of the security is protected in accordance with the provisions of Chapter 2 of the Promissory Notes Act (622/1947, as amended) relating to negotiable instruments or other equivalent provisions.[231] The provisions and principles of the Promissory Note Act may, according to the government proposal, become applicable to other financial instruments developed in the capital markets, either by analogy or by statute. As an example of the application of the provisions of the Promissory Note Act by operation of law, the government proposal mentions share certificates and other certificates relating to share rights, the transfer and pledge of which are subject to the provisions of Articles 13, 14, 22, 24 and 25 of the Promissory Note Act pursuant to Chapter 3, Section 13 of the Limited Liability Companies Act (624/2006, as amended).[232] An example of the analogous application of the Promissory Note Act is the share of a limited partnership which, as a rule, is not a security within the meaning of the Securities Act, since according to Chapter 1, Section 4 of the General and Limited Partnership Act, the transfer of a share or part of a share in a limited partnership has no effect on the partnership unless all the other partners consent to the transfer or the partnership agreement provides otherwise. However, if a certificate can be issued for the share and the partnership agreement expressly states that the share can be transferred and that the transferee's rights are not impaired, such a certificate is equivalent to a negotiable promissory note under Chapter 2 of the Promissory Note Act and can be considered negotiable.[233]

Closely linked to the exchangeability is also the condition that the security has been or will be put into public circulation. According to the government proposal to Chapter 1, Article 2 of the former Securities Market Act (495/1989) a public offering means that the group of potential transferees of the security is not predetermined. In this respect, the mere subjective

[230] Parkkonen – Knuts 2014, p 14–16.
[231] HE 184/2001, p. 21; HE 32/2012, p. 101.
[232] HE 32/2012, p. 101.
[233] HE 102/2006, p. 22.

purpose of the issuer is not considered sufficient without a condition limiting negotiability.[234]

4.3 The Functional Features of a Security

4.3.1 Profit Right

Chapters 4.1 and 4.2 focused form-related, instrumental, characteristics and classes of transferable securities, both at EU and national regulatory level, and now we will look at the functional features – what rights should be included in a crypto-asset so that it can be interpreted as transferable security and what characteristics are primarily indicative of a security. As could be seen, MiFID II's definition of a security is relatively broad and does not take a position on, what legal characteristics securities should have in order to meet the definition of such. National Competent Authorities assessed the issue.

The existence of attached profit rights alone is considered sufficient to qualify crypto-asset as transferable security when it also meets the other conditions to be qualified as transferable security. Profit rights has been deemed to be the most relevant and the most crucial character of transferable security-like crypto-asset even without having necessarily other rights, such as ownership or governance rights, attached to it. When NCAs of EU member states have assessed crypto-assets, and if they meet their national criteria and qualify as transferable securities, the arguments to support this view were that such crypto-assets have similar features to shares, providing similar rights to shareholders, e.g., dividend rights, voting rights, an annual profit participation or the right to participate in the management of the community.[235]

In the field of property law, a profit is defined as everything that accrues from an item of property in the course of its regular use. Broadly defined, profit includes both natural products, such as the timber income from forest ownership, the babies of domestic animals and the harvest from the land, and income from movable property, such as, for example, rental income, interest and dividends. As a general rule, the proceeds of an object belong to its owner, but under certain conditions the holder of the object may also be entitled to the

[234] HE 184/2001, p. 21.
[235] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 3; 9.

proceeds of the object.[236] When considering financial instrument as an investment contract, profit is usually understood broadly. The profits include, but are not limited to: 1) money paid an issuer as interest to the owner of its debt securities; 2) money paid by an issuer as dividends to the owners of its equity securities; 3) money representing an increase in the value of a security realized when the owner sells the security to the issuer or a third party; and 4) money representing an increase in the value of a debt security realized by the owner when the security's maturity amount is paid by the issuer.[237]

4.3.2 Additional Requirements: Ownership, Governance, and Investment Component

In the ESMA's survey to the NCAs, authorities also made some additional requirements for the assessment of the tokens. Some jurisdictions required a compulsory book-entry recoding and securities account. Right of ownership and governance were also perceived as possible characteristics affecting the assessment. In addition, NCA's of EU member states have had dissenting opinions of should so-called investment component be a necessary characteristic for the qualification as a transferable security within the meaning of Article 4.1 (44) MiFID II.[238]

Four jurisdictions participating the ESMA's survey required further criteria, book-entry system and securities accounts for crypto-assets to be qualified as transferable securities. The regulation (EU) No 909/2014 (**CSDR**) has entered into force, from 1 January 2023, since the survey has been carried out. According to Article 3(1) of CSDR, an issuer established in the EU that issues or has issued transferable securities, also crypto-assets that qualify as such and are traded on trading venues, which are admitted to trading or traded on trading venues shall arrange for such securities to be represented in book-entry form. CSDR does not prescribe any particular method for the initial book-entry form recording. Approach is technology neutral, including DLT as well, and can be virtually used, provided that the book-entry form is with an authorised CSD.[239] After the EU regulation, the book-entry recording and other related measures, can been seen more as a consequence of the classification of the token as a security, rather than the cause of the classification.

---

[236] Kartio – Tammi-Salminen 2011, the concept of profit (e- book).
[237] Collins 2011, p. 3–4.
[238] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 3.
[239] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p 34.

Ownership and governance are features considered as subordinate to profit rights and does not alone indicate the status of transferable security.[240] The survey of ESMA does not discuss the reasons why NCAs have though this to be the case, but it is understandable from the point of view that if we look at the MIFIDs definition of transferable security, there are several examples of transferable securities and only some of them can be classified as shares in some legal entities formed by law, such as limited liability company, to which ownership and different types of voting rights are accordingly often linked.

According to the Section 1.2 of Chapter 2 of the Finnish Securities Market Act exclude from the scope of application certain securities. On the basis of paragraph 2, securities which, alone or together with other securities, confer the right to manage a specific apartment, other premises or immovable property or part of a property are excluded from the scope of the Securities Market Act. Consequently, shares in housing companies and mutual real estate companies are excluded from the scope of the law. It also excludes, on the same grounds, shares in a housing cooperative. Nor does the Act apply to securities such as housing rights which entitle the holder to hold other premises or parts of premises referred to in the paragraph.

However, it should be noted that the Finnish Securities Market Act does apply to securities of entities whose purpose is, for example, the ownership of housing or real estate companies or real estate, but where the participation entitles the holder only to exercise rights within the entity and not to hold any specific dwelling or real estate or part of real estate. This includes, for example, securities of real-estate investment trusts.[241] This is a simple example of the fact that our national regulation is based on the premise that not all securities are financial instruments, especially when they give the right to mere control. This is in line with the mere fact that a token conferring a right of ownership does not allow conclusions to be drawn about the nature of a financial instrument.

In relation to ownership and government, DLT-based phenomena are often associated with a so-called digital autonomous organization (**DAO**). DAOs are distributed alternative to traditional government structure. DAO is an organization represented by rules encoded as a

[240] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p 20.
[241] Parkkonen – Knuts 2014, p. 15.

computer program that is transparent, controlled by shareholders and not influenced by a central government. A DAO's financial transaction record and program rules are maintained on a distributed ledger technology, they are open, self-organized collectives coordinated by economic incentives and self-executing code, cooperating around shared goals without a single point of control.[242] The main features of DAO can be summarised in the following points: 1) DAO is created without the need to acquire legal personality; 2) DAO is not under the direct control of any identifiable person; and 3) it does not have to be operated through the intermediary of any person at all.[243] When a token is linked to a DAO-style government system, it would be illogical to interpret it as a financial instrument without other features, such as profit right, inherent to it.

There is no general consensus whether an investment component is a necessary criterion of the qualification of security-type crypto-asset. Although phenomenon has been given substance both by the authorities and in the legal literature, there is no legal definition for investment component, and it could need further definition via examples or guidelines. Investment component has been seen in multiple way. It can mean that the investor has an expectation of direct flow of payment, or an existing legal claim for a form of payment or repayment against the issuer of the security. In regard of crypto assets however, the expectation of direct flow of payment may be considered to be derived through, *inter alia*, the negotiability of the crypto-asset, not necessarily in the form of dividend. The above therefore means that the flow of payment comes from the appreciation in value of such token after its issuance due to secondary trading.[244]

Some of the EU member states have a non-exhaustive list of different type of transferable securities, which both provides for a broad definition of the term, and a principle that substance over form should prevail in considering of a token belonging to the category of transferable security or other class of financial instrument. This is supported approach also for the views of other member states on how legislation should approach the definition issue.[245]

---

[242] DAOstack 2018, p. 3, [https://daostack.io/wp/DAOstack-White-Paper-en.pdf].
[243] Tom W. Bell 2020, p. 92.
[244] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 10.
[245] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 12; 20.

It could be argued as well that the substance over form -approach would be in line with the legislative principle of technology neutrality.

We have now taken a look what qualities matter when we consider in case-by-case analysis if some crypto-asset fall into the definition of, in particular, transferable security. Perspective has been quite EU-based, but as has been said, our national legislation is based on these standards set by EU, and the national legal literature supplements the established legal situation with its arguments. Crypto-asset must fulfil the characteristics of fungibility and transferability on capital markets, as defined with more details, as well as it needs to have attached profit rights and to be represented in book-entry form. The latest feature of the list can be seen as consequence rather than as a reason for classification.

Although crypto-assets have generally raised definition issues in relation to securities, there are number of other financial instruments that may come into question in relation to crypto-assets. In the final Chapters 5 we are going to move slightly upwards in the abstraction level and focus on some, maybe even uncategorised or unregulated, or otherwise ambiguous pool of financial type crypto-assets. We will first examine in general terms what is meant by a financial instrument, in particular, how it differs from a transferable security, after which we will focus further set of financial instruments of great interest to crypto-assets: derivatives. We are probably going to raise more questions than give answers.

5 SPECULATIVE CRYPTO-ASSETS

5.1 Financial Instruments and Secondary Trading

In addition to transferable securities, crypto-asset may deem to be MiFID financial instrument in some other form used in financial markets, e.g., Several NCAs responding to ESMA's survey on the legal qualification of crypto-assets expresses the view that some crypto-assets may qualify as units in collective investment undertakings, most likely Alternative Investment Funds (**AIFs**) and derivatives.[246] However, the definition of a financial instrument cannot be considered as clear and unambiguous as the definition of a security. Whereas a security within the meaning of both the Finnish Securities Market Act and MiFID must always be negotiable and of a specific class, a financial instrument in a broader meaning can also be a bilateral contract. The transferability of a financial instrument may also be limited compared to security. The concept of a financial instrument is also relevant to the regulation of securities and the legal position of their holders, as transferable securities under MiFID II are also considered financial instruments, and therefore securities and their holders are to a large extent subject to the regulation of financial instruments.[247]

In the provisions of the Security Market Act, the definition of a financial instrument is referred to in Chapter 1, Sections 2 and 3, in the provisions on market abuse in Chapters 12 to 14 and in Chapter 17, Sections 2 and 3. The definitions refers to the definition of a financial instrument in Chapter 1, Section 14 of Act on Investment Services (727/2012, as amended), which in turn is based on the MiFID II. The definition of a financial instrument in Annex 1, Part C of MiFID II is broad. It covers, *inter alia*, securities, money market instruments, units in Undertakings for the Collective Investment in Transferable Securities (**UCITS**), a wide range of derivative instruments and emission allowances. Compared to Chapter 1, Section 14 of the Act on Investment Services, a financial instrument meets the definition of MiFID II, the definition including instruments issued using decentralised ledger technology as well. In addition to MiFID, the Regulation (EU) No 648/2012 on OTC derivatives[248], central

[246] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 19.
[247] Collin 2020, p. 112.
[248] According to the Article 2 (7) of the EMIR 'OTC derivative' or 'OTC derivative contract' means a derivative contract the execution of which does not take place on a regulated market as within the meaning of Article 4(1)(14) of Directive 2004/39/EC or on a third-country market considered as equivalent to a regulated market in accordance with Article 19(6) of Directive 2004/39/EC. In other words, these so-called over-the-counter

counterparties and trade repositories[249] (**EMIR**) is the primary regulatory instrument for OTC derivatives.

Especially the development of secondary markets for crypto-assets, specific trading platforms only for crypto-assets, has created problem with security-like investments or an activity that otherwise resembles a use of a financial instrument, due to the possibility of trading them on secondary markets, but still managing to fall outside the scope of EU financial regulation.[250] The primary market and the secondary market are the two main categories of markets. Companies first offer new securities to the public on the primary market, including stocks, bonds and other financial instruments. The primary market's goal is usually to raise money for example for a business, project etc. As discussed in Chapter 3.1.2, the primary market falls in the scope of productive financialisation. On the other hand, previously issued securities are traded between investors on the secondary market. The secondary market provides liquidity to investors, allowing them to buy and sell securities quickly and easily. This market is also important for price discovery, as the price of a security is determined by supply and demand factors. In the crypto-asset world, the primary market is where new tokens or coins are first offered to the public through ICOs. The secondary market, on the other hand, is where previously issued crypto-assets are traded among investors.[251]

Crypto-assets may be traded or exchanged for fiat currencies or other crypto-assets after issuance on specialised trading platforms on which a handful concentrate most of the flows.[252] Also, while there are over 2,050 crypto-assets, most trading happens in Bitcoin, followed by Tether and Ether.[253] Many issues pertaining to platforms trading crypto-assets are not in essence different from existing ones applicable to trading venues for traditional securities.[254] It is worth to remind that MiFID II nor MiCA does not directly regulate

derivatives are private financial contracts established between two or more counterparties instead of listed and traded on exchanges. (Beers 2021, [https://www.investopedia.com/ask/answers/052815/what-overthecounter-derivative.asp] (last accessed August 14, 2023).

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

[250] ESMA Advice on Initial Coin Offerings and Crypto-Assets, ESMA50-157-1391, 2019, p. 13.

[251] Ivey 2023, [https://cointelegraph.com/news/primary-vs-secondary-markets-key-differences] (last accessed August 20, 2023).

[252] According to CoinDesk, State of Blockchain, five platforms control almost the entirety of the trading of Ether, [https://www.coindesk.com/tag/coinbase/] (last accessed July 23, 2023).

[253] CoinMarketCap, [https://coinmarketcap.com] (last accessed July 23, 2023).

[254] MiFID defines in its Article 4 (1), subparagraph 20-24, four classes of trading venues: regulated exchanges, multilateral trading facilities (**MTFs**), organised trading facilities (**OTFs**), and a systematic internaliser dealing on own account when executing client orders outside a regulated market, an MTF or an OTF

Bitcoin – the most traded crypto-asset. However, some NCAs' has stated that its national law defines 'virtual financial assets' in so broad manner so that it captures any hybrid crypto-assets as well as any permutations thereof that cannot be otherwise considered as MiFID II financial instruments.[255]

5.2 Derivatives

Derivatives are financial instruments which values depend on (or derives from) the value of other, usually more basic, underlying variables. Very often the variables underlying derivative are the prices of traded assets, but basically it can depend on almost any considerable variable.[256] Derivatives based on shares, interest rates and currencies have been traded since the very beginning of the market, but today commodity derivatives, for example, are also actively traded worldwide. In practice, a derivative is some form of agreement, strictly standardised in advance,[257] for example to buy or sell an asset at a certain future time for a certain price. Derivatives are speculative financial instruments, and the investor is either betting that the price of the asset will go up or, equivalently, down.[258] Derivative instruments offer an effective way to manage risk in the underlying asset markets. Derivatives are traded on derivatives exchanges and in the interbank and interbank brokerage markets. In the OTC market between banks and brokers, contracts can be concluded on very flexible terms.[259]

ESMA has clarified in relation to securitised derivatives, that these wide set of financial instruments can have a large variety of features among them such as: they can have commodities as underlying but also many financial instruments or they can be linked to strategies, indices, or baskets of instruments (instruments with an underlying which is not a commodity as defined in Article 2(6) of Commission Delegated Regulation (EU) 2017/565 of 25 April 2016), derivatives can passively track the performance of the underlying but they can typically also apply leverage, and they can have optional structure or also have lower

---

without operating a multilateral system. Regulated exchanges, MTFs and OTFs are similar in nature with the except that regulated exchanges are usually bigger and more strictly regulated than MTFs and OTFs. (Vid. Loesch 2018, p. 220).

[255] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 11.

[256] Hull 2012, p. 1.

[257] Knüpfer – Puttonen 2018, p. 226.

[258] Hull 2012, p. 5, 13.

[259] Knüpfer – Puttonen 2018, p. 226.

risk profile than the underlying by, for example, offering capital protection, in addition to be traded on venue or OTC by the issuer directly or via intermediaries.[260]

In addition to transferable securities, it has been estimated that in particular, commodity derivatives: introduction of position limits and reporting regime which will most directly impact upon those trading crypto-assets.[261] This is probably for a reason also underlined by the MiCA. Crypto-assets that fall within the scope of MiCA, utility type crypto-assets, e-money tokens or asset reference tokens, can be used as an underlying asset of derivatives, that qualify as financial instruments as defined in MiFID II and traded on regulated market, multilateral trading facility or organised trading facility (vid. Table 5, *AlchemyBITE*).[262] In addition, NCAs have reasoned same interpretation. If the crypto-asset is behaving as a contract, which is a key concept of derivative, there is underlying (can be crypto-related assets as well), crypto-asset gives their holders a forward commitment with an exposure to fluctuations of an underlying asset and the crypto-asset should be settled in accordance with the settlement conditions in MiFID and the Commission Delegated Regulation (EU) 2017/565, crypto-asset could be qualified as derivative under MiFID II.[263] In relation to this, it is therefore possible that crypto-assets, covered primarily by MiCA, are traded as underlyings of derivatives, or are seeing itself as derivatives, potentially also as DLT-financial instrument.

[260] ESMA: Questions and Answers on MiFID II and MiFIR commodity derivatives topics, p. 18, 22.
[261] Armstrong – Hyde – Thomas 2022, p. 61–62
[262] MiCA recital (97).
[263] ESMA Advice on Initial Coin Offerings and Crypto Assets - Annex 1 Legal qualification of crypto-assets – survey to NCAs, p. 16.

6 CONCLUSIONS

6.1 Conclusions to the Research Objectives

As seen, there are a range of approaches to crypto-asset related financial instruments. Where crypto-assets qualify as transferable securities or other types of MiFID financial instruments, a full set of rules is likely to apply them and entities providing services and activities in relation to those instruments. When drawing conclusions from the study, one rule is certain: Provided that crypto-assets meet the relevant conditions of financial instrument (any form of financial instrument), crypto-assets service provider should always comply with full set of EU rules applicable to financial instruments. Assessment shall be based on the definitions of security and financial instrument of national Securities Market Act and Act on Investment Services which in turn are based on norms of EU's financial regulation, mostly MiFID II.

However, it is mandatory to know what crypto-asset financial instrument is not, and at the same time, clarify some easy misunderstandings related to interpretation. So, by first defining, what it is not, we already narrow the scope and features there should be or should not. The main idea is, there is no single form of financial type crypto-asset, which could be seen as a simple investment token, or as a form of transferable security or other financial instruments. Or we can, but it does not make any sense. We can certainly say, when DLT-based token is used only as a payment instrument, pegged only in one fiat money, basket of fiat moneys or commodities, or used solely inside the service operated by the issuer of the token, it is not considered as a financial instrument. In these cases, token belongs to the scope of MiCA by being utility token, or stablecoin, by being either e-money or asset reference token and that's it. But when it comes to defining the financial instrument side, things get complicated. Because not all other crypto-assets, that fall outside the scope of MiCA, are financial instruments. Only some of those are.

The main guiding light to follow, is the principle of technology neutrality, for all – for layman, for lawyers, for legislators and for judges. The assessment starts from the nature of the offered financial instrument. But we cannot talk about cryptos in a single format, the definition is way too broad and vague, it is like talking about financing in general with all its aspects as once. In Chapter 4 we mainly focused on the definition of the transferable security,

which is the most common form of financial instrument that comes into consideration in relation to crypto-asset, both in EU than internationally. When making this assessment, the characteristics of the transferable security are primarily and some behavioural features secondary.

Firstly, by characteristics have meaning as a belonging to some *class of securities*. Belonging to some class indicates fungibility. The security needs to be interchangeable between other similar securities. In addition, the token needs to be negotiable on capital market. The condition related to negotiability on capital markets means that an individual investor cannot negotiate separate terms and conditions in relation to a transferable security. Referring to the capital markets, national legislation states this, that the security needs to be exchangeable, and there must be no restrictions on negotiability. Capital markets should be understand broadly meaning any kind of exchange platform where securities cannot be individually negotiated.

Secondly, considering the features of the transferable security type crypto-asset there is broad consensus among the NCAs of EU that the direct expected profit associated with a specific crypto-asset is indicative of interpretation of crypto-asset as a financial instrument. Expected profit needs to be understood in the common sense of the context, broadly as with all investment contracts, including, but not limiting to: money paid as interest, dividend rights, increasing value of a security in resale situation, and money representing an increase in the value of a debt security realized by the owner when the security's maturity amount is paid by the issuer. Other features, usually very similar to shares of a company or other legal entity, can be considered as interpretative assistance in addition to the right to profit. Such features have generally been considered to be rights related to ownership and governance and so-called investment component. However, these must be seen only as subordinate features and do not directly and solely indicate the status of the financial instrument.

As regards other financial instruments than transferable securities, assessment mainly on the basis of DLT Pilot Regime. It seems like, regarding to derivatives, the underlying asset of a security, to which the value or asset of the crypto-asset financial instrument is allocated, does not really matter. And in addition, only partly DLT-based instruments are also acknowledged. If we would like to make a difference between the fact that the underlying asset is crypto-asset rather than as opposed to a real-world commodity, we would make an assume

of separate crypto-economy, which in itself, would give it legitimacy and weird indication of a separate economic dimension.

6.2 *De Lege Ferenda*

Legal dogmatics does not tell us how the legal situation should be but rather, what would be the logical way to answer a research question in hand. But let's assess next, how the world should be, not how it is. The purpose of legal dogmatic and *de lege lata*-focused research is to study what already exists, so the conclusions should also be fairly predictable. If the answers obtained were truly surprising, the legislature could be seen to have failed, since the legal system should somehow create a coherent predictable entirety. On the other hand, in the long run, the research method of legal dogmatics alone can lead to rather arbitrary outcomes when the approach is reactive and retrospective rather than proactive and deliberate. Changing and clarifying the legal situation with the guidance of an authorities is an activity with proactive elements. While legal research is intended to be an instrument, at most mirroring real-world values and shared views that have reached a sufficient consensus and justification in the normative world, it has its place as a tool for predictability, equity and justice.

What could be suggested based on the study made, is that the authorities, mainly meaning by authorities ESMA and EBA, should clarify the legal situation by providing clear interpretative guidance and examples on the characteristics that must be found in crypto-asset that it is classified as financial instrument, and how and what grounds of criteria and conditions the interpretation should be made. It would be crucial to be prepared at EU level, as financial markets are an integral part of the EU internal market and in order to ensure an unvarying operating field for operators in the Member States, as well as for third country operators wishing to offer their instrument in the EU are, interpretation should be broadly harmonised.

The Markets in Crypto Assets Regulation entered into force in June 2023. The implementation deadlines for a substantial number of Level 2 and Level 3 measures of the new regime are within a 12-to-18 month. During the implementation phase ESMA is consulting with the public on a range of technical standards that will be published sequentially in three packages. ESMA's aim is to publish its final consultation package 3 in Q1 2024. While the technical

standards specifically address the MiCA, it is expected that the package will cover qualification of crypto-assets as financial instruments.[264]

Those guidelines should allow for a better understanding of the cases where crypto-assets that are otherwise considered unique and not fungible with other crypto-assets might qualify as financial instruments. In order to promote a common approach towards the classification of crypto-assets, EBA, ESMA and the European Supervisory Authority (European Insurance and Occupational Pensions Authority, established by Regulation (EU) No 1094/2010 of the European Parliament and of the Council (the European Supervisory Authorities, **ESAs**) should promote discussions on such classification. Competent authorities should be able to request opinions from the ESAs on the classification of crypto-assets, including classifications proposed by offerors or persons seeking admission to trading. Offerors or persons seeking admission to trading are primarily responsible for the correct classification of crypto-assets, which might be challenged by the competent authorities, both before the date of publication of the offer and at any time thereafter. Where the classification of a crypto-asset appears to be inconsistent with this Regulation or other relevant Union legislative acts on financial services, the ESAs should make use of their powers in order to ensure a consistent and coherent approach to such classification.[265]

However, as has been repeated previously, there is no need to reinvent the wheel every time an innovation arises. Many of the phenomena of the crypto-world, if there is any crypto-world at all, already have equivalents in the known real-world, if we dig deeply enough to the ontology. In fact, I dare to say the whole idea of this crypto 'phenomenon' could be abandoned, as it is misleading and creates an overly complex picture of the situation. In the end, it is about the same fundamental rights and duties, guiding principles and policies as in everything else. Legislation should not focus on the form in which an activity takes place, but on what is intended to take place. *Substance over form -approach* enables technology neutral regulation where same activities, same risks and same rules become real.

The EU and civil law jurisdictions in general with our written legal rules, may have taken a different path in here in practice, than pure principle-centricity. In an ever more complex

[264] MiCA Implementing Measures [https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica]
[265] MiCA recital (14).

world, an aggressive attempt to legislate norms can become a problem. On the other hand, the growth of entropy and disorder is probably a law of nature that will not leave even regulatory evolution alone, even if it has nothing to do with physics. The facts that technically tokenized securities, for example, cannot be escrowed under the current arrangements of public trading platforms, or that the current securities depositories etc. are not up to the task with their technical abilities, is mainly nothing but a technical problem to be solved, and it no reason to make it otherwise. It makes sense to link new innovations as much as possible to existing principles without over-complicating the issue, as there is no reason to do so.

6.3 Further Research

Although it is now 15 years since the invention of Bitcoin, it can only be assumed that the evolution of crypto-assets in financial industry has only taken it first baby steps and there are, and is going to be, a lot to research in the future both in legal research and interdisciplinary fields with other fields of study. Let us summarise the possible issues raised by this thesis for future research in three main areas: 1) law and economics study on the impact of the EU's choice of legislative approach regarding crossroads of MiCA and financial regulation; 2) Study relating to different financial instruments on DLT format and possible legal outcomes from the combination; and 3) interdisciplinary research framework, especially with social science, sociology, and macroeconomic studies on the other digital financial innovations, such as the impact of AI.

First of all, after few years of implementing MiCA, it would be beneficial to check how it has worked and what kind of interpretation problems it has created. This research could be operated with legal dogmatic methodology, and also, comparing potential differences in interpretation between EU Member States, even though the regulation is fully harmonising and directly applicable. In addition, legal economic research on the economic impact of MiCA to the markets and operators could be made.

Second, as discussed in Chapter 5, there are number of other financial instruments that may come into question in relation to crypto-assets. Broader and/or more specific research on different types on financial instruments than transferable security could be made, especially regarding derivatives and their relationship with asset-reference tokens. In addition, it could be fruitful to process further the idea of DLT derivative as a smart contract, and DLT-based

financial instruments as a substitute to securitization, and if there are any legal implications to that.

Lastly, if not just purely for intellectual fun, for interdisciplinary research with social science, sociology and economic research as well as legal informatics. There are many other phenomena than just crypto-assets disrupting the financial sector as well. There has been an abstract discussion for some time about Finance 4.0 (in a broader phenomenon of Industry 4.0). Industry 4.0, also known as the fourth industrial revolution, can be described as the advent of cyber-physical systems involving entirely new capabilities for people.[266] The main focus is on the technology used in the revolution, such as artificial intelligence, virtual and augmented realities, and already presented in this thesis, distributed ledger technology and blockchain, to list just few. For example, it could be researched, what impact artificial intelligence will have in digital finance.

[266] Schawb 2015, p. 45; Mhlanga 2020, p. 16.