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GRADUATE SCHOOL OF SOCIAL

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TAXATION OF CRYPTOCURRENCIES AND INITIAL COIN

OFFERINGS

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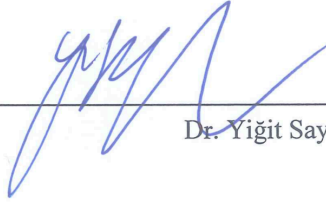examining committee have been made.

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Abstract

Introduction of cryptocurrencies was one of the most significant technological and financial advancements of the 21st century. With Satoshi Nakamoto's Whitepaper 'Bitcoin: A Peer to Peer Electronic Cash System', the first popular cryptocurrency, Bitcoin, was introduced and today the cryptocurrency and blockchain industries have been attracting the attention of millions of people and billions of dollars of investment. As this new technology is growing with high velocity, regulators recently realized that cryptocurrencies are much more than Bitcoin and they are very complex to be simplified into one-fits-all categorization since there are more than two thousand actively traded cryptocurrencies in the market. In this thesis, technical analyses of cryptocurrencies and the relevant technologies are made before diving into the legal classification and taxation of cryptocurrencies. The use-cases of this technology and potential risks in the financial stability and digital taxation are discussed. Clear need for categorization of thousands of different cryptocurrency tokens and coins led the research towards a cryptocurrency taxonomy proposal. In addition, the regulatory responses given in the selected jurisdictions for the taxation and classification of cryptocurrencies are examined. Finally, the legal status and taxation of initial coin offerings, or ICOs, and underlying tokens are discussed based on the selected state practices and guidelines.

Keywords: blockchain, cryptocurrency, initial coin offering, digital taxation, comparative tax law, securities law

Özet

Kripto paraların ortaya çıkışı 21. yüzyılda görülen en büyük teknolojik ve finansal gelişmelerinden biri oldu. Satoshi Nakamoto'nun 'Bitcoin: A Peer to Peer Electronic Cash System' (*Bitcoin: Eşler Arası Elektronik Nakit Sistemi*) isimli makalesi ile ilk popüler kripto para olan Bitcoin Dünya'ya tanıtıldı ve bugün kripto para ve blokzinciri (*blockchain*) endüstrileri milyonlarca insanın dikkatini ve milyarlarca dolar yatırımı çekmeyi başarmış durumda. Bu yeni teknoloji hızlı bir ivmeyle büyüme kaydederken, yakın bir zamanda düzenleyici kurumlar kripto paraların Bitcoin'den çok daha fazlası olduğunun ve dünya piyasalarında aktif olarak işlem gören iki binden fazla kripto para olması sebebiyle, kripto paraların tek bir sınıflandırmaya indirgemek için fazla karmaşık olduğunun farkına vardılar. Bu tez çalışmasıyla, kripto paraların ve ilgili diğer teknolojilerin teknik analizi yapıldıktan sonra kripto paraların hukuki niteliği ve vergilendirilmesi incelendi. Blokzinciri teknolojisinin kullanım alanları ile dijital vergilendirme ve finansal istikrar açısından oluşturduğu potansiyel tehditler tartışıldı. Sayıları binlerle ifade edilen farklı kripto para ve jetonların sınıflandırılmasına ilişkin belirgin ihtiyaç, araştırmayı bir kripto para taksonomi önerisine doğru yöneltti. Bunlara ek olarak, kripto para vergilendirme ve sınıflandırmasına yönelik karşılaştırmalı hukukta görülen regülatif yanıtlar incelendi. Nihayet, Kripto Para Arzları (KPA) (*initial coin offerings or ICOs*) ile KPA'larda satışı yapılan kripto paraların hukuki niteliği ve vergilendirilmesi karşılaştırmalı hukukta görülen uygulamalar ve kılavuzlar doğrultusunda incelendi.

Anahtar Kelimeler: blokzinciri, kripto para, ilk kripto para arzı, dijital vergilendirme, karşılaştırmalı vergi hukuku, menkul kıymetler hukuku

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List of Abbreviations

Abbreviation	Explanation
AIF	Alternative Investment Fund
AIFMD	Alternative Investment Fund Managers Directive (EU)
AML	Anti-Money Laundering
ATO	Australian Tax Authority
BaFin	Federal Financial Supervisory Authority (Germany)
BDDK	Banking Regulation and Supervision Agency (Turkey)
BTC	Bitcoin
CFTC	U.S. Commodity Futures Trading Commission
CGT	Capital Gain Tax
CMB	Capital Markets Board (Turkey)
CPU	Central Processing Unit
CT	Corporate Tax
DAC	Decentralized Autonomous Companies
DAO	Decentralized Autonomous Organization
DApp	Decentralized Application
DLT	Distributed Ledger Technology
DO	Decentralized Organizations
ECB	European Central Bank
ESMA	European Securities and Markets Authority
ETH	Ether
EU	European Union
FAA	Financial Advisers Act (Singapore)
FATF	Financial Action Task Force
FINMA	Financial Market Supervisory Authority (Switzerland)
FinCEN	Financial Crimes Enforcement Network (the US)
GPU	Graphics Processing Unit
GST	Goods and Services Tax (Australia)
HMRC	Her Majesty's Revenue and Customs
ICO	Initial Coin Offering
IPO	Initial Public Offering
IRS	The U.S. Internal Revenue Service
IT	Income Tax

MAS	Monetary Authority of Singapore
MiFID	The Markets in Financial Instruments Directive (EU)
MWh	Megawatt Hour
OECD	The Organisation for Economic Co-operation and Development
PoS	Proof-of-Steak
PoW	Proof-of-Work
RPCA	The Ripple Protocol Consensus Algorithm
SEC	Securities and Exchange Commission (the US)
SFA	Securities and Futures Act (Singapore)
SWIFT	The Society for Worldwide Interbank Financial Telecommunication
US	The United States
USA	The United States of America
VAT	Value Added Tax (the EU and Turkey)
VC	Virtual Currency
WoW	World of Warcraft
XRP	Ripple (Cryptocurrency)
ZAG	German Services Supervision Act (*Zahlungsdiensteaufsichtsgesetz*)

1 Introduction

1.1 Introductory Remarks

By the end of 2017, Bitcoin had seen a new all-time-high at approximately $20,000 with a historic run[1] and the global cryptocurrency market capitalization reached to $800 billion.[2] While some argue that Bitcoin is a fraud and bubble[3], others argue that Bitcoin and other cryptocurrencies are novel investment and payment vehicles which will transform the finance industry and believe that global capitalization of the cryptocurrencies will exceed trillions of U.S dollars in a predictable future.[4]

Even though the extent of the blockchain technology and cryptocurrencies are often erroneously reduced to Bitcoin by the public, as opposed to common misperception; Bitcoin is not the only use-case of blockchain technology; in fact, it is not even the first decentralized cryptocurrency. Years of academic research on cryptocurrencies and blockchain technology along with repetitive commercial efforts were made before the introduction of Bitcoin. B-Money, BitGold, DigiCash, and HashCash were some of the most prominent decentralized currency projects initiated before Bitcoin and although they failed to capture the widespread public

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[1] Stan Higgins, *From $900 to $20,000: Bitcoin's Historic 2017 Price Run Revisited*, COINDESK (Dec. 30, 2017), https://www.coindesk.com/900-20000-bitcoins-historic-2017-price-run-revisited.

[2] Cryptocurrency Market Capitalizations, COINMARKETCAP https://coinmarketcap.com/charts, (last visited Feb. 7, 2019).

[3] David Henry and Anna Irrera, *JPMorgan's Dimon says bitcoin 'is a fraud'*, REUTERS, (Sep. 21, 2017), https://www.reuters.com/article/legal-us-usa-banks-conference-jpmorgan/jpmorgans-dimon-says-bitcoin-is-a-fraud-idUSKCN1BN2PN.

[4] Evelyn Cheng, *One stock analyst's $10 trillion bull case for cryptocurrencies*, CNBC, (Jan. 4, 2018), https://www.cnbc.com/2018/01/03/one-stock-analysts-10-trillion-bull-case-for-cryptocurrencies.html.

interest, these early projects fundamentally influenced the underlying design of the modern cryptocurrencies.[5]

Creation of the first modern cryptocurrency, Bitcoin, was suggested in 2008[6] and ever since the introduction of Bitcoin, the global cryptocurrency market swiftly grew into a considerable size. Due to infancy of the hundred billion dollars cryptocurrency market, there is a disturbing vagueness and disorder in the regulatory framework on how to treat cryptocurrencies, how to categorize them, whether to prohibit them or regulate them, and, most importantly, how to tax them.

On the other hand, it is important to remark the efforts of law-makers and policy-makers in some jurisdictions to regulate blockchain and cryptocurrency market as they have been working hard for a proper regulatory framework. These regulatory bodies, ministries, and parliaments constantly make a new comment, publish a press release, or make a new legislative act on blockchain and cryptocurrency technologies. However, technological advancements are always one step ahead of the laws and regulation. Especially, development of Ethereum platform has complicated the crypto-space even more through smart contracts, decentralized autonomous organization/companies, and decentralized applications. Especially, smart contracts with decentralized applications is revolutionizing the capital raising with a novel model: Initial Coin Offerings, or ICOs.

Until recently, tech startups were only able to secure funds via angel investors and venture capitals until they grow in size to be eligible for an Initial Public Offering,

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[5] JP Buntinx, *Top 4 Cryptocurrency Projects Created Before Bitcoin*, THE MERKLE (Dec. 20, 2016), https://themerkle.com/top-4-cryptocurrency-projects-created-ahead-of-bitcoin.

[6] HISTORY OF BITCOIN, *History of Bitcoin The world's first decentralized currency*, http://historyofbitcoin.org (last visited Feb. 5, 2019).

or IPO. Therefore, these startups used to remain as private firms until they become large enough for a public offering. However, developers of distributed applications on Ethereum's blockchain, thanks to the smart contract technology utilized by Ethereum, became capable of issuing and selling their cryptocurrency tokens which grant investors access, equity, claim, or voting rights.[7] This new capital raising method, namely, initial coin offering, or *ICO*, has caught the attention of the tech entrepreneurs and these entrepreneurs have raised approximately $32 billion in hundreds of ICOs between 2013 and 2019.[8] Due to the size of the capital involved in this field and lack of regulatory framework -in fact, a tech investor even calls ICO space "Wild West without a sheriff"[9]-, regulatory bodies around the world developed an exceptional interest in this area. ICO is a new phenomenon since, with a few exceptions, most of the ICOs were closed between 2017 and 2019.[10] Therefore, while the world has just getting accustomed to popular cryptocurrencies such as Bitcoin, Ethereum, Litecoin, and Ripple, it is safe to assume that ICO boom has just started and, therefore, proper regulation is vital.

1.2 Aim, Scope, and Methodology

Given the size and projected growth of blockchain and ICO market, it is important to assess the legal nature and the current legal treatment of cryptocurrencies & ICOs in selected jurisdictions. Without proper classification and categorization, the potential of the blockchain technology may be lost globally or restrictive approach adopted in particular jurisdictions may drive away this innovation to other

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[7] Although Ethereum is not the only platform for ICOs, it is the most popular one. *See* https://ethereum.org/ (last visited Feb. 07, 2019).

[8] COIN SCHEDULE, *Cryptocurrency ICO Stats*, https://www.coinschedule.com/stats.html (last visited Jan. 11, 2019).

[9] Anita Balakrishnan, *Initial coin offerings are the 'Wild West' of start-up land — here's how one investor spots a scam*, CNBC, (Jan. 16, 2018), https://www.cnbc.com/2018/01/16/jillian-manus-of-structure-capital-on-icos-blockchain-crytpocurrency.html.

[10] COIN SCHEDULE, *supra* note 8.

jurisdictions. Law-makers and policy-makers may influence blockchain, cryptocurrency, and ICO markets with two means: (i) regulation and (ii) taxation. A restrictive regulatory approach towards initial coin offerings may require founders to contend with a high volume of paperwork, difficult-to-obtain permit & license requirements, and excessive legal & administrative costs. On the other hand, an unfair taxation practice may also create an unwelcoming ecosystem for blockchain industry which would drive them away to other jurisdiction as experienced in Australia recently.[11] The result might be a total loss of the blockchain's potential in these jurisdictions or globally, depending on the level of erroneous regulatory and taxation practices. Therefore, this thesis aims to properly classify and categorize cryptocurrencies, initial coin offerings, and the associated tokens & coins, observe the current state practices concerning cryptocurrency regulation and taxation, and clarify how to regulate and tax them in particular events after making proper assessments with the help of previous studies.

Therefore, as the main goal of this thesis is to understand how to regulate and tax cryptocurrencies as well as initial coin offerings and the assets created as a result of these offerings, the scope of the research is not only limited to the cryptocurrency creation and initial coin offering process. In addition, tokens & coins issued during the cryptocurrency offerings and initial coin offerings and the relevant taxable events are also within the scope of this thesis. Therefore, a detailed analysis and assessment of cryptocurrencies will be made (i) to have a comprehensive understanding of cryptocurrency market, (ii) to better assess the possible tax implications of the ICO related activities. This assessment will be accomplished by following these steps:

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[11] Jon Southurst, *Bitcoin Startup CoinJar Cites Tax as Influence on UK Relocation*, COINDESK (Dec. 1, 2014), https://www.coindesk.com/bitcoin-startup-coinjar-cites-tax-influence-uk-relocation.

1. A technical analysis of cryptocurrencies and underlying blockchain technology will be made to understand the cryptocurrency and initial coin offering concept;

2. A comparative analysis of traditional asset classes, currencies, and cryptocurrencies will be made to distinguish cryptocurrencies from traditional asset classes;

3. Based on the differentiation efforts in the previous chapter, a categorization scheme of currencies will be proposed based on the distinguishing features of currencies;

4. Legal status of cryptocurrencies will be analyzed in the selected jurisdictions to see how law-makers and policy-makers positioned themselves towards cryptocurrencies and how cryptocurrency related events are taxed;

5. Initial coin offering (ICO) process and distinctive features of ICOs along with the nature of the underlying tokens & coins will be analyzed to have a comprehensive understanding of ICOs;

6. After analyzing the ICO process, a legal assessment will be made to understand whether ICOs may be classified as security offerings; and

7. Finally, after the proper legal assessments on cryptocurrencies and initial coin offerings, tax implications of ICOs and the relevant cryptocurrencies will be examined regarding direct and indirect tax treatment.

2 Blockchain Technology: Technical Explanations

2.1 Initial Remarks

Taxation of cryptocurrencies and initial coin offerings (ICOs) may not be possible without examining their legal status and place within the existing regulatory framework. Therefore, a legal analysis of cryptocurrencies is essential. To be able to make a comprehensive legal analysis of cryptocurrencies and initial coin offerings (ICOs), it is indispensable to understand the preliminary concept behind them. Therefore, in this chapter, a technical analysis of the preliminary technologies behind cryptocurrencies and ICOs will be performed. Therefore, the blockchain technology, peer-to-peer network, smart contract, and decentralized application concepts will be discussed in detail. In addition, the most popular cryptocurrencies will also be analyzed to understand where the industry's interest lays and how blockchain technology is implemented and used in real life.

2.2 Blockchain Technology

As opposed to the common misconception that use of Blockchain technology is limited to cryptocurrencies, particularly to Bitcoin, cryptocurrency as a concept is merely a use-case of Blockchain technology. Blockchain technology offers practical solutions in a wide variety of areas in different sectors with unique models. The main function of Blockchain is eliminating the middle-men responsible from verification of the transaction authenticity and; by doing so, cutting transaction cost and time. This is achieved via distributed ledger technology (DLT) functioning according to the consensus principle.[12] Instead of trusting a strong central authority to clear transactions, DLT uses the consensus of a network

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[12] Sarah Underwood, *Blockchain Beyond Bitcoin*, Communications of the ACM 1 (2016).

of ordinary persons (i.e. a trustless system). This network may be established as a public or a private network. In public (i.e. *permissionless*) networks, any user can join the network and participate in the verification process whereas in private (i.e. *permissioned*) networks, only specific individuals or entities are entitled to be a part of the network.[13] In short, from a broad perspective, Blockchain may be defined as a digital, decentralized, public ledger that is used by a large number of computers for any type of validation[14]. Blockchain in a cryptocurrency transaction may be visualized as follows: [15]
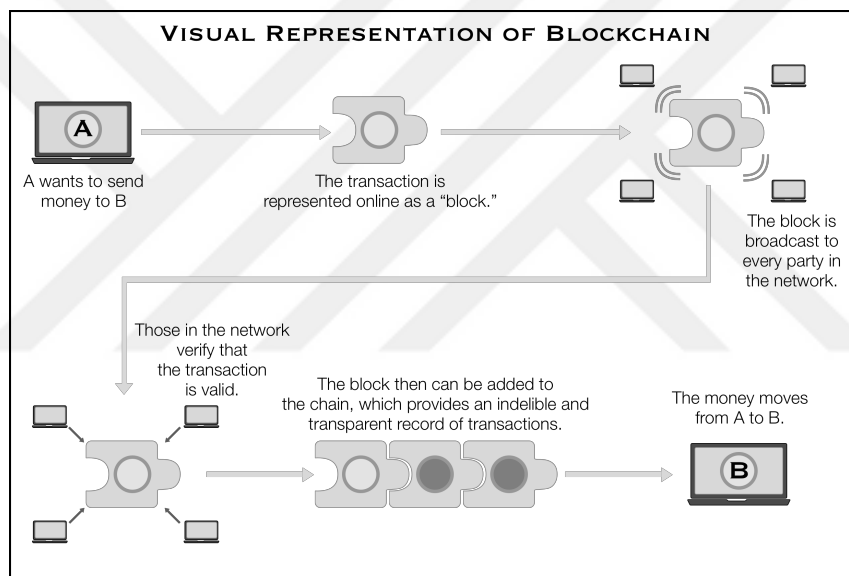
Figure 1: Visual Representation of Blockchain

One of the main issues Bitcoin solves with blockchain technology is the double spending problem observed in the trustless electronic payment systems. In trustless

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[13] Michael J.W. Rennock & Alan Cohn & Jared R. Butcher, *Blockchain Technology and Regulatory Investigations* 36 (Feb. 2018).

[14] Karen E.C. Levy, 1-2, *Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and The Social Workings of Law*, Engaging Science, Technology, and Society 3 (2017).

[15] Rennock & Cohn & Butcher, *supra* note 13, at 37.

payment systems, there is no central authority to check every transaction for double spending and blockchain fulfills this task by creating a time-stamp for every transaction and allowing participants of the system (e.g. the miners) to verify and audit these transactions.[16] This is achieved via a database managed autonomously by a dedicated peer-to-peer network and a server dedicated for distributed timestamping. To be able to incentivize the system participants, a reward mechanism is usually utilized. A common example of these mechanisms is rewarding a number of new cryptocurrencies to the participants who solve the cryptographic problems using a dedicated decryption algorithm which also verifies and audit the transactions. This verification method is called Proof of Work (PoW) and the participants of this reward mechanism are called miners. In exchange for providing verification and auditing service, the blockchain algorithms reward them newly generated cryptocurrencies. Proof of Work is the most common method used for transaction verification in distributed cryptocurrency systems such as Bitcoin and Ethereum.[17]

Another mechanism used for transaction verification is Proof of Stake (PoS) mechanism and its popularity has gained momentum since PoW method has some flaws in its design, particularly on energy consumption.[18] Proof of Stake method is structured based on the number of cryptocurrencies that a participant holds. Therefore, while processing (i.e. CPU or GPU) power is the source of competitive advantage in a PoW mechanism, it is the number of coins/tokens held (i.e. stake) in PoS mechanism. Participants with larger stakes are given more verification tasks

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[16] Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* 1-2 (2008). https://bitcoin.org/bitcoin.pdf (last visited Jun. 2, 2019).

[17] Jean Bacon & Johan David Michels & Christopher Millard & Jatinder Singh, *Blockchain Demystified* 10 (Dec. 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3091218&download=yes##.

[18] DIGICONOMIST, *Bitcoin Energy Consumption Index*, https://digiconomist.net/bitcoin-energy-consumption (last visited Feb. 7, 2019).

and as long as they remain online, they will verify a higher amount of transaction and earn more compared to their counterparts. Furthermore, new cryptocurrencies may not be rewarded in PoS mechanisms and the rewards for the verification tasks are based on the fees charged in transactions. PoS mechanism has become more popular recently especially for two reasons: (i) PoS mechanism significantly reduces the energy consumption compared to PoW mechanism, (ii) the cryptocurrencies using PoS mechanism eliminate the risk of inflation since they do not have to create new cryptocurrencies as verification reward. Dash, NEO, NXT, and Omni are some of the cryptocurrencies currently using PoS system for transaction verification[19] and there has been a heated discussion in Ethereum community to switch to PoS mechanism for verification.[20]

Apart from cryptocurrencies, blockchain technology may be integrated into many different industries. Cryptocurrencies are only a well-known use-case of blockchain technology as the early adoption initially started in this field. However, the real transformation that blockchain will bring is years ahead and to some extent, blockchain is thought not as a disruptive technology, but rather a sustainable one.[21] In other words, this technology will not disrupt an entire industry and develop a new one. Instead, blockchain technology will be utilized across different industries to transform these industries by making their work-flows more efficient, transparent, secure, and decentralized. Therefore, there are countless possibilities for the blockchain use-cases. For example, public services (e.g. land registry, property transfer, and civil registry services), banks and other financial institutions

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[19] David Kariuki, *Top 10 Proof of Stake Cryptocurrencies in 2018*, CRYPTO TOMORROW, (Jan. 2, 2018), https://www.cryptomorrow.com/2018/01/02/top-10-proof-of-stake-cryptocurrencies-in-2018.

[20] TRUST NODES, *Ethereum May Upgrade to Proof of Stake in 2018 Says Vitalik Buterin* (Sep. 25, 2017), https://www.trustnodes.com/2017/09/25/ethereum-may-upgrade-proof-stake-2018-says-vitalik-buterin.

[21] Marco Iansiti & Karim R. Lakhani, *The Truth About Blockchain*, HARVARD BUSINESS REVIEW (Feb. 2017), https://hbr.org/2017/01/the-truth-about-blockchain.

(especially providers of international money transfer and back office settlement services), NGOs (particularly those fighting poverty and censorship), academia, and many other businesses are to benefit from blockchain solutions in near future. Tax authorities will also benefit from blockchain technology, especially in Value Added Tax, transfer pricing, and payroll tax issues. Therefore, it is believed that the size of the blockchain market will be enormous although the adoption process may be slow and gradual.[22]

2.3   Peer to Peer Network (P2P)

Peer to Peer Network, or P2P, is a network model in which computer systems (i.e. peers) are connected to each other individually via the Internet. As opposed to traditional client / server model, in a P2P network, peers may directly communicate and exchange data with each other as long as they have Internet connection and a P2P network application.[23] Figure 2 shows the difference between a Client/Server Model and a P2P Model.[24]

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[22] Marco Iansiti and Karim R. Lakhani, *The Truth About Blockchain*, HARVARD BUSINESS REVIEW, (Feb. 2017), https://hbr.org/2017/01/the-truth-about-blockchain.

[23] *P2P*, TECHTERMS.COM, https://techterms.com/definition/p2p (last visited Feb. 7, 2018).

[24] David Barkai, *An Introduction to Peer-to-Peer Computing,* Intel Developer Update Magazine 4 (Feb. 2000).
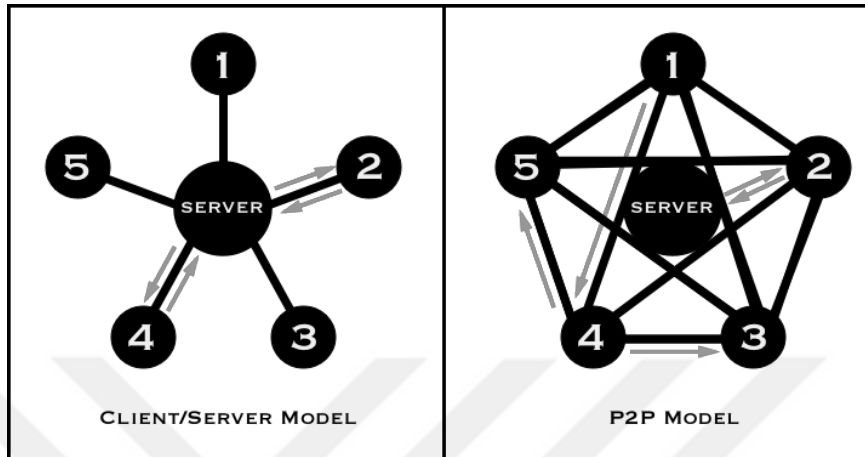
Figure 2: Client/Server Model vs. Peer-to-Peer Model

Peer to peer (P2P) networks have been in existence before the creation of cryptocurrencies and they have been mainly used to share files via the P2P softwares such as Napster and BitTorrent; therefore, use of P2P networks are not limited with blockchain applications. Besides file sharing, P2P networks have a wide variety of use-cases including, but not limited to, community web network, e-commerce, gaming, search engines, virus protection, and collaborative development with or without blockchain structure.[25] On the other hand, almost all distributed and decentralized cryptocurrencies utilize P2P networks as it is rather a pre-requisite for a distribution and/or decentralization.

2.4 Smart Contracts and Decentralized Applications

A contract may be defined as a legal arrangement between two or more parties who agree to undertake an obligation or/and receive rights.[26] Nick Szabo, a legal scholar

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[25] *Id.* at 5-6.
[26] Fikret Eren, Borçlar Hukuku Genel Hükümler 185-189 (10th ed. 2008).

and computer scientist, was the first scientist who proposed the idea of smart contracts in 1994.[27] Szabo defines a smart contract as "a set of promises, specified in digital form, including protocols within which the parties perform on these promises".[28] Smart contracts, as opposed to ordinary contracts, contain their own digital protocol to be triggered with the performance of a party. An early example of smart contracts may be vending machines which accept coins, take order by running its primitive algorithm, and dispense the ordered product and change.[29] The scope of smart contracts goes beyond the capabilities of vending machines and smart contracts may be used very frequently in certain areas such as property sales, marriage & divorce decrees, will settlements, insurance claims, financial trading, and investment activities.[30]

The idea of smart contract has already been softly utilized in several technologies including, but not limited to, POS terminals, the SWIFT system and FedWire.[31] However, the cryptocurrency platforms plays a significant role in enabling the use of smart contracts in a broader aspect since blockchain technology offers vital features such as time-stamping, identity and transaction verification, and record-keeping.

On Ethereum whitepaper, Vitalik Buterin defines smart contracts built on top of Ethereum blockchain as "cryptographic "boxes" that contain value and are

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[27] Christidis, Konstantinos and Devetsikiotis , Michael, *Blockchains and Smart Contracts for the Internet of Things*, IEEE Xplore - Special Section on the Plethora of Research In Internet Of Things (IoT), 2296, Vol. 4, (2016).

[28] Nick Szabo, *Smart Contracts: Building Blocks for Digital Markets* , UNIVERSITY OF AMSTERDAM, (1996), http://bit.ly/2QDVFm1 (last visited on Jun. 2, 2019).

[29] Szabo, *supra* note 31.

[30] Toshendra Kumar Sharma, *What Are Smart Contracts on Blockchain*, BLOCKCHAIN COUNCIL (Apr. 14, 2017), https://www.blockchain-council.org/ethereum/smart-contracts-blockchain.

[31] Szabo, *supra* note 31.

unlocked only if certain conditions are met".[32] With its unique features such as value-awareness, blockchain-awareness, and especially Turing-completeness, Ethereum platform provides a truly viable environment for smart contracts.[33] A visualization of smart contracts may be constructed as follows[34]:

LIFE CYCLE OF A SMART CONTRACT

PRE-DEFINED CONTRACTS
1. TEMPLATES ARE CREATED
2. CUSTOM TERMS ARE ESTABLISHED
SUCH AS: DATES, INTEREST RATES, CURRENCY, ETC.

EVENTS
1. CONTRACT IS EXECUTED BY DEDICATED EVENTS
SUCH AS: INFORMATION RECEIVED OR A TRANSACTION

SETTLEMENT
1. FOR DIGITAL ASSETS: AN AUTOMATIC ACCOUNT SETTLEMENT
2. FOR OTHER ASSETS: AN OFF-CHAIN SETTLEMENT MECHANISM IS INITIATED

EXECUTE & VALUE TRANSFER
1. CONTRACT TERMS DICTATE MOVEMENT OF VALUE BASED ON THE PERFORMANCE

Figure 3: Life Cycle of a Smart Contract

Decentralized applications, or DApps, may be defined as computer applications which run on a distributed peer to peer (P2P) network connecting users and providers directly and this distributed P2P network is usually a blockchain network. [35] Decentralized organizations (DOs), Decentralized Autonomous

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[32] Vitalic Buterin, *Ethereum White Paper* 13 (2013), http://bit.ly/2Z9CeVt (last visited Jun. 2, 2019).

[33] *Id.* at 13.

[34] BLOCKCHAIN CAN, *Blockchain Can Execute Smart Contracts*, https://blockchaincan.com/project/case-blockchain-can-execute-smart-contracts (last visited Feb. 5, 2019).

[35] COINDESK, *What is a Decentralized Application?*, https://www.coindesk.com/information/what-is-a-decentralized-application-dapp (last visited Feb. 7, 2019).

Organizations (DAOs), and Decentralized Autonomous Companies (DACs) which are believed to transform the traditional organizational structures in near future are all implementations of decentralized applications. Although there are different views on requirements to be classified as a DApp, it may be argued that DApps should (i) be fully open source, (ii) not be controlled by a single entity, (iii) have a cryptographically secure and public data storage system on a blockchain, (iv) utilize cryptocurrency tokens allowing people to access the DApp services, and (v) issue these tokens with a standard issuance algorithm.[36] Development of platforms which support DApps made it possible for entrepreneurs to raise funds via initial coin offerings.

Blockchain technology and smart contracts also offer many implementation opportunities in tax domain. One example may be for payroll taxes. Although the employment procedures are mostly digitalized, the harmonization of these procedures is one of the most essential problems. With the blockchain technology, the entire payroll taxation may be managed with a single registry which has a decentralized nature.[37] Therefore, all the transactions before different governmental bodies must be in compliance with each other which would diminish inconsistency among these bodies making them more efficient. In addition, smart contracts further allow payment mechanism of payroll taxes to be fully automated. With smart contracts, the employer may send the remuneration with a smart contract which automatically deducts the payroll tax and social security premiums and transfer the net salary to the employee.[38] A single registry with automated deduction would increase the efficiency of the tax collection and prevent tax

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[36] Imran Bashir, Mastering Blockchain 46 (2017).
[37] DELOITTE, *Blockchain Technology and its Potential in Taxes* 11-12, (Dec. 2017), https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Blockchain-technology-and-its-potential-in-taxes-2017-EN.PDF.
[38] *Id*. at 11-12.

evasion. A similar approach is applicable to value added tax (VAT) system. Taxable events may be tracked with real-time reporting via smart contracts designed for VAT incurring transactions. Another use-case of smart contracts may be for transfer pricing. Smart contracts may be designed in such way that every movement and transaction may be tracked among multiple departments within an organizations and in the event that intergovernmental bodies such as the OECD provide template smart contracts for transfer pricing, the transactions would be fully traceable and thanks to time stamping of blockchain technology, the records would constitute evidence.[39] Therefore, blockchain technology and smart contracts offer beneficial use-cases which weighs more compared to the risk they pose. The risks regarding these technologies may only be realized if the law-makers adopt a hostile policy towards blockchain technology or fall behind the velocity of the advancements in these technologies.

2.5 Cryptocurrencies

Cryptocurrencies may be defined as bidirectional virtual currencies which uses cryptography for security and verification. One of the distinguishing features of cryptocurrencies is its stateless nature and therefore, immunity from government interference or manipulation.[40] Cryptocurrencies are often mistakenly generalized only to Bitcoin as it is the first cryptocurrency which captured the public attention. Even though Bitcoin is the first mass-adopted cryptocurrency with the largest market capitalization among all the other cryptocurrencies, there are more than two thousand different cryptocurrencies traded around the world as of 5 February 2019.[41] Although some of them share common features, there are fundamental

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[39] *Id.* at 11-12.
[40] *Cryptocurrency*, INVESTOPEDIA.COM,
https://www.investopedia.com/terms/c/cryptocurrency.asp (last visited Feb. 5, 2019).
[41] *All Cryptocurrencies,* COINMARKETCAP, https://coinmarketcap.com/all/views/all (last visited Feb. 5, 2019).

differences between different groups of cryptocurrencies and for proper classification, regulation, and taxation, understanding the distinctive features of these cryptocurrencies is crucial. To achieve this goal, the most popular cryptocurrencies, namely, BTC (Bitcoin), Ether (Ethereum), and XRP (Ripple) will be analyzed briefly in the following section.

2.6 A Brief Analysis of Selected Cryptocurrencies

In this section, a short history, the popularity, and the distinctive features of three pioneer cryptocurrencies will be explained. These cryptocurrencies make up more than 70% of the global cryptocurrency market[42] and especially Bitcoin and Ethereum communities have been acting as pioneers on the new advancements in blockchain and cryptocurrency fields. Finally, it is crucial to note that Bitcoin, Ethereum, and Ripple have their own independent blockchains which makes them 'coins' rather than 'tokens' and this distinction will be further analyzed in detail in the following chapters.

2.6.1 Bitcoin

Bitcoin is the first mass-adopted, bidirectional, stateless, and distributed virtual currency which uses a cryptographic blockchain technology offering irreversible peer-to-peer money transfer in a trustless economy and a Proof-of-Work method to verify transactions. The Bitcoin whitepaper was released by an unknown person or group of people, known under the pseudonym, Satoshi Nakamoto, on 31 October 2008.[43] As of this date, the value of Bitcoin climbed from $0 to nearly $20,000 at its peak and the market capitalization of Bitcoin exceeded $300 billion for a brief

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[42] Cryptocurrency Market Capitalizations, COINMARKETCAP
https://coinmarketcap.com/charts, (last visited Feb. 7, 2019).
[43] HISTORY OF BITCOIN, *History of Bitcoin The World's First Decentralized Currency*,
http://historyofbitcoin.org (last visited Feb. 5, 2019).

period of time.[44] Therefore, with its first mover advantage, Bitcoin revealed itself as the most prominent cryptocurrency among its peers.

Bitcoin is a bidirectional and distributed virtual currency pursuant to the ECB's Virtual Currency Scheme and as per the bidirectional scheme, a user may purchase Bitcoin using legal tender and sell it back in an exchange for legal tender which; therefore, qualifies Bitcoin as an ECB's Type-3 virtual currency.[45] Furthermore, Bitcoin offers more than just bidirectional flow. In addition to being bidirectional, it is distributed, stateless, and trustless since there is not a single authority responsible from policy making, minting, or verification. Therefore, since they are fundamentally different from the rest of the virtual currencies, a detailed analysis and comprehensive categorization of Bitcoin and other similar cryptocurrencies are required for proper regulation which will be elaborated in the following chapters.

Bitcoin uses Proof-of-Work method for transaction verification. Therefore, there are a group of people who employs powerful computers for the verification of Bitcoin transactions with the expectation to receive newly created Bitcoins. This system has been criticized recently due to the fact that the energy consumption of Bitcoin miners reached to an alarming level[46] and increase in Bitcoin prices will further increase the energy consumption. The reason for this concern comes from the underlying mechanism of Proof-of-Word since in Proof-of-Work mechanism, miners compete each other to solve advanced cryptographic problems with their

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[44] BLOCKCHAIN, *Market Capitalization*, https://blockchain.info/charts/market-cap (last visited Feb. 5, 2019).

[45] EUROPEAN CENTRAL BANK, *Virtual Currency Scheme*, 21 (Oct. 2012).

[46] Alex Hern, *Bitcoin's Energy Usage Is Huge – We Can't Afford To Ignore It*, THE GUARDIAN (Jan. 17, 2018), https://www.theguardian.com/technology/2018/jan/17/bitcoin-electricity-usage-huge-climate-cryptocurrency.

processing powers. The more processing power a miner has, the more chance he has on receiving newly created Bitcoins.

According to S. Nakamoto, a peer-to-peer electronic cash system is needed by the society because there is a need for irreversible payment systems since the cost of trust-based system and the associated mediation costs are often unnecessary, especially for non-reversible services. However, current financial system is designed in a way where financial institutions cannot avoid mediating disputes & frauds and in a trust-based system, there is an irrefutable need for third party (e.g. financial institution) verification.[47] Therefore, by presenting a novel verification method, Bitcoin offers a secure transaction system for payments where reversibility is not required.

There are countless events where one may use Bitcoin including, but not limited to, sale and purchases of goods & services in exchange for Bitcoin, paying or receiving wages in Bitcoin, holding Bitcoins as investment, utilizing computers with high CPU powers for transaction verification and receiving new Bitcoins in return (i.e. mining), sending/receiving Bitcoin as gift or for crowdfunding. To some extent, each of these events has similarities with an existing traditional taxable event. Therefore, tax consequences of the most Bitcoin related transactions may be clarified with the correct interpretation of the existing rules. However, a proper legal classification is still needed before commencing such interpretation. Therefore, after examining the legal characteristics of the cryptocurrencies in the following chapter, existing rules will be interpreted to understand the tax implications of cryptocurrencies.

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[47] Nakamoto, *supra* note 16*,* at 1.

2.6.2 Ethereum

Ethereum is a Turing-complete platform created with the intention of providing an alternative protocol for building decentralized applications (DApps). [48] The difference between a DApp and a regular application is that DApp has its back-end code running on a distributed peer-to-peer network in contrast with an application of which the back-end code is running on centralized servers. One of the use-cases of blockchain technology is the smart contracts and Ethereum's competitive advantage over the other cryptocurrency projects is its platform for DApps where smart contracts are utilized. According to Vitalik Buterin, founder of Ethereum, "a smart contract is a mechanism involving digital assets and two or more parties, where some or all of the parties put assets in and assets are automatically redistributed among those parties according to a formula based on certain data that is not known at the time the contract is initiated[49]". Therefore, the novelty of a smart contract is its self-performing nature in contrast with the traditional contracts regarding which the parties take action manually to perform their obligations. With its outstanding automation capabilities, smart contracts may revolutionize the financial and legal side of almost every industry and Ethereum is the largest and most popular platform in which users may utilize smart contracts.

Ether (ETH) is the cryptocurrency used in Ethereum platform and it is backed by Ethereum blockchain. Therefore, Ether is used to fuel smart contracts[50] in which payments are made in Ether when parties performs which makes it a liquid cryptocurrency. Therefore, Ethereum does not only offer almost all the features

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[48] Buterin, *supra* note 35*,* at 1.

[49] Vitalik Buterin, *DAOs, DACs, DAs and More: An Incomplete Terminology Guide*, ETHEREUM FOUNDATION (May 6, 2014), https://blog.ethereum.org/2014/05/06/daos-dacs-das-and-more-an-incomplete-terminology-guide.

[50] Arjun Kharpal, *All You Need To Know About The Top 5 Cryptocurrencies*, CNBC (Dec. 14, 2017), https://www.cnbc.com/2017/12/14/bitcoin-ether-litecoin-ripple-differences-between-cryptocurrencies.html.

that Bitcoin offers (e.g. distributed network, peer-to-peer transaction ability, high liquidity, bidirectional nature), it is also more than just a means of payment or a store of value. Since Ethereum uses Proof-of-Work mechanism for transaction verification -although there are discussions on switching to Proof-of-Stake method with a hard fork-, Ether is also a mineable cryptocurrency just as Bitcoin.[51]

Finally, one of the most important contribution of Ethereum platform to the crypto ecosystem is Initial Coin Offering (ICO) concept. the Ethereum Platform allows the creation of new cryptocurrencies which are built on top of Ethereum's blockchain via ICOs. These cryptocurrencies are often referred as tokens since they do not have their own unique blockchain. Therefore, by using Ethereum blockchain, new ventures and cryptocurrencies may be created, particularly by using ERC20 Token Standard[52], according to which tokens may grant several rights to their holders such as stock rights, debenture rights, right to use the new product developed by the venture, a guaranteed return, voting right, or a hybrid of them.

2.6.3 Ripple

Ripple is a blockchain system which can be used for payment settling, currency exchange and remittance transactions of financial institutions and payment networks.[53] Therefore, Ripple, itself, is not a currency, but a system. On the other hand, XRP is the cryptocurrency issued by Ripple. Ripple's cryptocurrency, XRP, is the cryptocurrency with the one of the highest market capitalizations in the

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[51] Ameer Rosic, *Proof of Work vs Proof of Stake: Basic Mining Guide*, BLOCK GEEKS (2017), https://blockgeeks.com/guides/proof-of-work-vs-proof-of-stake.

[52] THE ETHEREUM WIKI, *ERC20 Token Standard*, https://theethereum.wiki/w/index.php/ERC20_Token_ Standard (last visited Feb. 5, 2019).

[53] David Schwartz & Noah Youngs & Arthur Britto, *The Ripple Protocol Consensus Algorithm*, RIPPLE.COM, 1 (2014).

cryptocurrency market due to its revolutionary technology which is a superior alternative to international money transfer system, SWIFT.[54]

A crucial difference between Ripple and other cryptocurrency projects is that Ripple does not use a distributed system. Instead, it authorizes a number of financial institutions for transaction verification which makes it a decentralized system rather than a distributed one. In addition, these financial institutions are not rewarded with newly created XRPs since all the XRPs were mined before Ripple was launched. As all the XRPs are pre-mined, Ripple system may not utilize PoW mechanism for verification. Instead, Ripple uses a unique 'The Ripple Protocol Consensus Algorithm' (RPCA) for payment verification.[55] RPCA is based on the consensus of the authorized verifier nodes (i.e. servers of financial institutions and payment systems). The value and the liquidity of XRP derive from Ripple's innovative business model. Although some criticize Ripple's business model and XRP's necessity for Ripple[56], Ripple has the potential to replace SWIFT with its fast transfer capability and highly secure system thanks to its decentralized RPCA.

2.7 Initial Coin Offerings:

An initial coin offering (ICOs) or token sale may be defined as a capital raising method used by organizations, businesses, and entrepreneurs to fund blockchain projects through cryptocurrencies (or fiat currencies) in exchange for tokens which

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[54] Bernard Marr, *What Is the Difference Between Bitcoin And Ripple?*, FORBES (Feb. 28, 2018), https://www.forbes.com/sites/bernardmarr/2018/02/28/what-is-the-difference-between-bitcoin-and-ripple/#23f3922e6611.

[55] RIPPLE, *Validator Registry*, https://xrpcharts.ripple.com/#/validators (last visited Feb. 5, 2019).

[56] Coin and Crypto, *5 Alarming Reasons Ripple Might Not Be What You Think*, HACKERNOON (Jan. 9, 2018), https://hackernoon.com/4-alarming-reasons-ripple-might-not-be-what-you-think-9debc3c86985.

may be used for obtaining products or services, represent a right to dividend, or be sold in cryptocurrency exchanges for profit today or in the future.[57]

Initial coin offering may be regarded as the equivalent of initial public offering in the blockchain industry. However, ICOs have at least three important structural differences compared to Initial Public Offerings (IPOs). First of all, ICOs are mostly decentralized and therefore, it is not governed by a central authority. Secondly, ICOs, as long as not regarded as securities, are not regulated in most jurisdictions. Therefore, capital markets authorities do not have power to oversee them. Finally, as opposed to IPOs, ICOs may be conducted in very different formats since ICOs are not regulated in most jurisdictions.[58] The first known ICO took place in July 2013[59] and held by Mastercoin founders (later rebranded as Omni coin) and since then, hundreds of blockchain projects were funded via ICOs. [60]

Even though ICO procedures are not regulated by the states, there are industry standards followed in most ICOs by the issuers. Today, ICOs are conducted in smart contract formats where several rules are set and provisions are triggerred automatically.[61] In an initial coin offering (ICO), the issuer usually sets (i) the quantity of tokens to be offered, (ii) the share of tokens to be sold, (iii) minimum

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[57] Saman Adhamia & Giancarlo Giudicib & Stefano Martinazzib, *Why Do Businesses Go Crypto? An Empirical Analysis of Initial Coin Offerings*, Journal of Economics and Business, 1 (2018), http://bit.ly/2wDd6d6.
[58] Initial Coin Offering (ICO), INVESTOPEDIA.COM, https://www.investopedia.com/terms/i/initial-coin-offering-ico.asp (last visited Jun. 2, 2019).
[59] Dmitri Boreiko & Navroop Sahdev, *To ICO or not to ICO – Empirical analysis of Initial Coin Offerings and Token Sales*, 11 (Jun. 2018), http://bit.ly/2Z5k72J.
[60] Marc Pilkington, *The Emerging ICO Landscape - Some Financial and Regulatory Standpoints*, 4 (Feb., 2018), https://ssrn.com/abstract=3120307.
[61] Paul P. Momtaz, *Initial Coin Offerings* (Jul., 2018), 1 https://ssrn.com/abstract=3166709.

sales price per token, and (iv) sales structure in the pre-ICO and post-ICO periods. Then, the issuer initiates the public auction where investors may purhcase the tokens and if the threshold set for the auction is crossed, the issuer proceeds with the venture. Otherwise, the ICO is regarded as unsuccessful and all the collected funds are returned to the investors.[62]

If the ICO is successfully completed, the issuers obtain enough funding to complete the promised project. Usually, investors are offered to access future services and these tokens are regarded as utility tokens. Utility token holders may use their tokens to access services or digital products offered by the issuers. In addition, they may also sell these tokens and benefit from the capital gains. In addition, sometimes the collected funds are used for investment and the issuers operates as funds. In this case, the investors may receive dividends, interest earnings, and capital gains. These tokens are considered as security tokens and as explained in the later chapters, they will be overseen by the capital markets authorities. [63]

3   Legal Nature of Cryptocurrencies

3.1   Confusion on How to Classify Cryptocurrencies

3.1.1   Incompatible Approaches towards Cryptocurrencies in Different Jurisdictions

Over the years, despite the high volatility, the popularity of the cryptocurrency has soared while the trust in the traditional capital markets and stock exchanges have plummeted. Cryptocurrencies such as Bitcoin, Ether, XRP, and many others shined

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[62] Christian Catalini & Joshua S. Gans, *Initial Coin Offerings and the Value of Crypto Tokens*, National Bureau of Economic Research, 8 (Mar. 2019).

[63] Paul P. Momtaz, *supra* note 61, at 6-7.

out as disruptive means of payment in commerce, short and long-term investment vehicles for investors, and funding opportunity for entrepreneurs.

While cryptocurrencies are used in many different areas, policy and law makers around the world are yet to adopt harmonious policies on the classification of the cryptocurrencies. According to the UK Government, "Cryptocurrency have a unique identity and cannot therefore be directly compared to any other form of investment activity or payment mechanism". [64] While the UK government recognize the unique nature of cryptocurrency, she treats it as a foreign currency for most purposes, including indirect taxation[65], the U.S. IRS, in a notice, declares that it will treat cryptocurrency as property since it does not have a legal tender status[66] and the U.S. Commodity Futures Trading Commission (CFTC) treats it as commodity under the Commodity Exchange Act.[67] Finally, German BaFin states that Bitcoin is similar to private money.[68] Therefore, three major jurisdictions treat cryptocurrencies in a completely different manner. However, correct and unified classification of cryptocurrencies is crucial for its taxation as this affects the essence of a taxable event structures. For instance, a Bitcoin sale in exchange for US dollar may be classified as an asset sale or a foreign currency exchange based on Bitcoin's classification in these jurisdictions. Therefore, it is of great importance to correctly evaluate the nature of cryptocurrencies and compare them with of currency, commodity, and the other property classes.

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[64] HER MAJESTY'S REVENUE & CUSTOMS, Revenue and Customs Brief 9 (2014): Bitcoin and other cryptocurrencies (Mar. 3, 2014), http://bit.ly/2Ij57r8 (last visited on Jun. 2, 2019).

[65] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.

[66] THE U.S. INTERNAL REVENUE SERVICE, *Notice 2014-36* (Mar. 25, 2014).

[67] *In re* Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, CFTC No. 15-29 (Sep. 17, 2015), http://bit.ly/2Z25XiM (last visited on Jun. 2, 2019).

[68] BUNDESANSTALT FÜR FINANZDIENSTLEISTUNGSAUFSICHT, Bitcoins: Aufsichtliche Bewertung und Risiken für Nutzer (Dec. 19, 2013), http://bit.ly/2QBYrbA (last visited on Jun. 2, 2019).

3.1.2 An Industry Classification: Coins and Tokens

To be able to properly classify cryptocurrency, the subtle differences between cryptocurrency coins and tokens shall be examined. Despite the fact that there were cryptocurrencies prior to Bitcoin, Bitcoin was the first cryptocurrency which was widely accepted, fully decentralized, and "powered by a public ledger that records and validates all transactions chronologically, called the Blockchain".[69] All the other cryptocurrency coins which were introduced after Bitcoin are referred as altcoins (alternative cryptocurrency coins). While some altcoins have their own unique blockchain algorithm such as Ethereum or Ripple, the other altcoins are derived from open-source codes of these cryptocurrency coins.

Instead of grouping them as Bitcoin and altcoins, the first group of cryptocurrencies can all be grouped as cryptocurrency 'coins'.[70] On the other hand, the second group of cryptocurrencies which are usually referred as 'tokens' have slightly different characteristics. Although they can be structured based on any asset or utility, cryptocurrency tokens are usually created and "resides on top of another blockchain"[71] and they tend to offer wider functionality other than means of payment or unit of account such as cloud computing services or faster international money transfer.[72] "Tokens are created and distributed to the public through an Initial Coin Offering (ICO), which is a means of crowd-funding, through the release of a new cryptocurrency or token to fund project development".[73]

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[69] Aziz Zainuddin, *Coins, Tokens & Altcoins: What's the Difference?*, MASTER THE CRYPTO, https://masterthecrypto.com/differences-between-cryptocurrency-coins-and-tokens (last visited Feb. 5, 2019).

[70] CHRONO BANK, *Token vs Coin - Whats the Difference?* (Sep. 1, 2017), https://blog.chronobank.io/token-vs-coin-whats-the-difference-5ef7580d1199 (last visited Feb. 5, 2019).

[71] CHRONO BANK, *supra* note 73.

[72] SIA, *About - Sia*, https://sia.tech/about (last visited Feb. 5, 2019).

[73] CHRONO BANK, *supra* note 73.

In summary, while functionality of coins is generally limited to being medium of transfer with their own blockchain, tokens offer additional value on top of what coins offer. Despite of their differences, both coins and tokens may be used as means of payment or unit of account. Therefore, the other features must be examined and analyzed to determine the correct legal form of cryptocurrencies.

3.1.3 Potential Asset Classes

3.1.3.1 Initial Remarks

A capital asset may be defined as a property owned by a taxpayer for personal use or investment purposes including (i) physical property (i.e. tangible asset) such as a house, automobile, plane, or guitar, (ii) intellectual property (i.e. intangible assets) such as copyrights, a trademark, or patent, and (iii) negotiable instruments (especially securities) such as bonds, notes, or stocks.[74] Regardless of its movable or immovable nature, a physical property must be physically existing, tangible, and measurable which cryptocurrencies do not have in their nature. Intellectual properties, however, "refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce".[75] Intellectual property rights are protected by law by granting the creators recognition and ability to benefit from this recognition financially and morally. Although there may be intellectual property rights on some cryptocurrency projects, it is not possible to classify cryptocurrencies as intellectual property since coins or tokens are neither inventions nor artistic or literary work, but rather created as means of payment and store of value.

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[74] *Asset*, THEFREEDICTIONARY.COM, https://legal-dictionary.thefreedictionary.com/Asset (last visited Feb. 5, 2019).

[75] WORLD INTELLECTUAL PROPERTY ORGANIZATION [WIPO], *What is Intellectual Property?*, http://www.wipo.int/about-ip/en/ (last visited Feb. 5, 2019).

3.1.3.2 Securities

According to the U.S. legislation, a security may be defined as "a fungible, negotiable financial instrument that holds some type of monetary value". [76] Securities may be (i) equity-based such as common or preferred stocks, (ii) debt-based such notes, bonds, or certificates of deposit, or (iii) hybrid instruments incorporating equity and debt features within such as convertible bonds or stocks. Regardless of their nature, a security always requires a level of risk and may be distinguished from other types of financial instruments thanks to this nature. In other words, almost every financial instrument may be regarded as security provided that an investment made to earn profit from the efforts of the third persons.[77]

In parallel with the U.S. laws, it is not viable to claim that cryptocurrencies such as Bitcoin, Ethereum, or Ripple would constitute securities as they are not created with investment purposes. The purpose of their creation is based on creating novel mediums to real world problems such as payment method in a trustless economy, platform for DApps and smart contracts, or financial instrument used for faster international money transfer. Therefore, they should not be considered as securities; however, there are several tokens issued in initial coin offerings which

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[76] *Security*, INVESTOPEDIA.COM, https://www.investopedia.com/terms/s/security.asp (last visited Feb. 5, 2019).

[77] 15 U.S.C. § 77a et seq., SEC. 2. [77b] (a), *The term "security" means any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a "security", or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing.*

may be within the scope of securities. A detailed analysis on this will be made in the following chapters.

3.1.3.3 Commodity

A commodity is a standard good used in commerce and may mostly be purchased and sold in commodities exchange and traded with other commodities of the same kind. Commodities are usually perceived and used as raw materials in manufacturing. Although the list of traded commodities varies from jurisdiction to jurisdiction, (i) agricultural commodities (e.g. meat, corn, wheat, coffee), (ii) energy commodities (e.g. crude oil or propane), and (iii) industrial and precious metals (e.g. copper, silver, and gold) are the widely traded commodities.[78] Even though there might be slight quality alterations among commodities, to be able to trade a commodity in an exchange, it must meet minimum quality standards which is also knows as basis grade.[79]

As mentioned in the previous chapters, the U.S. Commodity Futures Trading Commission (CFTC) treats Bitcoin as a commodity pursuant to the Commodities Exchange Act and Turkish regulators currently discuss classifying Bitcoin as commodity as well.[80]

3.1.3.4 Currency

Different regulators within the same country may simultaneously classify an asset as security, property, and commodity (e.g. U.S. CFTC and U.S. SEC) and such policy, as long as they remain within the scope of their own jurisdiction, may still function properly. The most important asset type to examine when classifying

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[78] IPFS, *List of Traded Commodities*, https://bit.ly/2sMxpWx (last visited Feb. 5, 2019).

[79] WORLDWIDE COMMODITIES, *List of Traded Commodities*, http://worldwide-commodities.com/list-of-traded-commodities (last visited Feb. 5, 2019).

[80] Numan Emre Ergin, *Bitcoin'in Vergilendirilmesi*, DUNYA (Dec. 21, 2017), https://www.dunya.com/kose-yazisi/bitcoinin-vergilendirilmesi/395306.

cryptocurrencies is the "currency" class. Currency refers to the money in any form used as a medium of exchange, unit of account, and store of value[81] (i.e. money that is used to purchase and sell things). Currency may be in (i) physical form such as banknotes and coins or (ii) digital form.[82] Therefore, digital instruments may also be in the scope of currency definition. According to the traditional money theory, money was created to facilitate the process of exchange of goods as a remedy to the inefficiency of barter transaction while modern money theory claims that money was created by the rulers of society to indicate the value and the satisfaction of a given task. Regardless of the reasoning asserted by these theories, several common features may be attributed to money (i.e. currency).[83] Irrespective of the form, money should have three features. First of all, it should be used as a medium of exchange to avoid the inconveniences of barter system. Secondly, it should be used as a unit of account thereby acting as a standard numerical unit to measure the value of goods and services. Thirdly, it should function as a store of value so that it can be stored and used in the future[84]. There are different sub-categories of currencies which must be further examined to discover the true identity of cryptocurrencies.

Official Currencies - Legal Tender

A monetary system may be defined as an official system created by a sovereign by which provides currency to the market with legal tender status. A monetary system usually consists of a mint, a central bank, several government institutions, and

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[81] Mankiw N. Gregory, Principles of Macroeconomics 80-81 (7th ed. 2010).

[82] *Currency*, CAMBRIDGE DICTIONARY,
https://dictionary.cambridge.org/dictionary/english/currency (last visited Feb. 5, 2019).

[83] L. Randall Wray, *From the State Theory of Money to Modern Money Theory: An Alternative to Economic Orthodoxy* 23-24 (Mar. 2014).

[84] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 10.

commercial banks.[85] Within a monetary system, sovereign may select any currency form such as commodity currency, commodity-backed currency, or fiat currency. Commodity currency is chronologically the first form of official currency and in commodity currency systems, a commodity such as gold or silver is selected as the unit of value and physically used as money. Commodity-backed money system may be considered as a transitory system in which banknotes are used as a medium of exchange; however, are still tied to a commodity. Therefore, an amount of designated commodity may always be paid by the state in exchange for the commodity-backed money. Therefore, although the banknotes do not have intrinsic value, they can be exchanged for a precious metal such as gold. Due to this nature, this system is also known as 'gold standard' and the commodity-backed currency may also be called 'representative currency'.[86] The modern monetary system mainly used in the 21st century is fiat currency system. In fiat currency system, the sovereigns issue money (banknotes and coins) which does not have any intrinsic value. In addition, fiat currency system allows sovereigns to issue currency in digital form. In fact, the majority of almost any sovereign's circulating money is in digital form in the 21st century.[87]

Official currency is issued by the sovereign in accordance with *lex monetae* principle and; therefore, the sovereign may choose any form, name, and structure for its currency[88] which makes it legal tender (official medium of payment

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[85] *Monetary System*, BUSINESSDICTIONARY.COM, http://www.businessdictionary.com/definition/monetary-system.html (last visited Feb. 5, 2019).

[86] Boliang Lin and Ruixi Lin, *A New Currency of the Future: The Novel Commodity Money with Attenuation Coefficient Based on the Logistics Cost of Anchor* 1 (2016), https://arxiv.org/pdf/1606.06948.pdf.

[87] U.S. DEPARTMENT OF THE TREASURY, U.S. Currency, https://www.moneyfactory.gov/uscurrency.html (last visited Feb. 6, 2019).

[88] Gianviti, François, *Use of a Foreign Currency Under the Fund's Articles of Agreement*, 12, International Monetary Fund (May 17, 2002).

recognized by law). Therefore, to be able to classify a means of payment as official currency, it needs to be recognized by a sovereign.

Private Currency

Although monetary systems evolved into a single government-backed currency system in the 21st century, private bank notes were very common before the 20th century, especially, during the Free Banking Era.[89],[90] In the 21st century, the private bank notes are not as common as they were before. However, there are still private currencies (currencies issued by a private entity such as an individuals, commercial entities or communities) which are mostly in local, community, regional, and complimentary currency forms.[91] Private currencies are usually created by a group of people who share a common goal such as facilitating reciprocity in daily life of a local community and they issue their own currency to use in their daily lives along with the legal tender. Therefore, private currency usually has a complimentary nature rather than disruptive.[92] As mentioned above, Germany's BaFin indicates that cryptocurrencies are similar to private currency.[93]

Digital Currency

Digital currencies rather belong to a different classification which should not be confused with private or official currency distinction. While the main difference observed in the former classification is the legal tender feature of currency, digital currencies may be distinguished from their counterparts with their ability to

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[89] Stephen D. Williamson, *Private Money and Counterfeiting*, Federal Reserve Bank of Richmond Economic Quarterly Volume 88/3, 1 (Summer 2002).

[90] Gary Gorton, *Pricing Free Bank Notes*, Journal of Monetary Economics 44, 34 (1999), http://bit.ly/2EKeWh6.

[91] COMPLEMENTARY CURRENCY RESOURCE CENTER, *Complementary Currency World Map*, http://complementarycurrency.org/cc-world-map (last visited Feb. 7, 2019).

[92] Sara Calvo & Andres Morales, *Exploring Complementary Currencies in Europe: A Comparative Study of Local Initiatives in Spain and the United Kingdom,* 10 (Sep. 2014), http://bit.ly/2WeOZAO.

[93] BUNDESANSTALT FÜR FINANZDIENSTLEISTUNGSAUFSICHT, *supra* note 71.

digitally represent value. Therefore, digital currency form may be selected by official currency issuers as well as private currency issuers.

In addition, digital currency is rather an umbrella term used for many different currency types. Therefore, it is easy to be qualified as digital currency as long as the currency is in digital form. When the common features of digital currency examples are examined, they may be described as any currency stored and transferred electronically. Government-backed digital money, electronic money (i.e., e-money), virtual currencies, and cryptocurrencies are all considered as digital currencies. However, the converse does not always hold true.[94]

Considering that one of the main features of cryptocurrencies is being stored and transferred electronically, BTC, Ether, XRP, and all the other cryptocurrencies are clearly digital currencies. However, leaving the classification at this level may not serve the purpose as there are several distinctive features of cryptocurrencies which separate them from the other currency types. Therefore, a sub-class of digital currencies, namely, virtual currencies must also be examined.

Virtual Currency

European Central Bank defines virtual currency as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community[95]". Therefore, the European Central Bank (the '**ECB**') classifies the virtual currencies as a type of digital currency (i.e., digital money). In addition, it is explicitly stated that the virtual currencies are usually controlled by its developers. Although this statement leaves room for various possibilities such as government-backed virtual currencies,

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[94] Andrew Wagner , *Digital vs. Virtual Currencies*, BITCOIN MAGAZINE (Aug. 22, 2014), https://bitcoinmagazine.com/articles/digital-vs-virtual-currencies-1408735507.
[95] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 10.

such variations may be considered as exceptions. The most distinctive feature of the virtual currencies clearly is being accepted among the members of a specific virtual community. This feature is fairly interesting since virtual currencies has absolutely no intrinsic value and not issued by any sovereign. Therefore, the value of virtual currency is based only on the trust in its issuers and/or developers.

The ECB relies on interaction of virtual currencies with real currency and real economy to classify them and to distinguish one form from another. After recognizing that the main distinction point should be the interaction with the real economy, the following types are distinguished by the ECB.[96]

Type 1 - Closed virtual currency schemes

Closed virtual currency schemes are not usually affiliated with the real economy, at least, directly. Therefore, there is no link between Type 1 virtual currency scheme and the real money. Hence, one cannot purchase or exchange virtual currency in exchange for real currency within the closed virtual currency schemes. Virtual currencies may only be obtained within the virtual community and only be used to purchase virtual items or receive virtual services[97].

A well-known example for the closed virtual currency scheme may be the WoW Golds which are used in the Blizzard's World of Warcraft (WoW) and the closed virtual currency schemes are generally preferred in online game environments since there are tasks to be completed in online games and following the successful completion, the users are rewarded with virtual currencies.[98] Therefore, the underlying reward mechanism of online games is suitable for this scheme.

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[96] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 5.
[97] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 13.
[98] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 13.

Type 2 - Virtual currency schemes with unidirectional flow

In Type-2 unidirectional flow schemes, virtual currencies may be purchased with real currency; however, it is not possible to cash out the virtual currencies in exchange for real currency. Therefore, they must be used within the virtual environment to purchase virtual goods and services.[99] Depending on their revenue model, game developers may utilize this scheme in game rewarding mechanism as well. For example, a virtual currency scheme introduced by Nintendo grants users Gold Points after purchasing new games which is clearly an interaction with the real economy.[100] Virtual currency schemes with unidirectional flow is one of the main revenue models used by game companies as well as the closed virtual currency scheme. Therefore, many examples of unidirectional flow schemes may be found in the gaming industry.

Another example for unidirectional flow virtual currency scheme is Facebook Credits which are not in use anymore. The original Facebook Credits scheme was a Type-2 unidirectional flow virtual currency scheme that enabled users to purchase items in games and other applications on the Facebook Platform. One U.S. dollar was the equivalent of 10 Facebook Credits.[101]

Type 3 - Virtual currency schemes with bidirectional flow

The third scheme is the bidirectional flow scheme where users may purchase and sell virtual currencies in exchange for real currency. Therefore, this scheme is the closest scheme to real currency and the virtual currencies in a bidirectional flow may be used to purchase virtual and real goods & services.

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[99] EUROPEAN CENTRAL BANK, *supra* note 48, *at* 14.

[100] NINTENDO.CO.UK, *How can I use My Nintendo points?*, https://bit.ly/2BkmO7e (last visited Feb. 5, 2019).

[101] John Oates, *How Will Sir Pay? Facebook Credits, That'll Do Nicely*, THE REGISTER (Jun. 3, 2009), https://www.theregister.co.uk/2009/06/03/facebook_payments.

The first example of bidirectional flow scheme is the Linden Dollar (L$) which is a virtual currency scheme used in Second Life, a virtual world developed and launched in 2003 by the San Francisco-based software firm Linden Lab.[102] In this virtual world, each user is assigned an avatar which they can customize with Linden Dollars which may be purchased with real currency. Linden dollars may also be converted back to US dollars.[103]

In addition to Linden Dollars, cryptocurrencies may also be considered within the Type-3 virtual currency scheme as they permit bidirectional flow. However, due to their market capitalization, significance in the global economy, and several distinctive features, cryptocurrencies should be examined and categorized separately.
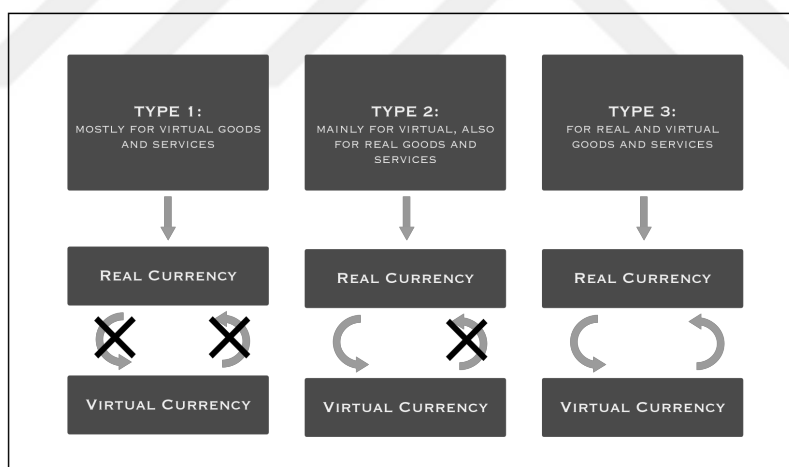
Figure 4: ECB's Virtual Currency Scheme

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[102] LINDEN LAB, *About Linden Lab*, https://www.lindenlab.com/about (last visited Feb. 5, 2019).
[103] EUROPEAN CENTRAL BANK, *supra* note 48*, at* 13.

3.2. Analysis and Categorization of Cryptocurrencies

Publication of the Virtual Currency Schemes Guide of the European Central Bank dates back to October 2012 and around this time Bitcoin was only traded at $12[104] and total market capitalization was around $0.14 billion.[105] Therefore, Bitcoin and the other cryptocurrencies were merely exotic projects that no financial institution paid attention to. Thus, it is very likely that classification of the cryptocurrencies was undermined in the studies published around that time. In addition, extremely high growth of the significance of cryptocurrencies along with their evolving nature and features has made the relevant previous studies outdated fairly quickly.

It is important to note that not all virtual currencies are cryptocurrencies whereas the converse holds true. For example, a virtual currency may not be convertible to real currency. However, cryptocurrencies are always convertible to real currency, and it is a distinctive feature for them. Cryptocurrencies almost always use Distributed Ledger Technology (the '**DLT**') whereas virtual currency schemes are usually controlled by a central authority. The distinction between different currency schemes may be visualized as follows[106]:

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[104] 99BITCOINS.COM, *Bitcoin Price Chart with Historic Events*, https://99bitcoins.com/price-chart-history/ (last visited Feb. 5, 2019).

[105] STATISTA, *Market capitalization of Bitcoin from 1st quarter 2012 to 4th quarter 2018 (in billion U.S. dollars)*, https://www.statista.com/statistics/377382/bitcoin-market-capitalization (last visited Feb. 6, 2019).

[106] IMF Staff Team, *Virtual Currencies and Beyond: Initial Considerations*, IMF 8 (1999), http://bit.ly/2MpGluR (last visited on Jun. 2, 2019).
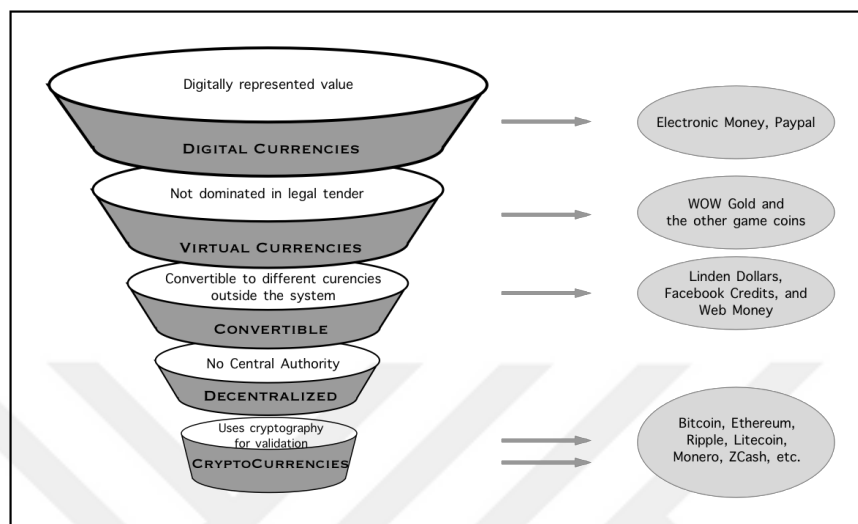
Figure 5: Taxonomy of Virtual Currencies

Therefore, a novel approach must be adopted for the classification and categorization of the cryptocurrencies and only this approach may properly serve the purpose to classify, regulate and tax them. As mentioned in the previous chapters, the classification is very important for the accurate taxation. Therefore, first of all, the distinctive features of different currencies should be examined to understand the concept of cryptocurrency. Secondly, a new taxonomy should be created with the help of new studies and official guidelines.

3.2.1 Properties of Currency

A property structure introduced by J. Herbert and M. Stabauer will be taken as basis for the formation of cryptocurrency classification with some modifications. Therefore, (i) official status, (ii) centricity, (iii) format, (iv) control, issuance, and validation, (v) cryptographic dependency, and (vi) purpose of currency categories

will be examined and a comprehensive currency taxonomy will be created based on these distinctive properties.[107]

3.2.1.1 Official Status

Official status property is used to determine whether a currency is considered as a legal tender. For instance, U.S. Dollar has a legal tender used by the United States of America[108] and Turkish Lira has a legal tender used by Turkey[109] whereas Bitcoin is not a legal tender since it is not accepted as official currency by any sovereign nation.

3.2.1.2 Centricity

Traditional monetary systems have a central structure where the issuance structure, clearance, and control mechanisms are managed by a central authority. These schemes will be labeled as 'centralized' and the most obvious example is the official currencies.[110]

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[107] Jeff Herbert & Martin Stabauer, *Bitcoin & Co: An Ontology For Categorizing Cryptocurrencies*, SELECTED PAPERS PRESENTED AT 4TH M-SPHERE INTERNATIONAL CONFERENCE FOR MULTIDISCIPLINARITY IN SCIENCE AND BUSINESS, 48-50 (2015).

[108] Tara Mandjee, *Bitcoin, its Legal Classification and its Regulatory Framework*, 15 J. Bus. & Sec. L. 157, 20 (2016).

[109] Article 1 of the The Law on the Currency of the Republic of Turkey no. 5083

[110] Herbert & Stabauer, *supra* note 110, at 48-50.
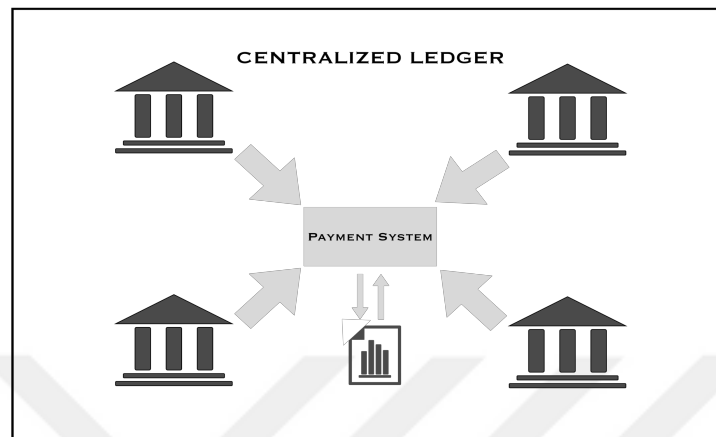
Figure 6: Centralized Ledger

Distributed currencies do not have a central authority regulating the currency scheme and transactions and, therefore, clearance work is handled by a peer to peer network of miners (Proof of Work, or '**PoW**') or validators (Proof of Stake, or '**PoS**').[111]

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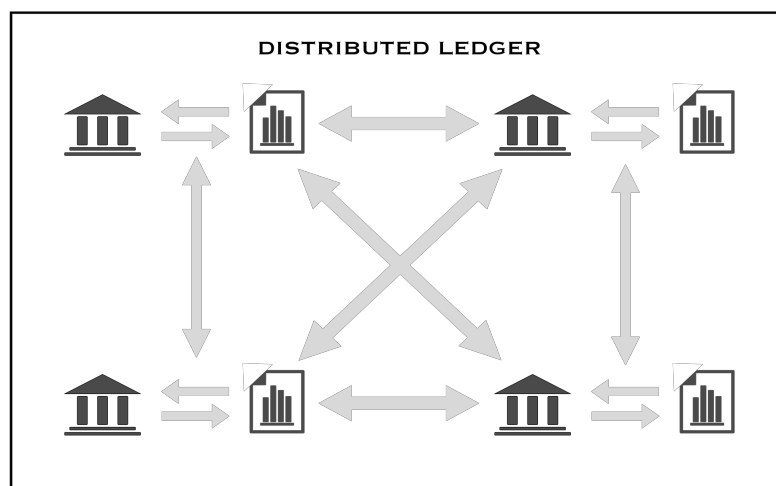
[111] Karthik Radhakrishnan, *CryptoCurrency — "Proof of Work" Vs "Proof of Stake"*, MEDIUM (May 1, 2017), http://bit.ly/2WgHmd6 (last visited on Jun. 2, 2019).

Figure 7: Distributed Ledger

Finally, decentralized currencies are controlled by a central authority via a network of authorized ledger nodes. While Bitcoin, which uses PoW method, and NXT coin, which uses PoS method, have distributed characteristics, Ripple has a decentralized nature.
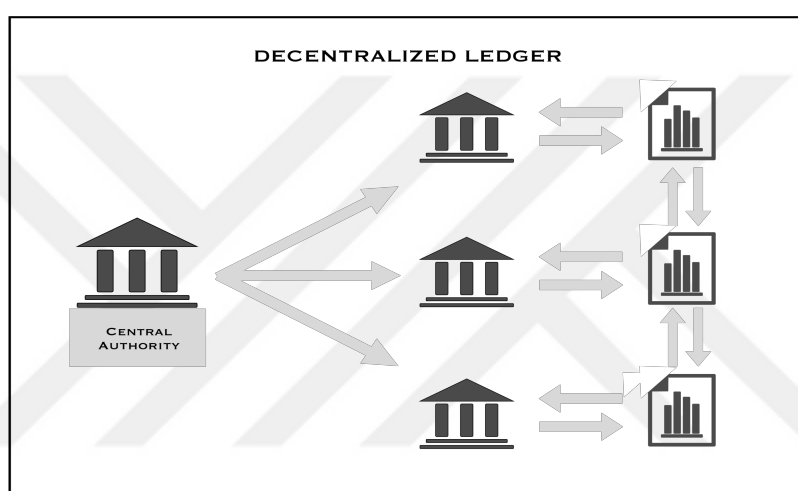
Figure 8: Decentralized Ledger

3.2.1.3 Format

For thousands of years, people had associated money with physical and tangible coins and banknotes. In fact, until quite recently, these coins had intrinsic value (commodity money). However, as the source of the value of the money shifted from commodities to intangible sources such as the sovereign power or trust, digital age provided the opportunity to issue money in digital form. This distinctive feature may be used to differentiate digital currencies from physical currencies.

3.2.1.4   Control, Issuance, and Validation

Traditionally, governments are the authorities issuing new currency and they have the sole power to control it. In addition, banks are the institutions authorized for transaction validation. In the 19th and 20th centuries, especially in the US and Europe, several private individuals and entities obtained permits to issue their own currency. In fact, there are still many private currencies and they were in the financial system before the invention of virtual currencies.[112] Finally, the third type of control, issuance, and validation mechanism is the peer-to-peer network. Bitcoin, Ethereum, Litecoin, and many other cryptocurrencies have a network structure for the aforementioned functions. On the other hand, exceptions may be observed such as SolarCoin which is considered as a privately issued cryptocurrency since the coins are distributed by the owner on the basis of generating 1MWh solar energy.[113] Another exception may be government issued cryptocurrencies. At the time of writing, there is only one example of government issued cryptocurrency and a few planned sovereign cryptocurrency projects.[114,115]

3.2.1.5   Cryptographic Dependency

Cryptographic dependency may be considered as one of the most fundamental distinction points for cryptocurrencies. At the time of writing, there are two different cryptocurrency schemes in terms of dependency. While the first class of cryptocurrencies use their own blockchain or similar cryptographic technology, the rest are created on top of a programmable blockchain such as Bitcoin 2.0 or

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[112] COMPLEMENTARY CURRENCY RESOURCE CENTER, *Complementary Currency World Map*, http://complementarycurrency.org/cc-world-map (last visited Feb. 7, 2019).

[113] SOLARCOIN.ORG, *SolarCoin: SolarCoin Policy Paper: A blockchain-based solar energy* incentive, 2 (2014).

[114] Dom Galeon , *Vladimir Putin: Russia Will Issue its Own Cryptocurrency*, FUTURIZM (Oct. 16, 2017), https://futurism.com/vladimir-putin-russia-will-issue-its-own-cryptocurrency.

[115] Rachelle Krygier, *Venezuela Launches The 'Petro,' Its Cryptocurrency*, WASHINGTON POST (Feb. 20, 2018), https://wapo.st/2Gc0IaT.

Ethereum. The first class of cryptocurrencies are called 'coins' or 'native tokens' and the second class of cryptocurrencies are called 'tokens' or 'non-native tokens', respectively.[116] It is not difficult to see that there is a confusing and unreliable classification and naming practice in the industry due to lack of regulation. In this paper, cryptocurrencies with their own blockchain will always be referred as 'coins' whereas the ones without a genuine blockchain will be referred as 'tokens'. While some of the second-generation cryptocurrencies have their independent blockchain; therefore, qualify as 'coins', the rest relies on the platform or blockchain network of another cryptocurrency to operate (i.e. they are qualified as 'tokens').

Finally, it is important to note that the remaining digital currencies along with physical currencies do not rely on cryptography; therefore, they will be classified as non-cryptic.

3.2.1.6 Purpose

In a traditional sense, money has the sole purpose of facilitating transactions as a medium of payment. Commodity currency, commodity-backed currency, and fiat currency types all serve this purpose. In addition, virtual currencies also serve the same purpose although they may serve this purpose with different methods. Finally, this purpose is also shared by the first generation of cryptocurrencies such as Bitcoin or Litecoin. On the other hand, the second-generation cryptocurrencies usually provide value-added features such as allowing the development of "applications to integrate with the blockchain and run as distributed applications." as well being used as a means of payment.[117]

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[116] Alex Krüger, *An Overview of Cryptocurrencies for the Savvy Investor*, HACKERNOON (Sep. 22, 2017), https://hackernoon.com/all-you-need-to-know-about-cryptocurrencies-an-overview-for-the-savvy-investor-bdc035b14982.

[117] Herbert & Stabauer, *supra* note 110*, at 49.

3.2.2 Cryptocurrency Schemes

As mentioned above, there are several differences among cryptocurrencies. In other words, the term cryptocurrency is rather an umbrella term to represent all the virtual and convertible currencies which use cryptography for validation. However, proper classification of cryptocurrencies is substantial for regulatory purposes, especially for taxation. Therefore, cryptocurrencies may be gathered under four different categories after examining the previous studies and recent developments.

3.2.2.1 CCS1 : Transaction Only Crypto Coin Scheme

Transaction only crypto coins may be recognized by their particular focus on facilitation of money transaction between accounts in the monetary system whilst having a non-master Authoritative Blockchain Verification Method and cryptographic validation system. In addition, these cryptocurrencies typically have their own blockchain; therefore, the term 'coin' is usually preferred in the industry. Therefore, for standardization purposes, these schemes will be called 'Transaction Only Crypto Coin Scheme' or 'CCS1'. These crypto coins are typically the first generation of cryptocurrencies such as Bitcoin, XRP, Zerocash, Peercoin and they do not offer application or platform functionality as opposed to the second scheme crypto coins.[118]

3.2.2.2 CCS2 : Crypto Coin Scheme with Blockchain Applications

The increasing interest towards blockchain technology and the first generation of cryptocurrencies created a suitable environment for further innovation. This interest resulted with a new generation of cryptocurrencies and these second-generation cryptocurrencies did not only facilitate the payment process further, but also started to provide additional capabilities and features with blockchain technology.

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[118] Herbert & Stabauer, *supra* note 110, at 51.

One of the ground-breaking innovations was the development of Ethereum platform which supports smart contracts which may be utilized, tracked, and completed with Ethereum's blockchain. Ethereum is not the only cryptocurrency using blockchain with an additional use case -other than payment facilitation. However, what makes Ethereum unique is that it provides a suitable environment for crypto tokens to be built on top of Ethereum blockchain.[119]

In addition to Ethereum, there are many other crypto currencies using blockchain technology with value added features. Although these second class of cryptocurrencies do not provide platform solutions; they, instead, provide other additional features such as data storage, digital notary services, trading solutions, and many others.[120] Even though some scholars suggest separate schemes for the platform based cryptocurrency projects and other second generation crypto projects, the recent developments show that the distinction between the two may slowly has been fading away.[121] For instance, NXT, which used to be a project providing only a few service solutions in the beginning, began to allow and encourage developers to "develop" their own blockchain-based solutions. Therefore, the nature of NXT has transformed and become similar to Ethereum.

As a result, gathering "native" blockchain solutions which uses their own blockchain, regardless of their use cases, will be a better categorization strategy to deal with the ever-changing nature of blockchain solutions. Therefore, the crypto coins with blockchain applications scheme has two distinctive features which separate it from other schemes: (i) independent blockchain and (ii) application & platform functionality (i.e. use-case other than payment facilitation).

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[119] Buterin, *supra* note 35*,* at 1.
[120] SIA, *About - Sia*, https://sia.tech/about (last visited Feb. 5, 2019).
[121] Herbert & Stabauer, *supra* note 110*,* at 52.

3.2.2.3   CCS3 : Crypto Token Scheme with Blockchain Applications

The most distinctive feature of this group of CCS3 cryptocurrencies is lack of its own blockchain. Instead, they are always built on top of another blockchain such as Ethereum and NXT and this group of cryptocurrencies is often called as 'tokens'. Creations of tokens are usually result of an initial coin offering (ICO) and previously mined cryptocurrencies (i.e. pre-mined tokens) are put on sale in a public offering to raise capital. These tokens may grant their holders a wide variety of economic rights such as equity ownership, debtor status, claim rights, and access to existing or future services. Therefore, categorizing them based on the underlying rights of the tokens is not very practical. However, distinction to some extent must be made as some of these token sales constitute securities offering and therefore, are subject to capital market regulations and different tax treatment. Some of the well-known examples of crypto tokens are EOS, TRON, Tether, Binance Coin, VeChain, and OmiseGO.[122] Further analysis on crypto tokens will be made along with initial coin offerings in the following chapters.

3.2.2.4   RCCS : Official Cryptocurrency Scheme

The most distinctive feature of RCCS cryptocurrencies is that they are created and issued by a sovereign. Therefore, as opposed to other cryptocurrencies in the market, they also have a legal tender status. As Petro is the first and only planned official cryptocurrency in the market at the time of writing[123], it is hard to establish a common ground for official cryptocurrencies as the sovereigns may choose to issue these cryptocurrencies in any form they please due to *lex monetae* principle. However, an official cryptocurrency must have decentralized or distributed nature via a network of nodes and must be digital to be classified as cryptocurrency.

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[122] Top 100 Tokens by Market Capitalization, COINMARKETCAP, https://coinmarketcap.com/tokens (last visited at Feb. 6, 2019).

[123] GOBIERNO BOLIVARIANO DE VENEZUELA, *Petro Whitepaper* (Mar. 15, 2018) http://www.elpetro.gob.ve/pdf/en/Whitepaper_Petro_en.pdf.

Therefore, a distinction may be made between regulated RCCS cryptocurrencies and traditional currency schemes such as fiat, local, and virtual currency via distributed or decentralized nature of RCCS cryptocurrencies.

3.2.3   An Alternative Taxonomy for Currency Schemes

Classification and categorization efforts clearly demonstrate that currency cannot be simply reduced and limited to fiat currency scheme alone. From a technical perspective, any unit that is used as a medium of exchange, unit of account, and store of value should be classified as currency. On the other hand, on top of this minimum requirements, there is a wide variety of features that different currency schemes may offer and these features must be analyzed to understand where cryptocurrencies are positioned. Cryptocurrencies may be regarded as commodities or some cryptocurrency related activities may be regarded as securities offerings which deems the underlying coins and tokens as asset, yet they certainly carry the common features of currency as well. Therefore, without detriment to these different asset classifications by the governmental bodies, cryptocurrency schemes must be considered as currency schemes. Thus, based on the properties defined and explained and the currency schemes analyzed above, it is possible to create a taxonomy of currency as follows:

	FIAT CURRENCY	LOCAL CURRENCY	CLOSED VIRTUAL CURRENCY	UNIDIRECT. VIRTUAL CURRENCY	BIDIRECT. VIRTUAL CURRENCY	TRANSACT. ONLY CRYPTO COINS	CRYPTO COINS WITH BLOCK CHAIN APP	CRYPTO TOKENS WITH BLOCK CHAIN APP	OFFICIAL CRYPTO CURRENCY (OFFICIAL)
TYPE	FIAT	LOCAL	VCS1	VCS2	VCS3	CCS1	CCS2	CCS3	RCCS
EXAMPLES	USD, EUR, GBP, TRY, E-MONEY	BRIXTON POUND, OAKLAND GROWN, DANE COUNTY TIME BANK, LETS	WOW GOLD	FB CREDITS, NINTENDO POINTS, FREQUENT FLYER PROGRAM	LINDEN DOLLARS	BITCOIN, LITECOIN, RIPPLE, PEERCOIN	ETHERIUM, NEO, NXT, ZEROCASH, NAMECOIN	EOS, TRON, OMISE GO	PETRO
LEGALITY	REGULATED	UNREGULATED							REGULATED
CENTRICITY	CENTRALIZED					DISTRIBUTED/ DECENTRALIZED			
FORMAT	PHYSICAL/DIGITAL		DIGITAL						
CONTROL, ISSUANCE, VALIDATION	GOVERNMENTS CENTRAL BANKS	PRIVATE PERSONS AND ENTITIES				NETWORK			
CRYPTOGRAPHIC DEPENDENCY	NON-CRYPTIC					INDEPENDENT	DEPENDENT		??
PURPOSE	TRANSACTION ONLY						TRANSACTION & APPLICATION		??

Figure 9: An Alternative Taxonomy for Currencies

4 Tax Treatment of Cryptocurrencies

4.1 Initial Remarks

In this Chapter, legal status of Bitcoin -and other cryptocurrencies- in selected jurisdictions and their tax policies will be examined. To be able to accomplish this, publications, regulatory authority guidelines, press releases, legislative pieces, and other similar sources relevant to Bitcoin and other cryptocurrencies will be analyzed. However, since most of these sources directly targets Bitcoin, it should not be generalized to all cryptocurrencies unless stated otherwise. The selected jurisdictions, international and supranational entities to be analyzed in this chapter are as follows:

- International and Supranational Law

  o The OECD

  o European Union

- National Laws

  o The United States;

  o The United Kingdom;

  o Germany;

  o China;

  o Japan;

  o Australia

  o Turkey

Firstly, the current approach of an international organization, namely, the Organisation for Economic Co-operation and Development (OECD) and a supranational organization, namely, the European Union, will be examined as these organizations have significant influence on formation and implementation of tax policies globally. Following these organizations, the practices of the selected jurisdictions will be scrutinized to understand the national level approaches towards cryptocurrencies. For this detailed national level analysis, the United States, the United Kingdom, and Germany are selected as they are the countries with large amount of initial coin offerings, crypto exchanges, crypto investors and blockchain projects. In addition, China and Japan are responsible from a considerable amount of mining activities along with large crypto exchanges.[124] As these five countries comprise of a large portion of global GDP[125], it is important to examine their legal framework regarding cryptocurrencies. In addition, Australia is selected due to a double taxation practice it had enforced for a while and abrogated recently. After analyzing the legal treatment of cryptocurrencies and relevant important taxable events within these selected international & supranational organizations and national jurisdictions, legal treatment of cryptocurrencies and related events in Turkey will be examined and compared with others to understand where Turkey's policy makers position themselves. In addition to these countries, it is important to note that, even though they will not be examined in detail, some countries have been considered as crypto tax havens by the cryptocurrency community such as Hong Kong, New Zealand, Switzerland, Barbados, Malaysia, and Mauritius.[126]

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[124] QUARTZ MEDIA, *This Could Be the Beginning of the End of Chinas Dominance in Bitcoin Mining* (Jan. 05, 2018), https://qz.com/1172632/chinas-dominance-in-bitcoin-mining-under-threat-as-regulators-hit-where-it-hurts-electricity.

[125] THE WORLD BANK, *GDP (current US$)*, https://bit.ly/2GnSeNq (last visited Feb. 4, 2019).

[126] Sudhir Khatwani, *Countries With 0% Tax On Bitcoin/Cryptos: Tax Free Life*, COIN SUTRA (Jan. 1, 2018), https://coinsutra.com/tax-free-bitcoin-countries.

4.2 International and Supranational Law

4.2.1 The OECD

The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organization having most of the large and advanced economies as member states[127]. Therefore, the OECD's approach is crucial to detect the regulatory policies to be implemented by member states. Although the OECD has not declared its official position on how to treat cryptocurrencies and how to tax cryptocurrency related events, certain reports and articles published by the OECD may demonstrate the OECD's potential approach towards blockchain and cryptocurrencies.

In an OECD Working Paper, namely, the Bitcoin Question, Adrian Blundell-Wignall states that two important policy issues regarding cryptocurrencies are (i) how to treat cryptocurrencies, particularly in terms of capital gains and (ii) tax evasion due to anonymous, stateless, and distributed nature of cryptocurrencies. Especially anonymity of cryptocurrency transactions is likely to make agreements on taxation at source or information exchange obsolete. Finally, Blundell-Wignall warns that a historical event may re-occur if financial and tax systems are undermined by the users of Bitcoin: During the Great Depression, all the private and public contracts with fixed gold payment provisions are declared void by Roosevelt -which was also approved by the Supreme Court with the reasoning that power to regulate money is a plenary one.[128] This report has more of a negative

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[127] OECD, List of OECD Member Countries, https://bit.ly/1hnDVqG (last visited on Jan. 16, 2019).

[128] Adrian Blundell-Wignall, *The Bitcoin Question: Currency versus Trust-less Transfer Technology,* OECD Working Papers on Finance, Insurance and Private Pensions, No. 37, OECD Publishing, 11-12 (2014), http://dx.doi.org/10.1787/5jz2pwjd9t20-en.

characteristics as it focuses on the potential risks and threats rather than the potential benefits of cryptocurrencies and blockchain technology.

On March 2018, the OECD released an official report, 'OECD Secretary-General Report to the G20 Finance Ministers and Central Bank Governors' and the report seems to agree with the issues mentioned in the above working paper. After recognizing the potential of blockchain technology, it warns the member states regarding cryptocurrencies with the following statement: "... technologies like blockchain give rise to both new, secure methods of record-keeping while also facilitating crypto-currencies which pose risks to the gains made on tax transparency in the last decade". The report also states that the Forum on Tax Administration will examine the consequences of cryptocurrencies and blockchain technology in terms of taxation and will come up with a consensus-based solution by 2020.[129]

On September 2018, the OECD released a primer on blockchain technology in which the potential benefits and risks of the blockchain technology are outlined.[130] This document, as opposed to its predecessors, has a more neutral tone on the use cases of blockchain technology. In the primer, the different types of blockchains are examined and categorized.[131] Benefits and risks of blockchain applications in different use-cases are demonstrated.[132] The benefits of Bitcoin compared to

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[129] The Organisation for Economic Co-operation and Development (OECD), *OECD Secretary-General Report to the G20 Finance Ministers and Central Bank Governors*, 9 (Mar. 2018), https://www.oecd.org/tax/OECD-Secretary-General-tax-report-G20-Finance-Ministers-Argentina-March-2018.pdf.

[130] THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), OECD Blockchain Primer, *Distributed Ledgers: Opportunities and Challenges*, I (Sep. 4-5, 2018), https://www.oecd.org/finance/OECD-Blockchain-Primer.pdf (last visited on Jun. 3, 2019).

[131] THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), *supra* note, at 3.

[132] THE ORGANISATION FOR ECONOMIC CO-OPERATION AND

SWIFT transactions are examined in detail. Finally, the distinguishing features of different ICO tokens are pointed out.[133] This primer is important to understand how the OECD's approach towards cryptocurrencies and blockchain has changed over time. A similarly positive approach may also be detected in the OECD Working Papers on Public Governance no. 28 (i.e. Blockchains Unchained: Blockchain Technology and its Use in the Public Sector) on at least blockchain applications. The authors stress the potential benefits of blockchain technology in public governance and shares several case study examples in different jurisdictions. [134] However, the working paper still seems hostile towards cryptocurrencies and sees Bitcoin as the primary payment system for illicit goods on the dark web.[135]

As an intergovernmental body, the OECD aims stay within a narrow framework when classifying cryptocurrencies to avoid any contradiction with the interpretations of the member states. Although the reports published by the OECD discuss the cryptocurrency related taxation and classification issues, these studies have an informative nature rather than assertive. Instead of classification and categorization, the OECD focuses more on the possible risks and threats that cryptocurrencies may pose and, therefore, their perspective is more of a critical one which is also criticized harshly by cryptocurrency enthusiasts. [136] However, especially the primer published in September 2018 has a rather positive approach as opposed to other publications. Therefore, we may observe in the near future that

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DEVELOPMENT (OECD), *supra* note, at 7.

[133] THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), *supra* note, at 6.

[134] Jamie Berryhill & Théo Bourgery & Angela Hanson, Blockchains Unchained: Blockchain Technology and its Use in the Public Sector, OECD Working Papers on Public Governance No. 28, 35-44 (Jun. 19, 2018), https://dx.doi.org/10.1787/3c32c429-en (last visited on Jun. 3, 2019).

[135] *Id*. at 15.

[136] Brian Cohen, *OECD: Simply 'Discussing' Bitcoin Illegality is Mutually Damaging*, COIN TELEGRAPH (Nov. 3, 2015) https://cointelegraph.com/news/oecd-discussing-possible-bitcoin-illegality-is-mutually-damaging.

the OECD embraces the blockchain technology and cryptocurrencies and adopts a more assertive approach towards their applications and use-cases.

4.2.2   The European Union

The European Union has not passed any particular legislation on the legal status or tax treatment of Bitcoin. However, several directives, guidelines, and court cases are helpful in determining the European Union's position. Due to the increased use electronic money and; therefore, difficulty of transaction party identification made it necessary for European Union to regulate the areas of electronic money and electronic payment systems. [137] Therefore, the European Union has adopted Electronic Money Directive 2009/110 in 2009 regulating electronic money and electronic payment systems. Following this legislative act, the European Central Bank (ECB) published a guidance on Virtual Currency Schemes on October 2012. According to the ECB Guidance, Bitcoin does not fall within the scope of Electronic Money Directive 2009/110 after explaining that the Directive's criteria for electronic money as (i) electronic storage of value, (ii) a corresponding actual monetary value, and (iii) acceptance as a means of payment by others and states that Bitcoin does not have a corresponding actual monetary value.[138] The Guidance clarifies that Bitcoin is a bidirectional convertible virtual currency (Type-3) defined under the ECB Guidance. Therefore, in European Union, the ECB classifies Bitcoin as a bidirectional virtual currency which is neither legal tender nor electronic money.

On December 13, 2013, The European Banking Authority (EBA) issued a warning with regards to the risks associated with the use of virtual currencies. The EBA also added that users of virtual currencies may be liable for the transactions and

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[137] Billur Yaltı, Elektronik Ticarette Vergilendirme, 253-254 (2003).
[138] EUROPEAN CENTRAL BANK, *supra* note 48*,* at 43.

activities they conducted with virtual currencies.[139] Furthermore, on July 4, 2014, EBA released an opinion on virtual currencies in which it analyses the ecosystem and states that virtual currencies cannot be classified as legal tender as it is not accepted as such in any jurisdiction.[140] In addition, EBA identifies 70 risks arising from virtual currencies and calls EU legislators to regulate virtual currencies and related business activities to mitigate these risks.[141]

The Value Added Tax (VAT) Committee of the European Commission released three working papers on the tax treatment of virtual currencies and their legal status.[142] In its initial working paper no. 811, the Committee examined the nature of Bitcoin and concluded that (i) Bitcoin is not legal tender, electronic money, security, or voucher whereas (ii) some members are in favor of considering Bitcoin as negotiable instruments or as digital products (ultimately a commodity).[143] In addition, the Committee states that (i) supplies of goods or services in exchange for Bitcoin and (ii) Bitcoin transaction arrangement services (similar to SWIFT) are subject to VAT treatment without an exemption. (iii) Exchange services with regards to Bitcoin should also fall within the VAT where some states assert that it should be regarded as supply of services without an exemption and some assert that it should be exempt from VAT as Bitcoin should be regarded as negotiable instrument. Finally, (iv) the Committee's view is rather closer to declare crypto mining as economic activity while the most states remain silent on cryptocurrency

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[139] THE EUROPEAN BANKING AUTHORITY (EBA), *EBA Warns Consumers on Virtual Currencies*, (Dec. 13, 2013), http://www.eba.europa.eu/-/eba-warns-consumers-on-virtual-currencies.

[140] THE EUROPEAN BANKING AUTHORITY (EBA), *supra* note 142*,* at 12-13.

[141] THE EUROPEAN BANKING AUTHORITY (EBA), *supra* note 142*,* at 21-44.

[142] Aleksandra Bal, *International Blockchain, Initial Coin Offerings and Other Developments in the Virtual Currency Market*, Derivatives & Financial Instruments 20, 6 (2018).

[143] THE VALUE ADDED TAX COMMITTEE OF EUROPEAN COMMISSION, *Working Paper No. 811*, 5-12 (Jul. 29, 2014).

mining whereas a few do not agree with the Committee's opinion by clarifying that mining services are not within the scope of VAT.[144]

According to the VAT Directive, a transaction may only be subject to VAT when there is a transaction that goods or services supplied by a taxable person within an EU member state for consideration.[145] In *Skatteverket v. David Hedqvist*, the European Court of Justice declared that "... exchange of traditional currencies for units of the 'bitcoin' virtual currency and vice versa ... are transactions exempt from VAT... "[146] within the meaning of the Article 135(1)(e) of the VAT Directive 2016/112.[147] Therefore, according to the European Court of Justice, Bitcoin seems to be classified as currency rather than a good/commodity (e.g., gold or silver) by emphasizing that it is used as a means of payment. This opinion is in parallel with the view of the European Central Bank, but not of the U.S Internal Revenue Service or the U.S. Commodities Futures Exchange Commission. The exemption is only limited with the purchase and sale of Bitcoin in exchange for other currencies. Ordinary business activities which involves Bitcoin as means of payment will still create the relevant tax liabilities. Apart from the virtual currencies such as Bitcoin or Litecoin, the taxation of crypto tokens and the legal status of initial coin offerings are addressed by the European Securities and Markets Authority which will be covered in the following chapters.

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[144] THE VALUE ADDED TAX COMMITTEE OF EUROPEAN COMMISSION, *supra note 16,* at 12-21.

[145] Billur Yaltı Soydan, Hizmet İşlemlerinde Katma Değer Vergisi, 28 (1998).

[146] Skatteverket v. David Hedqvist, Eur. Ct. J., C-264/14 (Oct. 22, 2015).

[147] Article 135(1)(e) of the VAT Directive 2016/112 reads "Member States shall exempt the following transactions: (e) transactions, including negotiation, concerning currency, bank notes and coins used as legal tender, with the exception of collectors' items, that is to say, gold, silver or other metal coins or bank notes which are not normally used as legal tender or coins of numismatic interest".

In sum, the European Union's approach to cryptocurrencies may be classified as 'cautious, but positive'. Accepting virtual currencies, including cryptocurrencies, as a currency type is a progressive step compared to the U.S.'s approach rendering cryptocurrencies as property or commodity. In addition, *Skatteverket v. David Hedqvist* decision also supports this progressive nature. The main problem of the European Union on policymaking is the supranatural nature of the organization where law-making process is rather slow as majority vote or consensus is often required.

4.3 National Laws

Although China, Korea, and Japan are known for their significant cryptocurrency mining activities, the United States is the country where the most differentiation, business creation, and high trade volume are observed.[148] Therefore, there have been a lot of official initiatives undertaken by the government institutions to successfully classify, tax, and regulate the cryptocurrencies. However, as so many institutions publishing guidelines, rulings, and other regulatory and judicial pieces with different approaches on virtual currencies and cryptocurrencies, it is becoming more difficult to tackle the cryptocurrency puzzle. On the other hand, government institutions are not the only source of the problem. As the global popularity of cryptocurrencies rises, the novel blockchain solutions enabling cryptocurrencies and increasing cryptocurrency related use-cases are introduced every day and these developments make it difficult to regulate the cryptocurrencies.

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[148] QUARTZ MEDIA, *This Could Be the Beginning of the End of Chinas Dominance in Bitcoin Mining* (Jan. 05, 2018), https://qz.com/1172632/chinas-dominance-in-bitcoin-mining-under-threat-as-regulators-hit-where-it-hurts-electricity.

4.3.1 The United States

4.3.1.1 Legal Status of Cryptocurrencies

The regulatory efforts in the United States will be explained in a chronological order to better discover the real policy outlook. In its guidance dated March 18, 2013, the U.S. Financial Crimes Enforcement Network, the FinCEN, defines currency (also referring it as real currency) as "the coin and paper money of the United States or of any other country that [i] is designated as legal tender and that [ii] circulates and [iii] is customarily used and accepted as a medium of exchange in the country of issuance."[149] and indicates that virtual currencies do not have all the attributes of real currency, particularly, legal tender status. This guidance provide three different use case for virtual currencies, namely, (i) brokers and dealers of e-currencies and e-precious metals; (ii) centralized convertible virtual currencies; and (iii) decentralized convertible virtual currencies.[150] According to the guidance, decentralized convertible virtual currencies (a) do not have central repository or single administrator, (b) can be obtained by their users' computing or manufacturing efforts; therefore, cryptocurrencies fall in the third category. It is important to note that to some extent, the FinCEN Guidance has similar goals with the European Central Bank's Virtual Currency Scheme, yet the categorization is fundamentally different.

The importance of the FinCEN guidance is that for the first time a U.S. regulator recognizes and defines the virtual currencies where it also defines cryptocurrencies as a sub-category.

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[149] Department of the Treasury Financial Crimes Enforcement Network (FINCEN), *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, 1 (Mar. 18, 2013).

[150] The FINCEN, *supra* note 152*,* at 3-5.

On September 2015, a decision by the Commodity Futures Trading Commission - rendered as a result of public administrative proceedings- declared that "Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities"[151] since the definition of commodity is rather broad pursuant to Section 1a(9) of the Commodity Exchange Act.[152]

Following the guidance of The Commodity Futures Trading Commission (CFTC) and The U.S. Internal Revenue Service (IRS), in a recent report, The U.S. Securities and Exchange Commission (SEC) explains whether initial coin offerings (ICOs) qualify as securities with a simple test called the Howey Test.[153] The Howey Test is based on a US Supreme Court decision and ICO tokens will be regarded as securities if there is an investment of money and a common enterprise with the expectation of profit, primarily from the efforts of others. If the ICO projects pass the Howey test, they will be subject to SEC approval[154]. Furthermore, to be able to fail the Howey test, the ICO issuers mostly choose to offer some utilities which makes them Utility Tokens, rather than Security Tokens. However, it is important to note that the SEC watches closely for spurious utilities and may apply the same test to classify the cryptocurrencies that are not offered in an ICO.[155]

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[151] *In re* Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, CFTC No. 15-29 (Sep. 17, 2015), https://www.cftc.gov/sites/default/files/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliprorder09172015.pdf.

[152] Byungkwon Lim & Emilie T. Hsu & Peter Chen & Aaron Levy, *In Two Recent Orders, CFTC Holds that Bitcoins Are Commodities*, Debevoise & Plimpton, 2-3 (2015).

[153] U.S. SECURITIES AND EXCHANGE COMMISSION, Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934:The DAO Release No. 81207, 11 (Jul. 25, 2017).

[154] Ash Bennington, *The Simplest Way to Understand Why The DAO Was a Security*, COINDESK, (Jul. 31, 2017), https://www.coindesk.com/simplest-way-understand-dao-security.

[155] Jay Clayton, *Statement on Cryptocurrencies and Initial Coin Offerings*, U.S. SECURITIES AND EXCHANGE COMMISSION, (Dec. 11, 2017), https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11.

Finally, in a joint hearing, 'Virtual Currencies: The Oversight Role of the U.S. Securities and Exchange Commission and the U.S. Commodity Futures Trading Commission', in the U.S. Senate, the SEC and the CFTC expressed their interest in working together for the proper regulation of cryptocurrencies.[156] Considering that different governmental bodies may have opposing views while their jurisdictions may intersect on particular subjects [157] and considering that cryptocurrencies may be regarded as commodity, security, or property in different contexts by these bodies, joint hearings among governmental bodies may be beneficial for a comprehensive and non-conflicting regulatory practice.

4.3.1.2 Tax Treatment of Cryptocurrencies

On its 2013 Annual Report, the National Taxpayer Advocate, an independent office within the U.S. Internal Revenue Service, urged the U.S. Internal Revenue Service to clarify the status of the digital currencies (e.g., Bitcoin) on (i) whether they will trigger gains and losses and (ii) whether these gains will be taxed as ordinary income or capital gains, and (iii) reporting, withholding, and record-keeping requirements for digital currencies.[158]

Following this request, the IRS published a guidance on April 14, 2014 in which it declares convertible virtual currencies (which also contains cryptocurrencies) as property, rather than currency. Therefore, Bitcoin will be treated as property and a

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[156] Jay Clayton, *Chairman's Testimony on Virtual Currencies: The Roles of the SEC and CFTC*, U.S. SECURITIES AND EXCHANGE COMMISSION, (Feb. 6, 2018), https://www.sec.gov/news/testimony/testimony-virtual-currencies-oversight-role-us-securities-and-exchange-commission.

[157] Board of Trade of City of Chicago v. SEC, 677 F. 2d 1137, 1142 (7th Cir. 1982) in *In re* Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, CFTC No. 15-29, 2 (Sep. 17, 2015), http://bit.ly/2Z25XiM.

[158] TAXPAYER ADVOCATE SERVICE, Digital Currency: The IRS Should Issue Guidance to Assist Users of Digital Currency 249, 255 (2013), http://bit.ly/2QCc22s.

taxpayer who receives virtual currency as payment for goods or services will include the fair market value of these currencies when computing gross income, and the basis for the taxation of convertible virtual currency related income will be the fair market value of the virtual currencies in U.S. dollars as of the date of receipt. The cryptocurrency transactions subject to taxation are, including, but not limited to, the following: (i) gains or losses in a cryptocurrency exchange transaction for another property, (ii) earnings from cryptocurrency mining, (iii) remunerations under an employment contract (only within the scope of employment tax purposes).[159]

Finally, a recent and significant tax reform eliminated a loophole existed for a long time which is known as 'like kind exchanges exemption'. Before the amendment, investors could rely on this exemption to exchange cryptocurrencies for another cryptocurrency without recognizing gains (e.g. selling Bitcoin to buy Ether). As explained above, the IRS treats cryptocurrencies as property and the Internal Revenue Code (IRC) Section 1031(a)(1) permitted this exemption. However, with the Tax Cuts and Jobs Act of 2017, the word 'real' was added before the property rendering this exemption possible only for real properties.[160] Therefore, as of the enforcement date of the Act, any gains due to an exchange transaction between different cryptocurrencies will be subject to taxation regardless the use of U.S. Dollar since cryptocurrencies cannot be classified as real property[161]. The current version of the article is as follows: "No gain or loss shall be recognized on the exchange of real property held for productive use in a trade or business or for investment if such real property is exchanged solely for real property of like kind

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[159] THE U.S. INTERNAL REVENUE SERVICE, Notice 2014-21, 3-4 (Mar. 2014), https://www.irs.gov/pub/irs-drop/N-14-21.pdf.

[160] Mark Popielarski, *Blockchain Research Bitcoins, Cryptocurrency, and Distributed Ledgers*, Colorado Lawyer, 12 (June 2018).

[161] Jin Enyi & Ngoc Dang Yen Le, *The Legal Nature of Cryptocurrencies in the US and the Applicable Rules*, 1 (2017).

which is to be held either for productive use in a trade or business or for investment."[162,]

4.3.2 The United Kingdom

4.3.2.1 Legal Status of Cryptocurrencies

Even though the United Kingdom does not have a specific law regulating cryptocurrencies, several government bodies express their views on the cryptocurrencies. The Bank of England has the responsibility to protect and enhance of the stability of the financial system in the UK according to Bank of England Act dated 1998. Therefore, in 2014, The Bank of England has considered whether cryptocurrencies pose a risk against the stability of the financial system and concluded that "Digital currencies do not currently pose a material risk to monetary or financial stability in the United Kingdom, given the small size of such schemes". The Bank also noted that they will closely monitor digital currency activities as part of their mission. Regarding the characteristics of digital currencies, the Bank pointed out that digital currencies have the characteristics of a commodity, but in contrast to traditional commodities, they are in digital form. Finally, the Bank stated that since some digital currencies meet (i) store of value, (ii) medium of exchange, (iii) and unit of account requirements, they "fulfil the roles of money"; however, due to low level of adoption, "only to some extent and only for a small number of people" [163, 164] Therefore, the Bank's stance on cryptocurrencies is not very clear.

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[162] H.R.1, 115th Cong. (2017) in Mark Popielarski, *Blockchain Research Bitcoins, Cryptocurrency, and Distributed Ledgers*, Colorado Lawyer, 12 (Jun. 2018).

[163] Global Legal Research Center, *Regulation of Cryptocurrency Around the World*, The Law Library of Congress, 58 (Jun. 2018).

[164] Robleh Ali & John Barrdear & Roger Clews & James Southgate, *The Economics of Digital Currencies*, Bank of England Quarterly Bulletin 2014 Q3, 276 (2014).

Her Majesty's Revenue and Customs (the 'HMRC') is the designated tax authority in the United Kingdom and on March 3, 2014, the HMRC set out the United Kingdom's position on the tax treatment of Bitcoin and other cryptocurrencies in Revenue and Customs Brief 9 (2014).[165] The HMRC states that "Cryptocurrencies have a unique identity and cannot therefore be directly compared to any other form of investment activity or payment mechanism".[166]

4.3.2.2 Tax Treatment of Cryptocurrencies

Regarding the tax treatment of cryptocurrency related events, in Revenue and Customs Brief 9 (2014), the HMRC clarifies the VAT (Value Added Tax), CT (Corporate Tax), IT (Income Tax), and CGT (Capital Gain Tax) treatments of cryptocurrencies. As the United Kingdom is an EU member state, the VAT treatment must be in compliance with the EU Directives.[167]

Pursuant to Brief 9 (2014), income received directly from mining activities, income received by miners for other activities such as the verification of specific transactions, exchange of cryptocurrencies for Sterling or other foreign currencies, revenues made over and above the value of the cryptocurrencies for arranging transactions in cryptocurrencies will be exempt from VAT in the UK.[168] Therefore, there are extensive VAT exemptions for the cryptocurrency related transactions. However, it is important to note that the HMRC indicates that VAT will be due for the sale of goods and services in exchange for cryptocurrencies.

On the other hand, regarding the Corporate Tax, Income Tax, and Capital Gain Tax issues, the HMRC states that each event should be assessed individually based on

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[165] Aleksandra Bal, Handbook of Digital Currency 279 (2015).
[166] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.
[167] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.
[168] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.

the activity and the parties involved.[169] In general, the profits and losses on exchange movements between currencies are subject to corporate and personal income tax and general rules also apply to cryptocurrency related exchange movements. The profits and losses of a non-incorporated business on cryptocurrency transactions are taxable pursuant to ordinary income tax rules. Finally, chargeable gains, not covered as trading profit or within a loan relationship, are subject to capital gains tax.[170]

4.3.3 Germany

4.3.3.1 Legal Status of Cryptocurrencies

The German Federal Financial Supervisory Authority (the 'BaFin') published the first regulatory document on December 19, 2013. According to the publication, BaFin clarifies that Bitcoin is with "legally binding effect as financial instruments in the form units of account pursuant to Section 1 (11) Sentence 1 of the German Banking Act". (Kreditwesengesets)[171][172] However, the BaFin stresses that these units of account do not have the legal tender status; therefore, their status is similar to private money, not foreign currency. In addition, they do not constitute e-money (i.e. electronic money) within the scope of German Services Supervision Act (Zahlungsdiensteaufsichtsgesetz – ZAG) since the issuer does not establish claims with the issuance of cryptocurrencies. The publication states that Bitcoin is not digital official currency since it is not controlled by a central authority. Finally,

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[169] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.
[170] HER MAJESTY'S REVENUE & CUSTOMS, *supra* note 67.
[171] BUNDESANSTALT FÜR FINANZDIENSTLEISTUNGSAUFSICHT, *supra* note 71.
[172] Kreditwesengesetz [KWG] [Banking Act] art. 1112 (De.).

BaFin indicates that the closest traditional legal form to Bitcoin is the private money scheme.[173]

4.3.3.2 Tax Treatment of Cryptocurrencies

On February 27, 2018, the German Federal Ministry of Finance (Bundesministerium der Finanzen) released a letter to clarify the taxation of payments using Bitcoin. Pursuant to this letter, German Federal Ministry of Finance declares that Bitcoin is not a legal tender since it is not minted by a central bank. However, it also states that it is a unit of account and Germany does not intend to tax Bitcoin users for using it as a means of exchange and therefore; Bitcoin will be treated like a legal tender for tax purposes as long as it is used as a means of exchange. Therefore, purchasing goods or services with Bitcoin will not be subject to capital gain tax. On the other hand, purchaser of a good or service who pays with Bitcoin -as in any other purchase- will incur to value added tax (VAT) as per the EU VAT Directive 2006/112/EC.[174]

On the other hand, Bitcoin exchanges that convert Bitcoin to legal tender -as suppliers of services- will not incur tax so long as they act as an intermediary. Therefore, as long as the operator of the platform conducts the purchase and sale of Bitcoin as an intermediary under his own name, the tax exemption may be applicable. However, when these exchanges act as a technical marketplace that enables computer aided trading, the letter states that the exemption will not apply.

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[173] BUNDESANSTALT FÜR FINANZDIENSTLEISTUNGSAUFSICHT, *supra* note 71.

[174] Nikhilesh De, *Germany Won't Tax You for Buying Coffee With Bitcoin*, Coindesk (Feb 28, 2018), https://www.coindesk.com/germany-considers-crypto-legal-equivalent-to-fiat-for-tax-purposes. (*see also* https://bit.ly/2QXTIzn for the official letter).

Finally, earnings of cryptocurrency wallet[175] providers and exchanges will be subject to tax pursuant to income tax rules.[176]

According to the same letter, the services of the miners are not taxable transactions as the transaction fees associated with transactions are on a voluntary basis and it is not directly related to the services of miners.[177] This is a correct assessment since providing mining service does neither automatically guarantee new cryptocurrencies nor the transaction fees are directly transferred to the miner.

Germany's approach seems more liberal, realistic, and simplistic, particularly for accounting purposes compared the U.S. regulations which deems cryptocurrencies as property which is subject to capital gains tax if a transaction is made using cryptocurrencies.[178]

4.3.4   China

4.3.4.1 Legal Status of Cryptocurrencies

China used to be a country known for its massive Bitcoin trading activities and mining businesses. For example, prior to September 2017, over 90% of the Bitcoin trading was denominated in China's official currency, Yuan. However, the Chinese government has recently cracked down all the cryptocurrency related activities -

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[175] "*A cryptocurrency wallet is a software program that ... enable users to send and receive digital currency and monitor their balance.*" at BLOCKGEEKS, Cryptocurrency Wallet Guide: A Step-By-Step Tutorial, https://blockgeeks.com/guides/cryptocurrency-wallet-guide, (last visited Jan. 20, 2019).

[176] JD Alois, *German Federal Ministry of Finance Posts Letter Regarding Taxation of Bitcoin, Virtual Currencies in General*, CROWDFUND INSIDER, (Feb. 28, 2018), https://www.crowdfundinsider.com/2018/02/128954-german-federal-ministry-finance-posts-letter-regarding-taxation-bitcoin-virtual-currencies-general.

[177] JD Alois, *supra* note 179.

[178] JD Alois, *supra* note 179.

including trading, exchanging, mining, and fund raising- and the Yuan denominated cryptocurrency transactions fell below 1%.[179]

China's restrictive approach started with the joint notice published by the People's Bank of China, Ministry of Industry and Information Technology, Bank of China, Securities Regulatory Commission, and Supervision Committee on December 3, 2013.[180] The notice clarified that since Bitcoin is not issued by a monetary authority or does not carry monetary attributes of legality and compulsion, it cannot be considered as real currency. The notice acknowledged that Bitcoin is a specific virtual commodity and people, at their own risk, are free to purchase and sell Bitcoin as the other virtual commodities. However, the notice required financial institutions and payment agencies not to conduct operations involving Bitcoin such as pricing their products or services, register, trade, settle, clear, purchase, or sell Bitcoin, or create Bitcoin related insurance policies.[181] On 1 April 2014, People's Bank of China allegedly ordered financial institutions and payment agencies to close Bitcoin trading accounts in two weeks.[182]

On September 4, 2017, People's Bank of China banned all Initial Coin Offering (ICO) activities and stated that investigations will be initiated against ICOs, crypto exchanges, and other crypto service providers with regards to wide use of

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[179] XINHUA NEWS AGENCY, RMB Bitcoin Trading Falls Below 1 Pct of World Total, http://www.xinhuanet.com/english/2018-07/07/c_137308879.htm (last visited Jan 19, 2019).

[180] Gerry Mullany, *China Restricts Banks' Use of Bitcoin*, NY TIMES, (Dec. 5, 2013), https://www.nytimes.com/2013/12/06/business/international/china-bars-banks-from-using-bitcoin.html.

[181] THE PEOPLE'S BANK OF CHINA, *Notice on the Prevention of Bitcoin Risk* (Dec. 5, 2013), archived at https://perma.cc/S4DN-DXHD.

[182] Chao Deng & Lingling Wei, *China Cracks Down on Bitcoin*, THE WALL STREET JOURNAL, (Apr. 1, 2014), https://www.wsj.com/articles/china-cracks-down-on-bitcoin-1396361492?tesla=y.

cryptocurrencies in money laundering and tax evasion.[183][184] After this ban, Chinese officials summoned executives of cryptocurrency trading platforms for "chats" and ordered them to cease all new customer registration operations immediately and to announce a definite deadline for cease all cryptocurrency related activities.[185] Therefore, Chinese government does not only prohibit financial institutions from conducting cryptocurrency related activities, but also bans all the cryptocurrency related service providers such as wallets, exchanges, and businesses raised funds using initial coin offerings.

Chinese government has also strengthened the controls over the mining activities in China. Leading Group of Internet Financial Risks Remediation of China reportedly ordered local government to cancel preferential policies for Bitcoin mining farms involving favorable electricity prices or any kind of subsidies and to show these farms how to exit the Bitcoin mining business. Local governments are also requested to submit regular reports on Bitcoin mining operations in their jurisdictions. Such strict control over mining activities caused a drastic decline in the number of mining farms in China.[186]

As a result of all these restrictive policies, The People's Bank of China reported that Chinese authorities detected that "88 virtual currency trading platforms and 85

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[183] THE PEOPLE'S BANK OF CHINA, Announcement of the China Insurance Regulatory Commission of the China Banking Regulatory Commission of the Ministry of Industry and Information Technology of the Central Committee of the People's Bank of China on the Prevention of the Risk of Subsidy Issuance (Sep. 4, 2017) http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3374222/index.html (last visited on Jun. 2, 2019).

[184] TECH CRUNCH, *China has banned ICOs* (Sep. 4, 2017), https://tcrn.ch/2HTOrK8.

[185] Laney Zhang, *Regulation of Cryptocurrency: China*, The Library of the U.S. Congress, https://www.loc.gov/law/help/cryptocurrency/china.php#_ftn4 (last visited Jan. 20, 2019).

[186] Zhang, *supra* note 188.

ICO platforms, which have "basically all safely withdrawn from the market."[187] Amid all these developments, The People's Bank of China has also announced that it "has completed trial runs on the algorithms needed for digital currency supply, taking it a step closer to addressing the technological challenges associated with digital currencies" [188] and it adds that as opposed to Bitcoin or other cryptocurrencies, the Chinese official digital currency will be legal tender. [189][190]

In sum, these developments are indications that Chinese government is not willing to share control of the monetary policy by letting private individuals to operate in cryptocurrency space, but willing to invest in new technologies and keep up with the latest advancements.

4.3.5 Japan

4.3.5.1 Legal Status of Cryptocurrencies

Due to the Mt. Gox incident -which was the world's largest crypto exchange before it collapsed after cyber-attacks-, Japan is one of the pioneer nations realizing that cryptocurrencies must be regulated for a secure financial system. The Japanese Financial Action Task Force (the Japanese FATF) published a guidance in June 2015 in which it called virtual currency exchanges to register before the competent authorities.[191]

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[187] Zhang, *supra* note 188.

[188] Wang Yanfei, *PBOC Inches Closer to Digital Currency*, China Daily, www.chinadaily.com.cn/business/2017-10/14/content_33235955.htm (last visited on Jan. 14, 2019).

[189] Yanfei, *supra* note 191.

[190] REUTERS, *Chinese Central Bank Official Reportedly Says Virtual Currency Trade Needs to End* (Jan. 16, 2018), https://www.cnbc.com/2018/01/16/peoples-bank-of-china-virtual-currency-trade-report.html.

[191] Masahiko Ishida & Edward Mears & Ryutaro Takeda, *Japan Regulatory Update on Virtual Currency Business*, DLA PIPER (Dec. 29, 2017), https://bit.ly/2Ms7RDY.

In addition, Japan also amended the Payment Services Act and defined & categorized virtual currencies as suggested by Japan's Financial Services Agency (FSA). Under the amendment, virtual currencies are categorized as Type 1 and Type 2 virtual currencies:[192]

  (i) VC Type 1 is defined as "property value that can be used as payment for the purchase or rental of goods or provision of services by unspecified persons, that can be purchased from or sold to unspecified persons, and that is transferable via an electronic data processing system …"[193]

  (ii) VC Type 2 is defined as "… property value that can be mutually exchangeable for the above property value with unspecified persons and is transferable via an electronic data processing system."[194]

The Payment Services Act also clarifies that virtual currencies may only be stored electronically, and that the Japanese currency, foreign currencies, and Currency-Denominated Assets may not be virtual currencies even if they are electronically stored.[195] Therefore, virtual currencies are not considered as legal tender or official currencies under the Japanese legislation.

According to the Payment Services Act, cryptocurrency exchange businesses may legally operate by registering with an authorized local Finance Bureau. These

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[192] So Saito, *Guidance Note on the Japanese Virtual Currency Legislation and Overview on Registration Requirement thereunder*, SO LAW OFFICE, (Jul. 4, 2017), http://www.so-law.jp/wp-content/uploads/2017/07/Japanese_VC_Act_and_Registration-Overview_170704.pdf.

[193] Sayuri Umeda, *Regulation of Cryptocurrency: Japan*, The Library of the U.S. Congress, https://www.loc.gov/law/help/cryptocurrency/japan.php#_ftn7 (last visited on Jan. 20, 2019).

[194] Umeda, *supra* note 196.

[195] As per Art 2 Para 5 of Japanese Payment Services Act, Japanese Law Translation, www.japaneselawtranslation.go.jp/law/detail/?id=3078&vm=02&re=02

businesses must be established either as a joint stock company or registered as a "foreign cryptocurrency exchange business". In addition, The Payment Services Act requires cryptocurrency exchanges to keep cryptocurrency transaction records and submit annual reports to the Financial Services Agency (FSA). With the Payment Services Act, several regulatory precautions are also set to keep the financial stability in the Japanese financial markets.[196] It is easy to see that Mt Gox incident influenced Japanese law-makers in such a way that their priority is the safety and security of the system.

After such progressive regulatory practices in contrast with China's restrictive practice towards cryptocurrencies, Japanese Yen became the second most popular currency denominating the Bitcoin trading.[197]

4.3.5.2 Tax Treatment of Cryptocurrencies

The National Tax Agency (NTA) published a Q&A paper[198] regarding the taxation of cryptocurrency related events on Dec. 1, 2017. According to the NTA, the profits from cryptocurrency sales are considered as miscellaneous income, not capital gains according to the Income Tax Act. When a person's tax base is calculated for income tax, miscellaneous income is added to the other incomes earned by this person.[199]

Pursuant to the Consumption Tax Act, commercial transfer of assets and provision of services are subject to consumption tax. However, transfer of the prepaid payments is exempt from consumption tax and the virtual currencies under the Payment Systems Act are within the scope of this exemption. Finally, even though

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[196] Umeda, *supra* note 196.
[197] CRYPTOCOMPARE, BTC Volume by Currency,
 https://www.cryptocompare.com/coins/btc/analysis/CNY (last visited on Jan. 20, 2019)
[198] Original document in Japanese is available at https://perma.cc/M22N-53MF.
[199] Umeda, *supra* note 196.

there is no mention of corporate taxation, revenues generated via cryptocurrency related transactions like any other business income will be subject to corporate tax.[200]

4.3.6 Australia

4.3.6.1 Legal Status of Cryptocurrencies

For the proper classification and regulation of cryptocurrencies, a committee of Australian Senate completed their cryptocurrency inquiry in 2015 to assess the risks and opportunities of the digital assets by searching the existing regulatory practices around the world.[201] The Committee Report explicitly states that "Australia … treats digital currencies, such as Bitcoin, as commodities, and transactions using digital currencies as barter transactions."[202] Therefore, Australia akin to United States and Canada treats all the cryptocurrencies as commodities.[203] This approach is also in line with the Australian Taxation Office's view stating that "cryptocurrencies may be considered assets for capital gains tax purposes".[204] Therefore, Australia does not consider cryptocurrencies as a type of currency and classify them as commodity and/or asset.

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[200] Ishida & Mears & Takeda, *supra* note 194.

[201] THE ECONOMICS REFERENCES COMMITTEE OF THE AUSTRALIAN SENATE, Digital Currency - Game Changer or Bit Player, (August 2015), archived at https://perma.cc/9C8Z-L76P.

[202] THE ECONOMICS REFERENCES COMMITTEE OF THE AUSTRALIAN SENATE, *supra* note 197.

[203] Kelly Buchanan, *Regulation of Cryptocurrency: Australia*, The Library of the U.S. Congress, https://bit.ly/2DhlkKT.

[204] Buchanan, *supra* note 206.

4.3.6.2 Tax Treatment of Cryptocurrencies

In August 2014, the Australian Taxation Office (ATO) released a guidance to provide clarification the tax implications for Bitcoin related transactions[205] and it has been constantly updating this working guidance. Today, Australian Taxation Office provides one of the most sophisticated cryptocurrency tax guidelines. It contains three sections: (i) transacting with cryptocurrency, (ii) cryptocurrency used in business, and (iii) record keeping. According to the guideline, when a person exchanges a cryptocurrency for another cryptocurrency, he disposes of one asset and acquire another one. Therefore, the market value of the cryptocurrency he acquires needs to be accounted for and may later be used for capital gain tax basis. [206] When a person holds cryptocurrency as an investment, the capital proceeds from the disposal of the cryptocurrency will be subject to capital gain tax. For long term holding, he may be entitled to capital gain tax discount as for other investments.[207] When a person acquires cryptocurrencies as personal use asset and realize capital gains, cryptocurrencies acquired for less than $10,000 will be disregarded for capital gain tax purposes.[208] Finally, if a hard-fork occurs and holder of the cryptocurrency receives newly created cryptocurrencies (e.g., after the hard fork Bitcoin holders obtained one Bitcoin Cash for every Bitcoin they hold), the person makes a capital gain and the cost base of the asset is zero. Therefore, when the person disposes of the new cryptocurrencies he obtained, the

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[205] Bogdan Ulm, *Australia's Tax Office Releases Bitcoin Guidelines*, COIN TELEGRAPH, (Aug. 20, 2014), https://cointelegraph.com/news/australias-tax-office-releases-bitcoin-guidelines.

[206] THE AUSTRALIAN TAXATION OFFICE, Tax Treatment of Crypto-currencies in Australia - Specifically Bitcoin, 2 https://www.ato.gov.au/misc/downloads/pdf/qc42159.pdf (last modified on Nov. 8, 2018).

[207] THE AUSTRALIAN TAXATION OFFICE, *supra* note 209, at 3.

[208] THE AUSTRALIAN TAXATION OFFICE, *supra* note 209, at 4-5.

entire amount will be subject to capital gains tax. However, for long term holding, the person may be entitled to a capital gain tax discount.[209]

When cryptocurrency related activities are carried on as part of an ordinary business, trading stock rules will apply instead capital gain tax. Cryptocurrency related business activities may be cryptocurrency trading, cryptocurrency mining, and cryptocurrency exchange. For example, cost of incurring cryptocurrencies will be accrued as expense whereas the sale of these cryptocurrencies will be accounted for earnings. Finally, when businesses use cryptocurrencies for business transactions (e.g., buying a new machinery), the transaction will be treated as a barter transaction.[210]

Currently, Australia is very consistent with its assessment on cryptocurrencies and successful in regards with the cryptocurrency related direct taxation. However, he was not very successful on the indirect taxation of cryptocurrencies until recently as it imposed double taxation to businesses that receive cryptocurrencies in exchange for the services they provide. The older version of the guideline required businesses to record the value of all Bitcoin transactions along with their ordinary income. When they received payment in Bitcoin from a user, it was to be included in the ordinary income and when they received payment in Bitcoin for goods or services, this payment was also subject to the Goods and Services Tax (GST). Therefore, when a business received Bitcoin for the service it provided, this payment was, firstly, subject to %10 GST and; in addition, it was also included in the overall income of this business. After the first GST, when the business supply Bitcoin to the user in a different transaction, the business must charge another GST as well. Hence, a potential double GST taxation practice on cryptocurrencies

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[209] THE AUSTRALIAN TAXATION OFFICE, *supra* note 209, at 6.
[210] THE AUSTRALIAN TAXATION OFFICE, *supra* note 209, at 6-8.

occurred. Considering that most of jurisdictions render Bitcoin supply exempt from indirect taxation, the practice of ATO was highly criticized.[211] In fact, one of the largest Bitcoin exchanges in Australia moved to London to avoid double taxation.[212]

Realizing its mistake, Australian government introduced a new legislation, in effect retrospectively from 1 July 2017, lifting the double taxation practice in Australia by eliminating the GST charged on purchases of digital currencies. Therefore, with the new legislation, for the GST purposes, cryptocurrencies are treated the same way as real currency. Such amendment should rather be considered as necessary to maintain the harmony with global taxation practices as the previous practice was driving off cryptocurrency businesses elsewhere. Currently, the Australian taxation practice for business revenues received in cryptocurrencies is in line with other major cryptocurrency friendly jurisdictions.[213]

4.3.7 Turkey

4.3.7.1 Legal Status of Cryptocurrencies

There is no specific law or regulation in Turkey particularly aiming the legal classification of cryptocurrencies. On the other hand, Turkish legislation does not prohibit the use of cryptocurrencies either. Therefore, the cryptocurrency field is mainly unregulated as in many other countries. On the other hand, there are several

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[211] Carlo C., *Australia's Tax Office Guidelines Open Door to Double Taxing, Other Problems*, COIN TELEGRAPH (Aug. 26, 2014), https://cointelegraph.com/news/australias-tax-office-guidelines-open-door-to-double-taxing-other-problems.

[212] Amanda B. Johnson, *CoinJar Relocates to London, Says Goodbye to Australia's Taxes*, COIN TELEGRAPH (Dec. 01, 2014), https://cointelegraph.com/news/coinjar-relocates-to-london-says-goodbye-to-australias-taxes.

[213] THE AUSTRALIAN TREASURY, Press Release: Removing The Double Taxation Of Digital Currency, (Sep. 14, 2017), http://sjm.ministers.treasury.gov.au/media-release/089-2017.

press releases, unofficial studies and academic resources to interpret the status of cryptocurrencies in Turkey. In addition, existing laws may be analyzed and interpreted to determine the true nature of the cryptocurrencies under Turkish laws.

Turkey has adopted the Law on Payment and Securities Reconciliation Systems, Payment Services and Electronic Money Institutions (Law no. 6493) in June 2013 which defines and regulates the electronic payment systems in parallel with the EU's Directive on Payment Services numbered 2007/64/EC[214]. The Law no. 6493 also defines electronic money as "Monetary value which is issued on the receipt of funds by an electronic money issuer, stored electronically, used to make payment transactions defined in this Law and accepted as a payment instrument also by natural and legal persons other than the electronic money issuer".[215] Therefore, Turkish electronic money legislation requires equivalent funds reserved for the electronic money issuance and a registered issuer; however, cryptocurrencies neither meet the reserve requirement nor are issued by a registered electronic money issuer.[216] Therefore, cryptocurrencies may not be classified as electronic money as per Turkish law. Official press release of the Banking Regulation and Supervision Agency of Turkey (Bankacılık Düzenleme ve Denetleme Kurumu or BDDK), the highest authority responsible from banking regulations confirms this interpretation. On November 25, 2013, in its Press Release Number 2013 / 32, the BDDK indicates that Bitcoin may not be classified as electronic money defined under the Law no. 6493 since "there are no guarantees for its collateral and (it is an instrument) which is not issued by any official or private institution".[217] In

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[214] Burcu Tuzcu Ersin & A. Ülkü Solak,, *A Guide To Electronic Payment Regulations In Turkey*, Moroğlu Arseven (26 June 2015), available at https://bit.ly/2CAKhks.

[215] *See also* the official english translation of the Law no. 6493 at https://bit.ly/2sCKPBC.

[216] Fatih Kaplanhan, *Kripto Paranın Türk Mevzuatı Açısından Değerlendirilmesi "Bitcoin Örneği"*, Vergi Sorunları Dergisi Issue 353, 116 (Feb 2018).

[217] BANKING REGULATION AND SUPERVISION AGENCY [BDDK], *Press Release No. 2013/32*, (Nov. 25, 2013),

addition, BDDK also states that none of the virtual currencies similar to Bitcoin is within the scope of the Law no. 6493. Finally, the press release states that the BDDK does not have the authority or regulatory power over Bitcoin and; therefore, warns citizens regarding the potential risks.[218]

According to Article 198 of the Turkish Penal Code, only state-issued securities may be regarded as money[219] and Turkish Grand National Assembly has the power to "to decide to issue currency".[220,221] However, the terms in these laws must be interpreted as legal tender since the letter of these laws aims official currencies of sovereigns, particularly of Turkey. Therefore, Turkish laws do not regulate or explicitly prohibit currencies which are not legal tender such as private currencies, virtual currencies or cryptocurrencies; however, cryptocurrencies are not defined or regulated as electronic money either, which is regulated under Law no.6493.

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https://www.bddk.org.tr/websitesi/english/announcements/press_releases/12585bitcoin_press_release_eng_3.pdf.

[218] BANKING REGULATION AND SUPERVISION AGENCY [BDDK], *supra* note 214.

[219] Article 198 of the Turkish Penal Code states that "*The following assets shall be considered to be money: debentures issued by the State and registered in the name of the bearer; share certificates; bonds and coupons; bills issued and put into circulation by authorized institutions; securities and documents, and gold belonging to the state treasury.*"

[220] Article 87 of the Turkish Constitution states that "*The duties and powers of the Grand National Assembly of Turkey are to enact, amend, and repeal laws; to debate and adopt the budget bills and final accounts bills; to decide to issue currency and declare war; to approve the ratification of international treaties, to decide with the majority of three-fifths of the Grand National Assembly of Turkey to proclaim amnesty and pardon; and to exercise the powers and carry out the duties envisaged in the other articles of the Constitution.*"

[221] Kaplanhan, *supra* note 219, at 115.

According to Article 762 of the Turkish Civil Code, a movable property may either be in physical form or be a controlled natural resource [222] , [223] and since cryptocurrencies may not possibly be immovable property, cryptocurrencies do not meet the requirements to qualify as property and; therefore, as commodity. However, with a legislative act, the cryptocurrencies may be classified as a digital commodity.[224]

In summary, as per the letter of the law and the press release of the BDDK, cryptocurrencies may not be classified as electronic money. In addition, cryptocurrencies may not be legal tender or official currencies since they are not minted by a sovereign. Furthermore, cryptocurrencies cannot be considered as traditional property or commodity because they are neither in physical form nor a natural resource. There are two possible solutions for the legal classification of cryptocurrencies in Turkey: The first solution is, similar to United Kingdom or Germany, to focus on the fundamental features of cryptocurrencies such as unit of account and medium of exchange and treat cryptocurrencies similar to foreign or private currencies. The second solution is to adopt a legislative act defining cryptocurrencies as a property or digital commodity class. The policy makers think more favorable of the second solution.[225] However, without an explicit legislative act, treating cryptocurrencies as property or digital commodity and taxing them accordingly will be in direct conflict with Article 762 of the Turkish Civil Code.

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[222] Article 762 of the Turkish Civil Code in Turkish: "*The subject matter of the movable property is the physical property having the characteristic of mobility and natural resources that are not within the scope of immovable property.*"

[223] Kemal Oğuzman & Özer Seçili & Saibe Oktay-Özdemir, Eşya Hukuku, 735-737 (16th ed. 2013).

[224] Numan Emre Ergin, *Bitcoin'in Vergilendirilmesi*, DUNYA (Dec. 21, 2017), https://www.dunya.com/kose-yazisi/bitcoinin-vergilendirilmesi/395306.

[225] Rahim Ak, *Maliye Bakanlığı, SPK, Merkez Bankası Bitcoin'i gözaltına aldı*, HABERTURK (Dec. 13, 2017), https://bit.ly/2CBk3Os.

4.3.7.2 Tax Treatment of Cryptocurrencies

Although the policy makers seem to lean towards classifying cryptocurrencies as digital commodity, they have yet to make a regulatory act on the legal treatment of the cryptocurrencies and its tax consequences. Therefore, in light of the current legislation, it is only possible to detect the tax consequences of cryptocurrency related taxable events with particular assumptions.

Under Turkish law, in principle, source principle is adopted for classifying an activity as income. According to the source principle, all the economic value generated in an economical operation are considered as income. (i) Business profits, (ii) agricultural profits, (iii) salaries and wages, (iv) incomes from independent personal services, (v) incomes from immovable property and rights (rental income), and (vi) incomes from capital investment are taxed based on source principle. On the other hand, Article 2 of the Income Tax Law also states that "other incomes and earnings" may also be taxed without considering the source of income.[226] Therefore, several taxable events may be identified that are relevant to cryptocurrencies. First of all, receiving cryptocurrencies in exchange for providing goods or services, just as receiving cash, will be considered taxable income. Based on the person's own status and legal framework in which he receives the cryptocurrencies, the income may be (i) business profit where it is received as part of ordinary business activity or (ii) incomes from independent personal services where the person provides a service based on his expertise and personal skills.[227] Secondly, Bitcoin exchanges also provide services within the scope of Income Tax Law no. 193. They act as a facilitator among cryptocurrency buyers and sellers and charge a fee or commission for their services. These fees will be regarded as business profit pursuant to Article 37 the Income Tax Law and will be subject to

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[226] Leyla Ateş, *Bitcoin: Sanal Para ve Vergileme*, Vergi Sorunları Dergisi Issue 304, 136 (May 2014).

[227] Ateş, *supra* note 229, at 136-137.

corporate and income taxation.[228] Finally, earnings from cryptocurrency mining will be regarded as business profit where the mining is performed as part of a regular business. Where commercial cryptocurrency related activities are not performed under an ordinary business organization, they will be regarded as incidental incomes which will still create income tax liability. However, if these activities are also not performed with a commercial purpose, they will not be subject to income tax.[229] In regards with the corporate income tax, Article 1 of the Corporate Income Tax Law no. 5520 refers to the Income Tax Law no. 193 for income definition after defining the corporate taxpayers. Therefore, when cryptocurrency related activities are regarded as taxable income under the Income Tax Law no. 193 and these activities are carried out by the specified entities under Corporate Income Tax Law, corporate tax liability will arise.[230]

Taxation of the capital gains related to cryptocurrencies may only be made after a clearly defined cryptocurrency classification. For instance, when cryptocurrencies are treated similar to foreign currency, the capital gains realized by holding cryptocurrencies will not be regarded as income. On the other hand, if cryptocurrencies are treated as securities, the capital gains will not be considered as income as well since the Income Tax Law does not define it explicitly. If the Income Tax Law is amended and capital gains realized from cryptocurrencies are added as income, capital gains more than TRY14,800.00 (for 2019) will be subject to tax. In addition, if cryptocurrencies are regarded as digital commodities, the capital gains realized will be regarded as profits generated in a sale and purchase activity and will be regarded as taxable income as well.[231] However, without

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[228] Ateş, *supra* note 229, at 137.
[229] Ateş, *supra* note 229, at 138.
[230] Kaplanhan , *supra* note 219, at 118.
[231] Zeki Doğan & Selçuk Buyrukoğlu & Hüseyin Kutbay , *Türkiye'de Bitcoin İşlemlerinin Vergilendirilmesi ve Muhasebeleştirilmesine İlişkin Öneriler*, Vergi Sorunları Dergisi Issue 361, 30-31 (Oct. 2018).

amending the definition of property under the Turkish Civil Code, cryptocurrencies may not be treated as commodities. Therefore, treating cryptocurrencies as commodity and tax the relevant events accordingly without a legislative amendment will not be in compliance with the constitutional legitimacy[232] and prohibition of reasoning by analogy in tax law[233] and; therefore, will be in violation of the no taxation without law (*nullum tributum sine lege[234]*) principle.[235,236]

The Value Added Tax (VAT) Law no. 3065 is the main law for indirect taxation in Turkey. According to Article 1 of the Value Added Tax Law, "liability for VAT arises when a person or entity performs commercial, industrial, agricultural or independent professional activities within Turkey and when goods or services are imported to Turkey."[237] Therefore, all these professional activities will create VAT liability and receiving the cryptocurrency denominated remunerations in exchange for these activities will not affect the liability. On the other hand, VAT liabilities from purchasing cryptocurrencies depends on the legal classification of cryptocurrencies. If cryptocurrencies are regarded as currency, purchasing cryptocurrencies will not create VAT liability whereas if they are regarded as digital commodities, cryptocurrency purchases will be treated as asset purchases and will create VAT liability.[238]

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[232] Billur Yaltı, *Anayasa Mahkemesi'nin Vergi Konulu Kararları Bakımından Geriye Yürümezlik Esası: "Ex Tunc- Ex Nunc- Pro Futuro Etki" Üzerine Değerlendirmeler,* Uluslararası Vergi Hukuku Konferansları Serisi - 1 173, 174 (2016).

[233] Mualla Öncel & Ahmet Kumrulu & Nami Çağan, Vergi Hukuku, 14 (20th ed. 2011).

[234] Maciej Koszowski, *Restrictions on the Use of Analogy in Law*, Liverpool Law Rev 37:137–151, 140 (2016), DOI 10.1007/s10991-016-9186-y.

[235] *Id* at 46.

[236] Yusuf Karakoç, *Anayasal Vergilendirme İlkeleri Üzerine Bir Değerlendirme*, Prof. Dr. Polat Soyer'e Armağan, C. II, Özel Sayı, 1264-1265 (2013).

[237] TURKISH REVENUE ADMINISTRATION, Turkish Taxation System, 19 (2016), available at https://bit.ly/2yzhGsn.

[238] Kaplanhan, *supra* note 219, at 117-118.

5 Tax Treatment of Initial Coin Offerings (ICOs)

5.1 Initial Remarks

One of the novelties that blockchain technology offers in financial industry is Initial Coin Offering (ICO), a new capital raising method mainly used by the blockchain community.[239] Raising capital via initial coin offerings has gained significant popularity for several reasons; however, the most noticeable of them is that initial coin offering (ICO) campaigns allow blockchain start-ups to by-pass the financial institutions and venture capitals that traditionally function as a bridge between individual investors and entrepreneurs. In an initial coin offering, by means of blockchain and smart contract technologies, tech startups do not have to rely on the conviction of the financial middle men (e.g. banks, venture capitals, angel investors, private equities) anymore since ICOs enable direct communication between investors and startup founders. In fact, as a result of the ICO movement, angel investors and venture capitals can also invest in blockchain technologies by purchasing tokens in ICO events along with other individual investors. Therefore, ICOs may be seen as a cryptographic crowd-funding model; yet there are fundamental differences between ICOs and other forms of investment vehicles such as crowd-funding campaigns, IPOs, and bond offerings.[240]

It is important to note that ICO is a method to raise capital by utilizing cryptocurrency tokens or, in some cases, cryptocurrency coins and as a result of a successful ICO campaign, new cryptocurrencies are generated. Therefore, ICO

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[239] *Initial Coin Offering (ICO)*, INVESTOPEDIA.COM, https://www.investopedia.com/terms/i/initial-coin-offering-ico.asp (last visited Feb. 6, 2019).

[240] Ameer Rosic, *What is An Initial Coin Offering? Raising Millions In Seconds*, BLOCK GEEKS, (Mar. 2017), https://blockgeeks.com/guides/initial-coin-offering.

events must be examined separately from the cryptocurrency concept. For instance, not all cryptocurrencies are created with an ICO and Bitcoin is one of these cryptocurrencies created without an ICO. However, all successful ICO campaigns create new cryptocurrency tokens or coins. One of the first and most successful ICO campaigns was carried out in 2014 by Ethereum Foundation. As mentioned in the previous chapters, Ethereum is a platform which enables users to develop smart contracts which may be used in a wide variety of areas and Ethereum Foundation introduced its own coin, Ether (ETH), to be used in Ethereum Platform. Ether sales started in July 2014 and the Ethereum Foundation raised US$18m in 42 days.[241] As of today, hundreds of initial coin offerings (ICOs) have already been concluded and billions of US Dollars have been raised as a result of these ICOs.[242] Some of the well-known ICOs may be listed as (i) Neo (formerly known as Antshares), (ii) Stratis, (iii) EOS, (iv) the DAO which was later hacked and subject to an U.S. SEC investigation, and (v) Next.[243]

There is no uniform regulation on the legal status of tokens as the rights and powers represented by these tokens are not uniform either.[244] In its decision on July 25, 2017, The U.S. Securities and Exchanges Commission (SEC) has ruled that, in some cases, tokens will be regarded as securities.[245] Furthermore, the Guidelines published by the Swiss Financial Market Supervisory Authority (FINMA)[246] and

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[241] Emma Avon, *A Timeline of the Most Successful ICOs*, COINCODEX, (Sep. 2017), https://coincodex.com/article/13/a-timeline-of-the-most-successful-icos.

[242] *ICO Stats*, ICOMARKS.COM, https://icomarks.com/stats?sort=start-asc (last visited Feb. 6, 2019).

[243] Rosic, *supra* note 243.

[244] David J. Shakow, *The Tax Treatment of Tokens: What Does It Betoken?*, University of Pennsylvania Law School 6 (Mar. 8, 2017).

[245] U.S. SECURITIES AND EXCHANGE COMMISSION, *supra* note 156, at 11.

[246] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *FINMA Publishes ICO Guidelines*, (Feb. 16, 2018), https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung.

the Monetary Authority of Singapore (MAS)[247] are also in line with the SEC's ruling. On the other hand, with regards to the tax treatment of tokens, there are even less regulation since most of the early regulatory publications aim to regulate the first generation of cryptocurrencies such as Bitcoin. [248] However, the first-generation cryptocurrencies do not have the same characteristics with tokens issued in an initial coin offering (ICO). Therefore, there is an uncertainty on to what extent previous regulatory pieces are applicable to the tokens issued in an ICO. Therefore, in this Chapter, firstly, the process of launching an initial coin offering will be examined. Later, applicable laws, regulations, investigation reports, and press releases in selected jurisdiction will be evaluated from securities law and tax law perspective to reveal the tax treatment expected to be applied to tokens.

5.2   Launching an Initial Coin Offering

Initial Coin Offerings (ICOs) are mostly unregulated offerings and it was thought that they were not within the jurisdictions of capital markets and taxation authorities. However, this view has been changing as the funds raised with ICOs skyrocketed. [249] Traditionally, an initial coin offering (ICO) starts with the formation of a team of software developers and business entrepreneurs who are pursuing a business solution that enables blockchain technology. This business solution and the structure of tokens are usually defined in a 'white paper' -which is, now, a standard industry practice- published before almost every ICO offering. Therefore, in the white paper, founders explain the problem, the solution and the product, a summary of token implementation, the team, and the token deployment

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[247] MONETARY AUTHORITY OF SINGAPORE, A Guide to Digital Token Offerings, (Nov. 14, 2017), https://bit.ly/2DZxxWV.

[248] THE U.S. INTERNAL REVENUE SERVICE, *Notice 2014-21*, 1 (Mar. 2014).

[249] Oscar Williams-Grut, *Only 48% of ICOs were Successful Last Year — but Startups Still Managed to Raise $5.6 Billion*, BUSINESS INSIDER, (Jan. 31, 2018), http://uk.businessinsider.com/how-much-raised-icos-2017-tokendata-2017-2018-1.

model.[250] In some ICOs, the white paper is accompanied by a yellow paper -a technical paper explaining the cryptic algorithms and token mechanism used in the underlying project- and a detailed business plan -which focuses on the expected market share, expected returns, number of expected customers, marketing techniques, and other relevant business information. However, releasing white papers, yellow papers, and business plans are merely industry practices; therefore, they are not required by law or any government institution, and their enforceability is limited to the extent that general rules of law apply.[251] After formation of the team, development of the product, creation of tokens, and preparation of whitepaper, offering process continues with a token (or coin) sale (a private pre-sale may take place before the actual offering).
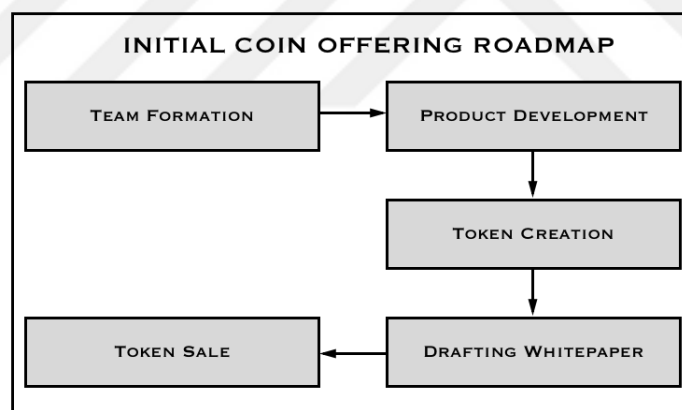
Figure 10: The Roadmap of an Initial Coin Offering

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[250] Andrew J. Chapin, *What to Look for in an ICO White Paper*, HACKERNOON.COM, (Aug. 17, 2017), https://hackernoon.com/what-to-look-for-in-an-ico-white-paper-successful-token-54eba3787139.

[251] Ezequiel Djeredjian, *ICO Checklist: How to Setup a Successful Initial Coin Offering from Idea to Funding*, THE BLOCKCHAIN REVIEW, (Feb. 12, 2018), https://blockchainreview.io/ico-preparation-checklist.

Until recently, the initial coin offerings were launched following the structure in Figure 10. However, some teams started to raise funds before building their products which renders them securities. Therefore, the regulators in different jurisdiction started to express their concern regarding the initial coin offerings (ICOs) and the legal status of the underlying tokens (i.e., whether they are securities).[252] Compliance with securities law has become a desired compliance issue in an ICO campaign. There is a variety of token types and examining them is important from securities law and tax law perspective since some of them are not considered as securities and, therefore, taxed as such while the rest are regarded as securities. Therefore, it is important to identify the legal status of its tokens to successfully classify and interpret an ICO campaign regarding the existing securities and tax law applicability. However, before proposing a model on how to categorize and tax the ICO campaigns and their tokens, the relevant regulatory framework in selected jurisdictions must be analyzed.

5.3 Securities Law and Taxation Practices Around the World

Traditionally capital markets are developed around large economies since the size of a national real economy is a determinant of the size of the capital markets within this jurisdiction. However, with the rise of cryptocurrencies, significance of borders and applicability of domestic laws in financial sector diminished considerably since in an initial coin offering (ICO) token sale, issuers are often located in multiple jurisdictions and they usually sell tokens in all jurisdictions. Therefore, a protectionist regulatory framework will only drive away issuers to more liberal and welcoming jurisdictions.

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[252] Jay Clayton, *supra* note 159.

It is very well-known that some countries have developed a financial system in which capital may flow around with less restriction, less tax, and less bureaucracy such as Switzerland, Singapore, Hong Kong, and many off-shore islands.[253] Although some jurisdictions remain as financial hubs due to their advanced and stable capital market structures, large economies, and abundant financial resources such as the United States, the United Kingdom, and Germany, the former group seems to be prospering with the ICO token sales as much as the latter group. Statistical figures also support such distribution of the ICO activities. According to ICOBench, the top destinations for ICOs are as follows[254]:

Country	#ICOs
The United States	730
Singapore	529
The United Kingdom	467
Russia	328
Estonia	264
Switzerland	254

Figure 11: Number of Initial Coin Offerings by Country

In this chapter, the legal status of the ICO tokens and tax treatment of the ICO token sales in the selected jurisdictions, namely, (i) the United States, (ii) Switzerland,

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[253] Kevin Markle & Leslie Robinson, *Tax Haven Use Across International Tax Regimes,* 49 (June 2012), mba.tuck.dartmouth.edu/pages/faculty/leslie.robinson/docs/MarkleRobinson.pdf.

[254] ICOBENCH.COM, *Stats and Facts*, https://icobench.com/stats (last visited Jan. 27, 2019).

(iii) Singapore, as well the European Union as a supranational organization will be discussed.

5.3.1 The European Union

5.3.1.1 Legal Status of ICO Tokens

In the European Union, there is no uniform specific regulatory framework that may be used for ICO token classification; however, several institutional resources and related EU directives may be useful to understand the applicable framework. With its Statement dated 13 November 2017, the European Securities and Markets Authority, or the ESMA, alerts firms involved in Initial Coin Offerings (ICOs) regarding potential applicability of several directives such as (i) Prospectus Directive ensuring that adequate information is provided to the investors in case of security offerings, (ii) The Markets in Financial Instruments Directive (MiFID) since ICO campaigns often involve placing, dealing in or advising on financial instruments, (iii) The Alternative Investment Fund Managers Directive (AIFMD) if a particular ICO scheme is considered as an alternative investment fund (AIF) (e.g. the famous DAO might very-well be considered as an AIF)[255], and finally, (iv) AML Directives.[256] However, it is important to note that most of these directives are applicable only if the tokens in question are regarded as securities. Therefore, utility tokens which offer access to a particular service may not be within the scope of these directives.

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[255] Council Directive 2011/61, art 4.1(a), 2011 J.O. (L 174) 1.

[256] THE EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA), ESMA Alerts Firms Involved in Initial Coin Offerings (ICOs) to the Need to Meet Relevant Regulatory Requirements, European Securities and Markets Authority no. ESMA50-157-828, (Nov. 13, 2017), https://www.esma.europa.eu/sites/default/files/library/esma50-157-828_ico_statement_firms.pdf.

In the EU context, as anywhere else, there is an ambiguity on how to classify and categorize the crypto tokens. As this area of the technology is at its infancy, it is understandable that supranational organizations such as European Union is cautious and slow on how to regulate cryptocurrencies in general. However, the most important argument taken away from the ESMA Statement is that all ICO tokens should not be painted with the same brush. Instead, a case-by-case approach should be adopted to properly classify and categorize them. On the other hand, it is beneficial to identify some of the possible categories and the tax treatment applicable to them.

5.3.1.2 Tax Treatment of ICO Tokens

Pursuant to ESMA's Statement, some ICO tokens may be regarded as securities and therefore, will be subject to securities tax treatment. Pursuant to 135(1)(f) of the Value Added Tax (VAT) Directive, securities including debenture and stocks are exempt from VAT. Therefore, the tokens which represents ownership, claim right, and in some cases, voting rights may be exempt from the EU VAT as long as token sale is purely made with the intention of raising capital.[257]

On the other hand, utility tokens which offer access to services will be subject to VAT as the payment made is considered as an advance payment to receive services and the advance payment is a taxable event pursuant to Article 65 of the VAT Directive.[258] The standard VAT rates vary between 17% and 27% across the EU member states.[259]

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[257] Alexandra Bal, INTERNATIONAL DEVELOPMENTS IN THE VIRTUAL CURRENCY MARKET, *supra* note 145*,* at 7.

[258] Council Directive 2006/112, art , 2006 J.O. (L 347) 1.

[259] THE EUROPEAN COMMISSION, VAT Rates Applied in the Member States of the European Union (Jan. 2018), https://bit.ly/2h5TGrc.

In addition, security token holders may receive dividends if they hold equity tokens and interest revenue if they hold debenture tokens. These revenues will be subject to withholding tax which varies from country to country within the European Union. In terms of capital gains, it is difficult to generalize the tax treatment since the rates vary considerably. For example, Germany is known for its strict capital gain tax, Abgeltungsteuer, which effectively is at 28% if held for less than a year.[260]

5.3.2 The United States

5.3.2.1 Legal Status of ICO Tokens

The United States has the most advanced securities and financial instruments market and number of ICOs that took place in the United States is more than anywhere else in the world.[261] Therefore, there is a significant effort to create a comprehensive regulatory framework for initial coin offerings (ICOs). Although the U.S Securities and Exchanges Commission did not publish any guidance clarifying the ICOs altogether yet, with its "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: the DAO", the U.S. Securities and Exchange Commission (SEC) sets the standards for ICOs in the United States on July 25, 2017. The investigation was conducted against the DAO, a Decentralized Autonomous Organization created by Slock.it with the objective of functioning as a decentralized venture capital to fund startup projects. Selection process of projects for investment in the DAO was going to be made via a voting process where the number of the DAO tokens a participant holds determined his voting power.[262]

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[260] DELOITTE, *VAT Rates Applied in the Member States* (Feb. 2018), https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-withholding-tax-rates.pdf.

[261] ICOBENCH.COM, *Stats and Facts*, https://icobench.com/stats (last visited Jan. 27, 2019).

[262] U.S. SECURITIES AND EXCHANGE COMMISSION, *supra* note 156, at 11.

1.15 billion DAO Tokens were sold in May 2016 and the DAO was valued at approximately US$150 million. However, before even the DAO started funding projects, hackers were able to use a vulnerability in the system and transferred approximately one third of the funds to their own account.[263] Following this incident the DAO project was shut down and the investigation of the U.S. Securities and Exchange Commission (SEC) came after the termination of the project.

Investigation mainly focused on the legal status of the DAO tokens as to whether they were to be regarded as securities under the U.S. securities laws. The investigation report stressed that pursuant to Section 2(a)(1) of the Securities Act of 1933 and Section 3(a)(10) of the Securities Exchange Act of 1934, a security always involves an investment contract which is decided based on Howey Test, a test formulated in the Supreme Court Decision known as SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946). As per the Howey Test, an investment contract exists if the following requirements are satisfied.[264]: There is/are (i) an investment of money (later broadened to any asset), (ii) expectation of profit from the investment, (iii) an investment made to a common enterprise, and (iv) profits from the efforts of a promoter or a third party.[265]

The SEC has determined that the DAO tokens were securities after applying Howey test to examine whether these tokens constitute securities under the Securities Act of 1933 and the Securities Exchange Act of 1934. In the DAO case, 12 million ETHs (assets) were collected as investment with the expectation of profit derived from the financing activities of the DAO which is considered as a

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[263] U.S. SECURITIES AND EXCHANGE COMMISSION, *supra* note 156, at 11.

[264] SEC v. Howey Co., 328 U.S. 293 (1946).

[265] FINDLAW.COM, *What Is the Howey Test?*, http://consumer.findlaw.com/securities-law/what-is-the-howey-test.html (last visited Feb. 6, 2019).

common enterprise (led by Slock.it) and the profit would have come from the efforts of Slock.it founders as they were the gatekeepers for project selection process and the managers of the fund.[266]

After this report, many blockchain project founders began to add utility functionality to the tokens to be sold in their ICOs to avoid being regarded as offering securities. Adding utility functionality to transform the business idea into a service where tokens allow access to this service while refraining from giving equity, debt, and/or voting rights has become a mainstream method to avoid the SEC investigations. After seeing these practices, the SEC Chairman, Jay Clayton, published a public "Statement on Cryptocurrencies and Initial Coin Offerings" on 11 December 2017. In his statement, Clayton addressed the attempts "to highlight utility characteristics of the proposed ICO tokens to claim that the proposed tokens are not classified securities" and warned ICO issuers to beware that merely calling a token as a utility token does not render it exempt from SEC oversight and from being regarded as a security.[267]

Therefore, the U.S. practice on ICO tokens may be summarized as follows: If a token in an ICO fulfills all the requirements of Howey Test, it will be regarded as security. On the other hand, utility functionality that a token offers -as long as if it does not conflict with Howey test- may render it non-security asset. On the other hand, there is an ambiguity on the utility tokens which also fulfills the Howey Test

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[266] U.S. SECURITIES AND EXCHANGE COMMISSION, *supra* note 156, at 11.

[267] Jay Clayton, *Statement on Cryptocurrencies and Initial Coin Offerings*, U.S. SECURITIES AND EXCHANGE COMISSION, (Dec. 11, 2017), https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11.

requirements and, therefore, this uncertainty seems to worry ICO issuers and drive them away to tax heavens such as Switzerland, Hong Kong, and Singapore.[268]

5.3.2.2 Tax Treatment of Tokens

The fundamental problem regarding the tax treatment of tokens in the United States revolves around the legal status of these tokens. Therefore, tax treatments of the ICO tokens will be separated into two categories: (i) tax treatment of utility tokens, (ii) tax treatment of security tokens.

Tax Treatment of Utility Tokens

Utility tokens grant right to access to an existing / future service such as cloud storage or decentralized e-commerce listing. On the issuer side, this type of token sale might be considered as prepayments for future services. According to the 'earlier of test' ruled by the U.S. Supreme Court, prepayments for services are taxable[269] although the IRS has administratively permitted taxpayers to defer taxes provided that the services in question will be provided in the following fiscal year.[270] Therefore, utility token sales will create sales tax and corporate income tax liabilities either in the fiscal year that the sale took place or the year after. Sales tax in the United States varies between 0% to 9.30%.[271]

Furthermore, some issuers offer redeemable tokens in favor of the holders. Therefore, the holder of these tokens may choose to sell them back to the issuer.

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[268] Kevin Markle & Leslie Robinson, *Tax Haven Use Across International Tax Regimes,* 49 (June 2012),
mba.tuck.dartmouth.edu/pages/faculty/leslie.robinson/docs/MarkleRobinson.pdf.

[269] Schlude v. Commissioner, 372 U.S. 128 (1963)

[270] Shakow, *supra* note 247*,* at 9.

[271] Scott Drenkard & Nicole Kaeding, *State and Local Sales Tax Rates in 2016*, TAX FOUNDATION, Fiscal Facts No. 504, 7 (Mar. 2016)
https://files.taxfoundation.org/legacy/docs/TaxFoundation_FF504.pdf.

However, redemption right does not render these tokens exempt from taxation unless the recipient recognizes the repayment obligation in the year of receipt and provisions are made for repayment transactions.[272] On the other hand, it is very unlikely that there is any example of such ICO tokens with a dedicated repayment fund. Therefore, utility tokens, regardless of existence of the right to be redeemed, will create tax liability as they represent future fees for the services.

Utility tokens may be held for two reasons: (i) as investment and (ii) to receive services in exchange for the purchased tokens. As long as the investor purchases tokens with investment purposes, any profit earned due to the increase in the value of the tokens will create capital gain tax liability. On the other hand, if the investor purchases the tokens to receive services, then the use of these tokens will be treated as deductible expenses whereas the increase in the token value will still create capital gain tax liability.[273]

Tax Treatment of Security Tokens

As mentioned above, some tokens also represent equity, debenture, or voting rights. These tokens may also be designed in a hybrid fashion such as a security-utility token as well as pure equity or debenture tokens. For the hybrid tokens, the explanations made in the above section still remain applicable as part of the final tax treatment. In addition, tax treatment for securities will also apply.

Therefore, purchasing equity tokens may create different tax liabilities in the end. In principle, sale of tokens would be regarded as sale of stocks (or equities). Therefore, while raising capital is not considered as an economic activity and issuers do not incur taxes, when an investor sells these tokens for a higher price

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[272] Shakow, *supra* note 247, at 9.
[273] Shakow, *supra* note 247, at 10.

than he initially paid, this token sale would create capital gain tax liability for the investor. However, rights granted by these tokens must be carefully examined. For instance, if sale of tokens does not change the ownership structure, these tokens may not be considered as equity and the sale of these tokens would be considered as dividend payment if the nature of this sale is essentially a dividend payment.[274] Therefore, the way the equity tokens are structured is crucial to detect the correct tax treatment.

When the tokens are regarded as equity stock, the token issuers must report the dividend payments to the IRS and a withholding tax will be incurred as a result of these payments. According to the tax treatment on stocks in the U.S., the withholding rate is set to %28 when the holder of tokens is not identified whereas the rate is set to %30 when the holder is known to be a non-resident. Therefore, this creates an incentive for issuers to keep their token holders anonymous if most of their investment comes from outside of the United States.[275] Furthermore, when issuers of tokens promise a fixed return, the payments received via these tokens will be considered as interest payments and the tokens will be considered as debt securities. Interest revenues also create withholding tax and income tax liability. On the other hand, regarding the withholding tax, the United States has signed bilateral international treaties with at least 59 countries for the prevention of double taxation of the dividend and interest revenues.[276]

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[274] Shakow, *supra* note 247*,* at 10.
[275] Shakow, *supra* note 247*,* at 10.
[276] THE U.S. INTERNAL REVENUE SERVICE, Table 1: Tax Rates on Income Other Than Personal Service Income Under Chapter 3, Internal Revenue Code, and Income Tax Treaties, 1-5, https://www.irs.gov/pub/irs-utl/Tax_Treaty_Table_1.pdf (last visited on Feb. 6, 2019).

5.3.3 Switzerland

5.3.3.1 Legal Status of ICO Tokens

Switzerland is another country which attracts many blockchain startups due to its progressive fintech ecosystem. The Swiss Financial Market Supervisory Authority (FINMA) released its first guidance (the Guidance no. 04/2017) on Regulatory Treatment of Initial Coin Offerings on 29 September 2017. In this initial guidance, FINMA warns the ICO offerors regarding the potential applicability of Swiss laws and stresses that the entities or individuals planning to launch an ICO must ensure that they are in compliance with the mentioned regulations under the Guidance no. 04/2017.[277]

FINMA also published another guideline (The Guidelines for inquiries regarding the regulatory framework for initial coin offerings) on 16 February 2018. In this guideline, FINMA states that in terms of financial market regulations, there are not specific requirements other than the required by general financial market regulation and FINMA accepts inquiries regarding the legal status of ICOs with a case-by-case basis. As there is not an official legal classification of ICOs and the underlying tokens, FINMA categorizes the ICOs based on the underlying economic function of the tokens.[278]

FINMA recognizes three different token types: (i) payment tokens, (ii) utility tokens, and (iii) asset tokens. As the name suggests, payment tokens are tokens which are only used as a means of payment. According to FINMA, payment tokens

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[277] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *Supra* note 249.
[278] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *Supra* note 249.

does not constitute securities. Utility tokens offer access to a specific service such as distributed storage or app platform. Provided that they only provide access right to a service, these tokens are not considered as securities either. Asset tokens, however, may represent assets such as equity (e.g. stocks), debt (e.g. bonds), or derivative assets along with digital representation of physical assets. Therefore, they are considered as securities.[279]

In addition, a combination of these three types may be offered in an initial coin offering (ICO) and in these circumstances, a cumulative requirement approach will be applied. Finally, investors are offered the prospect to receive tokens in the future after the product is built in some ICO campaigns. FINMA acknowledges these offerings as pre-sale events and considers them as security offerings. According to FINMA, collective investment schemes may only be applicable if the accepted funds are managed by third parties.[280]

Therefore, pre-sale tokens, asset tokens, and the utility tokens with investment purposes are considered as securities whereas payment tokens and pure utility tokens are not considered as securities. Therefore, the initial coin offerings (ICOs) of the former group of tokens are subject to prospectus and registration requirements whereas ICOs of the latter group are not.[281]

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[279] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *Supra* note 249.

[280] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *Supra* note 249.

[281] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *Supra* note 249.

5.3.3.2 Tax Treatment of Tokens

Tax Treatment of Asset Tokens

In some ICO campaigns, the tokens are used to raise funds and in exchange, an ownership right may be given which renders these tokens as security tokens. Therefore, these tokens will be subject to securities regulations for tax purposes as well. As most of the ICO issuers are start-ups launching their first securities offering, this offering will be subject to one-time capital duty of 1% after the first CHF 1 million on the issuer side.[282] On the investor side, any distribution of profits will be subject to Swiss withholding tax at a rate of 35% and dividends paid due to equity tokens will be subject to income tax whereas the increase in stock price will be free of capital gain tax pursuant to Swiss tax regulations. Therefore, the question may arise whether the earnings made due to the sale of equity tokens should be regarded as capital gain or dividend payment. The Swiss Tax Authority, the EStV, along with Swiss judiciary, will be the authority to determine the legal status of the earnings made via token sales on a case-by-case basis.

In addition to equity tokens, security tokens may also be in the form debenture tokens which guarantee a fixed return. Any income derived from debenture tokens such as interest payments or for claim rights will be subject to 35% withholding tax and will be subject to income tax.[283] Finally regardless of their debt, equity, or derivative nature, transfer of securities will incur a securities transfer tax duty at a rate of 0.15% for domestic instruments and %0.30 for non-domestic instruments.[284]

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[282] PRAGER DREIFUSS, *Taxation of Initial Coin Offerings in Switzerland*, 2 (Dec. 2017), https://www.prager-dreifuss.com/wp-content/uploads/2017/12/Tax-Newsletter.pdf.
[283] PRAGER DREIFUSS, *supra* note 285, at 2.
[284] PRAGER DREIFUSS, *supra* note 285, at 2.

Tax Treatment of Utility Tokens

If the issuers are offering tokens in exchange for well-defined services, this token sale will be regarded as pre-sale for these services and therefore, the funds collected will be considered as prepayment of these services. In Switzerland, prepayment for services are subject to VAT at a rate of %7.7 percent.[285][286] In addition, the company that provides token relates services will incur corporate income tax at a rate of between 11% and 24% based on the domicile.[287] On the other hand, if these tokens increase in value, the capital gains realized will remain tax-free in Switzerland except where the investor conducts these operations professionally.[288]

5.3.4 Singapore

5.3.4.1 Legal Status of Tokens

On 1 August 2017, the Monetary Authority of Singapore (MAS) published "A Guide to Digital Token Offerings" in which it clarified its position on initial coin offerings (ICOs).[289] In the Guideline, the MAS warns ICO offerors that if a digital token constitutes a product regulated under the securities laws (namely, the Securities and Futures Act (SFA) and the Financial Advisers Act (FAA)), the offering must comply with the applicable securities law.[290]

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[285] PRAGER DREIFUSS, *supra* note 285, at 2.

[286] SWISS FEDERAL TAX ADMINISTRATION, *Development of VAT Rates*, https://bit.ly/2E4Aqnm (last visited Feb. 6, 2019).

[287] DELOITTE, *International Tax Switzerland Highlights 2017* (2017), https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-switzerlandhighlights-2018.pdf.

[288] PRAGER DREIFUSS, *supra* note 285, at 2.

[289] MONETARY AUTHORITY OF SINGAPORE (MAS), *MAS Clarifies Regulatory Position on the Offer of Digital Tokens In Singapore*, https://bit.ly/2ufgaJ3 (last visited Feb. 6, 2019).

[290] MONETARY AUTHORITY OF SINGAPORE (MAS), A Guide to Digital Token Offerings, 2, (Nov. 14, 2017), https://bit.ly/2DZxxWV.

The MAS further states that a digital token may constitute (i) a share, (ii) a debenture, or (iii) a unit in a collective investment scheme. For a digital token to be regarded as a share, the digital token should represent ownership interest, liability of the token holder, and mutual covenants with other token holders in the corporation. To be regarded as a debenture, digital token should constitute an indebtedness of the ICO issuer for any money lent or to be lent to the issuer by the holder of digital token. Finally, to be regarded as "a unit in a collective investment scheme", digital token must represent rights or interest in a collective investment scheme or an option to acquire such rights or interest. If the digital tokens fall within one of these categories, the ICO token offeror must comply with (i) the offering requirements such as preparing a detailed prospectus and registration with MAS for share and debentures or (ii) authorization and recognition requirements for units in a collective investment scheme.[291]

The Guideline defines several exemptions for Initial Coin Offerings (ICOs). For share and debenture offerings, small offers which does not exceed S$5 million cap, private placement offerings, the offerings only for institutional investors or accredited investors, there are lighter regulatory requirements. In addition, the Guideline also provides details on regulatory framework applicable to the intermediaries who facilitate ICOs such as primary offering platforms, trading platforms (e.g. crypto exchanges), and financial advisors.[292]

Finally, the Guide clarifies the extra territorial jurisdiction of the MAS on ICO offerings and intermediaries. The MAS indicates that even though intermediaries operates outside of Singapore, if MAS believes that the public in Singapore may

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[291] MONETARY AUTHORITY OF SINGAPORE (MAS), *supra* note 293, at 3-4.
[292] MONETARY AUTHORITY OF SINGAPORE (MAS), A Guide to Digital Token Offerings, 5-6.

be affected by an offering, the SFA requirements may still be applied to the ICOs offerings taking place abroad.[293]

The Guideline also provides several examples for the legal status of ICO tokens with different structures. For instance, according to MAS, a digital token enabling sharing and rental of computing power among the users of a platform without giving an equity right does not constitute security or unit in collective investment scheme whereas raising and pooling funds raised in an ICO and using the funds to invest in a portfolio of shares in fintech start-ups constitute a collective investment scheme and; therefore, units issued in this ICO are regarded as securities. Although there are other examples explained in the Guideline, MAS clearly states that each offering should be evaluated separately.

Apart from the detailed Guide to Digital Token Offerings, one of the most innovative solutions that the MAS offers to fintech startups is the Sandbox application. To support innovation in the fintech industry, startups may submit an application in accordance with the sandbox guidelines and MAS may ease the requirements for a period of time so that these startups may experiment their business ideas in a controlled and relaxed environment.[294] With its detailed Guideline and the Sandbox approach, Singapore has been attracting a lot of ICO campaigns and therefore, ranked as one of the top destinations for ICOs in the world.[295]

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[293] MONETARY AUTHORITY OF SINGAPORE (MAS), A Guide to Digital Token Offerings, 4-6.

[294] MONETARY AUTHORITY OF SINGAPORE (MAS), Fintech Regulatory Sandbox Guidelines, 17-18, (Nov. 2016), http://www.mas.gov.sg//media/Smart%20Financial%20Centre/Sandbox/FinTech%20Re gulatory%20Sand box%20Guidelines.pdf.

[295] Shiwen Yap, *Singapore Emerges as Third Largest Global ICO Hub*, DEALSTREETASIA.COM (Nov. 27, 2017), https://www.dealstreetasia.com/stories/singapore-emerges-asia-ico-hub-86574.

5.3.4.2 Tax Treatment of Tokens

Tax Treatment of Utility Tokens

One of the reasons that Singapore has been attracting many ICO token offerors is its favorable tax regime such as absence of capital gains tax.[296] Therefore, any profit coming from the increase in token value will be free of capital gain tax. On the other hand, Singapore is also known for its low goods and services tax (GST) rate which sits at 7% in principle. In addition, international services are subject to 0% GST and even though, each crypto project must be examined separately, there will be certain number of these projects which do not have to charge GST on utility tokens as the utility token sales may be regarded as prepayment for the services.[297, 298]

Tax Treatment of Security Tokens

Regarding the equity tokens, a detailed analysis by the MAS and Inland Revenue Authority of Singapore (IRAS) must be conducted to decide whether the income realized by the holders of equity tokens should be regarded as capital gains or dividend income by examining the ownership structure of the organization that offered ICO tokens. For example, for non-profit organizations, it is hard to establish that equity tokens will grant ownership rights which may require earnings made via these tokens to be regarded as dividend earnings. Currently, Singapore does not have a capital gains tax; therefore, the earnings will not be subject to capital gains tax. On the other hand, the dividends are subject to 0% withholding tax; hence, the

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[296] MONETARY AUTHORITY OF SINGAPORE, *Tax - Capital Gains*, http://www.sgs.gov.sg/The-SGS-Market/Tax.aspx (last visited Feb. 6, 2019).

[297] INLAND REVENUE AUTHORITY OF SINGAPORE, *Providing International Services*, https://bit.ly/2GstG5V (last visited Feb. 6, 2019).

[298] INLAND REVENUE AUTHORITY OF SINGAPORE, List of International Services – An Excerpt of the GST Act (Oct. 1, 2012) https://bit.ly/2WLacz1 (last visited Jun. 2, 2019).

holders will not pay withholding tax and due to the one-tier corporate tax system in Singapore, recipient of the dividends will not pay income tax either.[299][300] According to the one-tier corporate tax system applied in Singapore, corporate income tax rate is at 17% with a partial exemption of the first SDG 300,000 of chargeable income and this tax is the final tax; therefore, the recipients are tax exempt from the dividend earnings.[301] Finally, it is important to add that, although Singapore abolished stamp tax in most transactions, there are certain events where a stamp tax is still applicable and acquisition of stocks and shares is one of them. Therefore, acquisition of stocks and shares will be subject to 0.2% stamp duty.[302]

For the debenture tokens, the treatment is slightly different. Incomes received in the form of interest payments by a non-resident will be subject to 15% withholding tax unless the rate is reduced by a domestic regulation or an international treaty. However, in practice, debenture tokens do not seem to enjoy any reduced rates so far.[303]

5.3.5 Turkey

According to ICOBench, 16 initial coin offering (ICO) campaigns took place in Turkey as of Jan. 28, 2019 and USD$2,282,000 was raised in ICO token sales.[304] However, neither Turkish authorities nor the law makers has yet adopted any policy

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[299] INLAND REVENUE AUTHORITY OF SINGAPORE, *Dividends*, https://bit.ly/2DWQMQg (last visited Feb. 6, 2019).

[300] KPMG, *ASC 740 Income Taxes Summary of Worldwide Taxation of Income and Gains Derived from Listed Securities*, 28 (2017), https://home.kpmg.com/content/dam/kpmg/us/pdf/2017/02/kpmg-asc-740-international-tax-guide.pdf.

[301] DELOITTE, *Taxation and Investment in Singapore 2016 - Reach, Relevance and Reliability,* 9 (2016).

[302] *Id.* at 20.

[303] *Id.* at 17.

[304] ICOBENCH.COM, *Stats and Facts*, https://icobench.com/stats (last visited Jan. 27, 2019).

or legislative act to regulate ICOs and tax them accordingly. On the other hand, the existing laws on securities and taxation may be interpreted to understand the legal treatment of ICO campaigns and the ICO tokens in Turkey.

5.3.5.1 Legal Status of Tokens

Securities are regulated as a subset of negotiable instruments under Turkish laws. Therefore, each security is also regarded as a negotiable instrument[305] whereas not all the negotiable instruments will be regarded as securities. A negotiable instrument must fulfil three prerequisites to be classified as a security under Turkish laws: (i) being a fungible instrument by nature, (ii) being used as an investment vehicle, and (iii) yielding periodically[306]. Furthermore, compared to their U.S. counterparts, Turkish legislators adopted a similar, but slightly narrow, definition for securities. According to the Capital Markets Law no. 6362 of the Turkey, money, cheques, bills of exchange, or promissory notes cannot be regarded as securities. Apart from these exceptions, almost all equity and debt instruments may constitute securities.[307]

In previous chapter, it was mentioned that cryptocurrencies may not be considered as commodities under Turkish laws since the definition of movable property only includes natural resources and physical properties. Since the cryptocurrencies that are solely used as means of payment and units of account -since they cannot be regarded as property or commodity- will be treated similar to foreign currency, they

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[305] Art 645 of the Turkish Commercial Code, "*Negotiable instruments are such instruments that the rights they contain cannot be asserted as well as transferred without the deed.*"

[306] Reha Poroy & Ünal Tekinalp, Kıymetli Evrak Hukuku Esasları, 34 (2010).

[307] Article 3(o) of the Capital Markets Law no. 6362, *"Securities: With the exception of money, cheques, bills of exchange and promissory notes; 1) Shares, other securities similar to shares and depositary receipts related to these shares, 2) Debt instruments or debt instruments based on securitised assets and revenues as well as depository receipts related to these securities"*

may not be treated as securities. This group of cryptocurrencies are usually the first-generation of cryptocurrencies such as Bitcoin and Litecoin.

On the other hand, initial coin offering (ICO) tokens may contain other rights in their nature such as ownership right in a company, right to a claim, or access to a service. Since there is not a guidance published by the Capital Markets Board of Turkey or any other Turkish government institution regarding ICOs, there is not an official classification scheme for different ICO tokens. However, based on the schemes published by American, Swiss and Singaporean Financial Authorities and existing Turkish laws, tokens may be classified in a similar fashion.

When an ICO token only enables access to a service, this transaction may be regarded as a prepayment for the services to be provided under a service agreement. According to Article 394 of the Turkish Law of Obligations, service agreements do not have special form requirements[308] and therefore, may be formed in an ICO as well and any payments to receive this service in future will constitute prepayment for this service. These tokens are named as utility tokens in the industry and are regarded as prepayment for services by US, Swiss, and Singaporean financial authorities as well.

Article 3(o) of the Capital Markets Law no. 6362 states that almost all debt and equity instruments may constitute securities. When tokens offered in an ICO grants ownership rights and the tokens meet the three prerequisites to be classified as securities, the ICO campaign will be subject to securities offering requirements. On the other hand, the Omnibus Bill dated December 5, 2017 and no. 7061

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[308] Article 394 of the Turkish Law of Obligations numbered 6098 reads "A service contract is not bound to a specific form unless a provision is contrary to the law."

amended the Capital Markets Law no. 6362 and introduced the crowdfunding into the Turkish laws. According to Article 4 of the Turkish Capital Markets Law and the Draft Communique on Equity Crowdfunding no. III – 35/A.1[309], the joint stock companies that are incorporated in Turkey or have marketing activities aiming Turkish citizens may start crowdfunding campaign in a registered Turkish crowdsourcing platform and they will be exempt from meeting heavy requirements of securities offerings. Therefore, companies may initiate an ICO offering and may sell tokens with equity rights in a registered crowdfunding platform. Finally, if an ICO token sale does not take place in a registered crowdfunding platform, the ICO token sale will be subject to securities offering requirements such as prospectus requirements. Regardless of the differences in offering requirements, the tokens that grants shareholder rights will be treated equity tokens.

Since the crowdfunding legislation only exempt equity crowdfunding campaigns, debenture tokens that grants a claim right will still be subject to securities regulations. If an ICO token grants a claim right, the offerors will have to meet the debt securities requirements defined under the Capital Markets Law and The Communique on Debt Instruments no. VII-128.8.[310]

Finally, depending on the purpose of underlying coins or tokens, issuers may need to obtain relevant permissions from the Capital Markets Board of Turkey (*Sermaye Piyasası Kurulu* or SPK) and taxation of these financial assets will be pursuant to relevant securities regulation.

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[309] *See also*, the draft communique at https://perma.cc/J6YL-GC3B.
[310] *See also*, The full communique at https://bit.ly/2sTAO34

5.3.5.2 Tax Treatment of Tokens

Tax Treatment of Utility Tokens

Under Turkish law, services may be carries out via several actions such as leasing, performing, processing, creating, manufacturing, repairing, cleaning, preparing, etc.[311] The tokens which grants access to services such as product listing in a platform, cloud storage, or content access will be regarded as utility tokens. Utility tokens may be the subject of several taxable events such as accessing services and making profit from the token value increase. First of all, when the tokens are used for accessing particular services, this transaction will create value added tax liability since providing services create value added tax liability[312] as long as this service is provided in Turkey or the receiver benefits from the service in Turkey.[313] On the service provider side, following the receipt of the tokens which are previously sold, service provider allow the receiver to use the promised service. Since the tokens were initially sold to the receiver, the revenue generated from this activity will be a commercial revenue and will be subject to income tax as long as the activity is continuous.[314] On the other hand, if these services are not provided under a ordinary business organization, the generated revenues will be regarded as incidental incomes and still create income tax liability.[315]

When the value of utility tokens increases, the holders may sell these tokens for a higher price in a cryptocurrency exchange and make profit due to capital gains. Currently, since the current legislation does not allow to classify ICO tokens to be regarded as digital commodity, the profits generated from token value increase will

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[311] Billur Yaltı, Elektronik Ticarette Vergilendirme, 233 (2003).
[312] Nihal Saban, Vergi Hukuku, 397 (8th ed. 2016).
[313] *Id.* at 400.
[314] Öncel & Kumrulu & Çağan, *supra* note 236, at 242-243.
[315] Ateş, *supra* note 229, at 138.

not be subject to capital gains tax since it is not enumerated under Article 80 of the Income Tax Law.[316] On the other hand, if utility tokens are traded professionally as part of ordinary business activities, profits generated in such trading activities will be regarded as commercial income and create personal or corporate income tax liability.[317]

Tax Treatment of Security Tokens

When the security tokens granting equity rights are sold for a higher price compared to the purchasing price, the capital gain will be subject to ordinary income taxation and since the ICO tokens will not be traded in Borsa Istanbul, they will not be subject to withholding rules.[318] On the other hand, if the equity rights of the security tokens are given over a full taxpayer joint stock company and these tokens are held for more than two years, capital gains will not create tax liability pursuant to Repeating Article 80 Paragraph 1 Subparagraph 1 of the Income Tax Law.[319] Dividend payments received by the holder of an equity token will create withholding tax and income tax liability. Regardless of being regarded as full or limited taxpayer, the dividend paying blockchain company must apply 15% withholding to the dividends. In addition, if the blockchain company is a full taxpayer, the half of the dividends distributed will create personal income tax liability if this amount exceeds TRY 34,000.00 until the 2018 year-end (TRY 40,000.00 for the 2019 year-end). Finally, individual taxpayers may deduct the withholding paid from the personal income tax due.[320]

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[316] THE TURKISH REVENUE ADMINISTRATION, Advance Ruling on Whether to Declare Revenues from Foreign Exchange Trading Activities no. 62030549-120[37-2015/826]-13218 (Feb. 17, 2016).

[317] Doğan & Buyrukoğlu & Kutbay, *supra* note 234*,* at 30-31.

[318] Ernst and Young, *Menkul Kıymet Gelirlerinin Vergilendirilmesi*, 2 (2018).

[319] *Id.* at 2.

[320] *Id.* at 2.

Debt instruments are also within the scope of securities pursuant to Turkish law. Therefore, ICO tokens promising interest payments may be regarded as securities and the interest and capital gain revenues generated from debt security tokens may create withholding and income tax liabilities. Regardless of being offered by a full or limited taxpayer, interest revenue from debt security tokens offered in Turkey will be subject to 10% withholding tax at source. If the offering takes place outside of Turkey, the withholding will gradually decrease to 0% based on the token's maturity.[321] If the individual who receives interest revenue is a full taxpayer and the individual's income from securities exceeds TRY 34,000.00 for 2018 (TRY 40,000.00 for 2019), the interest revenue will be included in the ordinary income. However, the withholding paid may be deducted from the personal income tax due.[322] The revenues generated from the value increase of the debt security tokens will not be subject to withholding tax provided that they are not offered via a bank or registered intermediary. However, the value difference and, therefore, the net real profit will create capital gain tax liability. [323]

6. Final Evaluation on the Government Policies on Taxation of Cryptocurrencies and Initial Coin Offerings

Cryptocurrency world has a fast-paced environment where it is rarely possible to predict what will happen next day. A new use-case of blockchain is discovered everyday where ideas are transformed into realities thanks to initial coin offerings (ICOs). Therefore, ICOs appear as the power source of the blockchain ecosystem as they are the financial facilitator of innovation in many different areas. On the other hand, they carry substantial risks that regulators often fail to recognize in

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[321] Ernst and Young, *Menkul Kıymet Gelirlerinin Vergilendirilmesi*, 4 (2018).

[322] *Id.* at 4.

[323] *Id.* at 4.

time. It seems that since the introduction of Ethereum platform, most ICO issuers have been launching token sales -instead of coin sales- by using Ethereum platform, with its Turing complete structure and especially with its ECR20 smart contract[324], which provides a suitable environment for ICOs. On the other hand, ICO issuers may choose to develop their own blockchain and issue coins instead.

As mentioned in the previous chapters, cryptocurrencies may be categorized as coins, cryptocurrencies with their own blockchain and tokens, cryptocurrencies which is built on top of another blockchain. Therefore, coins, in principle, always either function as a means of payment or provide a utility although the nature of this utility may differ. Therefore, we may categorize crypto coins as (i) payment-only crypto coins, (ii) crypto coins with application & platform as proposed in the previous chapters. Since almost all crypto coins either (i) are used as a means of payment or (ii) provide some sort of utility, crypto coins will most likely to be deemed as non-securities, but as currency, financial instrument, utility or commodity. Therefore, for the sake of simplification, with regards to securities regulation, the focus of the governments is on tokens; however, where nature of a coin is in parallel with a particular token, the same regulatory framework will most likely apply to the crypto coins as well.

Compared to crypto coins, a wider variety of cryptocurrencies may be observed in the token side. As mentioned earlier, crypto tokens are not built on top of their own blockchain. Instead, they use the blockchain of another cryptocurrency such as Ethereum, NEO, or Omni.[325] Therefore, as opposed to crypto coins, crypto tokens

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[324] *What is ERC-20 and What Does it Mean for Ethereum?*, INVESTOPEDIA.COM, https://www.investopedia.com/news/what-erc20-and-what-does-it-mean-ethereum (last visited Feb. 6, 2019).

[325] Top 100 Tokens by Market Capitalization, COINMARKETCAP, https://coinmarketcap.com/tokens (last visited at Feb. 6, 2019).

do not naturally offer utility, but utility is usually embedded to them. The types of crypto tokens observed in the industry may be listed as (i) utility tokens including protocol, platform, and application tokens, (ii) security tokens including asset-backed tokens, participation tokens, equity tokens, debenture tokens, and (iii) payment only tokens (i.e. tokens issued with no value proposition other than means of payment).[326]

Utility tokens offer a solution to a real-life problem with its design. However, this solution does not have to be blockchain based. Although in most cases, an application of blockchain is used, only interaction of utility tokens with the blockchain may be to collect capital (i.e. ICO). In addition, the management of these utilities are often centralized by the issuers. As long as they do not represent voting, shareholder, or creditor rights, utility tokens are not considered as securities and, therefore, outside of the authority of the security commissions. The tax treatment of utility tokens will be based on the fact that they are used as a means to receive digital goods or services. Therefore, usage of these tokens will trigger consumption tax liability on the receiver side and income tax liability on the provider side. The moment that these taxes will be incurred may vary depending on the specific regulatory or administrative approach. In addition, any increase in the value of tokens will be considered as capital gains and the corresponding capital gain tax may be due based on the amount a token is held (i.e. different rates apply for short-term and long-term capital gains) and the jurisdiction that the event takes place.

On the other hand, equity tokens which grant ownership rights in a business, participation tokens which grant dividend and/or voting rights, debenture tokens

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[326] Alex Krüger, *An Overview of Cryptocurrencies for the Savvy Investor*, HACKERNOON, (Sep. 22, 2017), https://hackernoon.com/all-you-need-to-know-about-cryptocurrencies-an-overview-for-the-savvy-investor-bdc035b14982.

which grant a fixed repayment right, or the tokens which represent real assets and used for transferring ownership of these real assets in a digital environment are considered as securities. Therefore, they can be grouped as security tokens. As these tokens are considered as securities, they must comply with the securities regulations such as providing prospectus and registering with the securities commissions. Due to recent guidelines and press releases published by the major securities commissions such as the SEC, the FINMA, the ESMA, and the MAS, initial coin offering (ICO) issuers try to add utility features to their tokens to avoid being labeled as securities. However, it is clear that hybrid tokens which possess, both, utility and security token features will be subject to cumulative regulatory oversight of these authorities.[327] In general, the tokens issued as securities will not incur consumption tax as these activities are not regarded as economic activities.[328] However, dividend and interest payments received by the investor will be subject to withholding tax liability. In terms of withholding tax liability, Singapore seems to be the most attractive jurisdiction with 0% for dividend and 15% for interest payments whereas the rates may go up as high as 30% in other jurisdictions. On the other hand, most countries are in bilateral international treaties for prevention of double taxation and therefore, these treaties create a more suitable environment for the international flow of money. Finally, as in utility tokens, the capital gains tax rules will also apply to security tokens as well. With regards to capital gains tax, Singapore, once more, is the most attractive destination among other jurisdictions since capital gains tax does not exist in Singapore.

Finally, payment-only tokens are similar to transaction only crypto coins; however, their usage is usually limited with an industry or business entity. An example to

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[327] THE SWISS FINANCIAL MARKET SUPERVISORY AUTHORITY (FINMA), *supra* note 249.

[328] THE VALUE ADDED TAX COMMITTEE OF EUROPEAN COMMISSION, *Working Paper No. 811*, (Jul. 29, 2014), https://bit.ly/2t3Uxx3.

this category would be casino tokens that may only be used in one or more casinos. As they are used merely as means of payment, they are not considered as securities. They may be considered as commodity, financial instrument, or private money and; therefore, are not subject to securities regulations. In addition, purchasing tokens are exempt from the consumption tax liability pursuant to Working Paper 811 of the EU VAT Commission and in the United States as it is regarded as commodities. However, short-term capital gains would likely to create capital gains tax liability in almost all countries with a few exceptions (e.g. Singapore)[329] whereas the long-term capital gains are exempt from taxation in most jurisdictions. In addition, as previously explained in the crypto coin tax treatment chapter, the economic activities such as receiving goods & services in exchange for payment-only tokens, receiving remuneration as part of an employment contract, or trading professionally with payment-only crypto tokens will still create tax liability in almost all jurisdictions just like when these activities are conducted with legal tender. On the other hand, basic exemptions may render some countries more attractive than the others. For instance, while the United States amended its laws to tax the trading between different cryptocurrencies while in Germany, sales transactions of cryptocurrencies where the period between acquisition and disposal does not exceed one year are exempt from income tax as long as they are not part of daily trading activities.[330]

7 Conclusion

The Internet -as a facilitator of exchange of information- helped the digitalization of the services and improved the communication capabilities for everyone. It has

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[329] MONETARY AUTHORITY OF SINGAPORE, *supra* note 296.
[330] § 23 Abs. 1 Satz 1 Nr. 2 Satz 4 EStG, (available at
https://dejure.org/gesetze/EStG/23.html#Abs1:S1:Nr2:S3).

connected people and brought everyone closer to each other. The Internet also transformed the industries with other accompanying technologies. Traditional industries redefined themselves to remain up-to-date with the latest advancements. With the Internet, electronic payment systems are developed and clearance systems for money transfer became faster than ever. The transformation of financial industry which started with electronic information exchange and online trading has expanded to virtual currencies used in online platforms. With the help of cryptography, the need for central authority was eliminated thanks to powerful cryptographic hash algorithms. Due to possibility of electronic payment systems that do not rely on trust based central structures, people proposed distributed and trustless payment systems (i.e., decentralized virtual currencies, or cryptocurrencies) thanks to blockchain technology. Bitcoin appeared as the first example which may be a rival to legal tender. Today, Bitcoin allows people to receive remuneration for their services, pay their bills at a restaurant, make investment where legal tenders do not offer stability and trust anymore.

The rising popularity and the staggering increase in the value of Bitcoin attracted the attention of regulators with curiosity and caution. Therefore, an effort to regulate and tax Bitcoin related events has started. However, the international and domestic regulatory bodies are not giving a good account of themselves since we even see contradictory regulatory definition of Bitcoin among them. On the state level, states may be divided into three groups based on their approach to cryptocurrencies: (i) The countries that mainly treat cryptocurrencies as property such as United States, Australia, Canada, (ii) the countries that mainly treat cryptocurrencies as a type of currency such as United Kingdom, Germany, Japan, (iii) the countries that prohibits cryptocurrencies and refuse to regulate it such as China. Within the United States, the U.S Internal Revenue Service defines Bitcoin as a property while the U.S. Commodity Futures Trading Commission considers it

a commodity. In addition, Financial Crimes Enforcement Network (FinCEN) treats Bitcoin as a currency. Therefore, we see three different approach towards the same cryptocurrency. Since the intersection of their jurisdictions is not widespread, these conflicting classifications have not caused any major issue yet. However, the regulators must be alarmed. On the international level, the OECD has been following a protectionist approach so far by declaring that Bitcoin may never replace legal tender or by focusing only on how Bitcoin may be used for tax evasion rather than focusing on the possible benefits of cryptocurrencies and blockchain technology. Finally, there are also conflicting declarations among different countries. For instance, the UK Her Majesty's Revenues and Customs treats cryptocurrencies as foreign currency whereas Germany declares that Bitcoin is similar to private money and The European Central Bank states that Bitcoin is a Type-3 virtual currency. Clearly, failure seems to be the common results of these domestic, international, and supranational efforts and it is inevitable that one day conflicting decisions will harm the interests of taxpayers.

There are four possibly policies that may be pursued on regulating cryptocurrencies as they were when regulating digital commerce: (i) Wait-and-see approach, (ii) No new tax approach, (iii) Old is good approach, (iv) international cooperation approach.[331] In this thesis, different state practices were examined to understand the current approach adopted by different countries. Although the applications of the first three approach are visible in country practices, unfortunately, there is a lack of the application of international cooperation approach which is needed the most. To understand the country-neutral nature of cryptocurrencies which may be used at international level, a detailed analysis on the properties of the cryptocurrencies was made for the correct classification and categorization of

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[331] Billur Yaltı, Elektronik Ticarette Vergilendirme, 23 (2003).

cryptocurrencies. If they can be classified properly, taxation of the crypto related events may easily be justified at international level.

Even though most administrative guidance aims to clarify the legal treatment of Bitcoin related events, creation of Bitcoin may be seen as the tip of the iceberg since the blockchain technology keeps changing our lives with novel use-cases. Following Bitcoin, Ethereum Platform made utilization of smart contracts possible. Utilization of smart contracts made self-performing agreements possible and most importantly with this platform, people have become capable of turning their ideas into a reality via blockchain enabled crowdfunding campaigns (i.e., initial coin offerings, or ICOs). Blockchain entrepreneurs are now capable of raising considerable amount of funding to build their projects by collecting liquid cryptocurrencies (e.g., Bitcoin, Ethereum) or official currencies and transferring newly created cryptocurrencies to the investors in exchange. These cryptocurrencies do not share the same features with the previous cryptocurrencies as the main purpose of this generation of cryptocurrencies is not to facilitate payment but to grant access to services or digital assets or to represent particular rights such as ownership or debtor rights. Therefore, considering the failure of the countries to correctly classify and categorize basic cryptocurrencies such as Bitcoin, the ICO tokens will likely to cause more problems for regulators and tax authorities.

On the initial coin offerings (ICO) side, there are several guidelines released by the government authorities which may be deemed partially successful on the classification and categorization of ICOs and the relevant tokens. These authorities often agree on three types of tokens: (i) utility tokens, (ii) security tokens, and (iii) payment only tokens. Utility tokens grant access to a service and therefore, this event is similar to advance payments for services or digital assets. On the other

hand, security tokens may be separated into two or more groups. The tokens granting ownership rights would be considered as equity tokens whereas the tokens granting debtor status to the holder would be considered as debt tokens. Dividend payment and interest payments are both subject to withholding tax where applicable. In addition, any increase in the value of tokens, regardless of their utility or security nature, will result with capital gains tax treatment and depending on the amount and time they were held, different tax rates will be applicable (i.e. different rates for short-term and long-term gains) with a few exceptions (e.g. Singapore).[332] Finally, payment-only tokens are not usually subject to VAT, GST, or Sales tax for exchange purposes and the capital gain tax liability for payment only tokens will only occur where they are treated as property such in the United States and Australia.

While first generation cryptocurrencies (e.g., Bitcoin) and second generation of cryptocurrencies offered in initial coin offerings (ICOs) have made a significant financial impact on global markets, the legislators and officials in Turkey unfortunately fell behind of comparative regulatory efforts since there is not a single legislative act aiming to regulate cryptocurrencies. In addition, government authorities also failed to publish a detailed guideline, unlike Switzerland and Singapore. Finally, except one press release from BDDK, there is not a single official document that cryptocurrency users may receive information. Regarding cryptocurrencies with payment only features, although Turkish officials are planning to declare these cryptocurrencies as commodity, the model taxonomy introduced in the previous chapters clearly shows that cryptocurrencies are currencies; therefore, Turkish policy makers should review their current opinion to declare cryptocurrencies as property. In addition, pursuant to Article 762 of the Turkish Civil Code, cryptocurrencies may not be declared as commodities since

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[332] MONETARY AUTHORITY OF SINGAPORE, *supra* note 296.

they do not have physical existence. Therefore, either Turkish law makers must amend the Article 762 and add digital commodity definition or with an administrative decree, Revenue Administration should declare that cryptocurrencies will be treated as a type of currency. Considering that cumulative market capitalization of Bitcoin, Ether, and XRP which corresponds to %70 of the entire cryptocurrency market, selecting one of these options and taking the necessary actions accordingly will significantly reduce the cryptocurrency related potential tax disputes.

Regarding the ICO campaigns, thanks to the more unified securities regulations around the world, the state level policies are more harmonious, and the problem is easier to tackle. ICO campaigns may be classified as security offerings if the underlying tokens are classified as equity and debt instruments. In addition, the crowdfunding regulations are also applicable to some ICO campaigns as long as they meet the crowdfunding requirements mentioned in the previous chapters. On the other hand, a detailed guideline that clarifies ICO offerings in Turkey would be beneficial both for financial stability and a healthy tax system. Since there are some ICO campaigns already took place in Turkey and there are many cryptocurrency users, the lack of regulation has already been causing both the loss of considerable tax revenue for the government and ambiguity for the cryptocurrency users & ICO offerors. Therefore, regulatory action regarding cryptocurrencies and initial coin offerings in Turkey is crucial.

At global level, as the blockchain technology further develops, the variety of tokens observed in the tech industry will increase. Therefore, looking for a one-fits-all solution seems almost impossible. Although law makers are slowly adapting to this new field, contradicting approaches around the world make it difficult to meet in a common ground globally. Since this technology has a truly global and stateless

nature, the countries must meet under umbrella organizations such as the United Nations, the OECD, and the European Union to create frameworks that most, if not all, countries may agree on. Unfortunately, some of these organizations (e.g. the OECD) have not been taking enough initiative to address the confusion among member states which may ultimately create a safer and stable environment for blockchain ecosystem.

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