FUNDRAISING METHODS WITH BLOCKCHAIN TECHNOLOGY AND APPLICABLE LAWS

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DECLARATION OF ORIGINALITY

I, Seyyit Ömer Özateş certify that

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ABSTRACT

Fundraising Methods with Blockchain Technology

and Applicable Laws

This thesis analyzes and compares conventional fundraising methods such as initial public offerings, crowdfunding, venture capital and angel investors with blockchain-based fundraising methods such as initial coin offerings (ICO), security token offerings (STO) and initial exchange offerings (IEO). It then selects countries where blockchain-based fundraising methods are most actively used and compares the legal approaches and regulations in these countries. While this study is an academic contribution to the literature, it also serves as a professional guide for companies and legislators. The thesis uses literature review and encompassing comparative study of laws as research methods. The research questions: Which blockchain-based fundraising method can be used to replace conventional fundraising methods? What should be done to prepare the legal infrastructure for digital assets? Should new laws be created or can existing laws be applied? The results of the research can be listed as follows: STOs are preferable to IPOs, venture capital and angel investors, equity and lending based crowdfunding as they allow investors to become shareholders in return for their investments and provide the opportunity to borrow like bonds, while ICO can replace donation-based and reward-based crowdfunding, and IEO fulfills the function of intermediary platforms where crowdfunding is conducted. Some countries introduced new regulations, while others adopted regulations under existing laws. Common steps taken by all these countries include digital asset classification, anti-market manipulation, anti-money laundering, anti-terrorist financing requirements, licensing and prospectus compliance.

ÖZET

Blok Zincir Teknolojisi ile Fon Toplama Yöntemleri ve Uygulanan Kanunlar

Bu tezde öncelikle geleneksel fon toplama yöntemlerinden olan halka arzlar, kitle fonlama yöntemleri, girişim sermayesi ve melek yatırımcılar incelenip blok zincir tabanlı fon toplama yöntemlerinden olan "initial coin offering (ICO)", "security token offering (STO)" ve "initial exchange offering (IEO)" ile karşılaştırmaları yapılmıştır. Daha sonra blok zincir teknolojisiyle fon toplama yöntemlerinin en aktif kullanıldığı ülkeler seçilip buralardaki hukuki yaklaşımlar ve düzenlemeler karşılaştırılmıştır. Bu çalışma akademik olarak literatüre katkı sağlamakla birlikte şirketler ve kanun koyucular için de profesyonel bir rehber niteliği de taşımaktadır. Tezde araştırma yöntemi olarak literatür taraması ve kanunların kapsamlı bir şekilde karşılaştırmalı olarak incelenmesi benimsenmiştir. Araştırma soruları; Geleneksel fon toplama yöntemlerinin yerine hangi blok zinciri tabanlı fon toplama yöntemi kullanılabilir? Dijital varlıklara yönelik yasal altyapının hazırlanması için neler yapılmalıdır? Yeni yasalar oluşturulmalı mı yoksa mevcut yasalar dijital varlıklara da uygulanabilir mi? Araştırma sonunda bulunan sonuçlar ise şöyle sıralanabilir; STO, yatırımcılara yatırımları karşılığında hissedar olabilme ve bono ihraç etmiş gibi borçlanma imkanı sağladığından dolayı halka arz, risk sermayesi, melek yatırımcılar, paya ve borçlanmaya dayalı kitle fonlaması yerine tercih edilebilirken, ICO bağış ve ödül tabanlı kitle fonlamasının yerini alabilir, ayrıca IEO ile de kitle fonlamasının yapıldığı aracı platformların işlevi karşılanabilmektedir. Bazı ülkeler dijital varlıklar ve arzları için yeni kanunlar yaparken bazı ülkeler de var olan kanunları kapsamında değerlendirmiştir. Ancak hepsi öncelikle dijital varlıkların

sınıflandırılmasını yapıp lisanslama ve prospektüs yükümlülüklerini belirlemiştir ve bu şartları sağlayan şirketlerin uyması gereken piyasa manipülasyonu, kara para aklama ve terörün finanse edilmesinin önlenmesine yönelik düzenlemeler yapmıştır.

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DEDICATION

This research is dedicated to my parents, Prof. Dr. Mustafa Özateş and, Meryem Özateş, who have always loved me unconditionally, always encouraged me to do academic work and supported me under all circumstances.

It is also dedicated to my lovely wife Merve, who has always been a constant source of support and encouragement through the difficulties of life, and to our beloved son Can, who came into the world when I needed him the most, and who has given me emotions I have never known and energized me with his warm smile.

I would lastly like to dedicate this academic work to my mentor, Mr. Mustafa, who has always supported me, guided me, and reminded me of my purpose.

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ABBREVIATIONS

AML	Anti-Money Laundering
AMLD	Anti-Money Laundering Directive
AMLA	Anti-Money Laundering Act (Switzerland)
AMLO	Anti-Money Laundering Ordinance (Switzerland)
BA	Banking Act (Switzerland)
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Germany)
CASP	Crypto-Asset Service Provider
CDSA	Corruption, Drug Trafficking and Other Serious Crimes (Confiscation of Benefits) Act (Singapore)
CFT	Combating the Financing of Terrorism
CSD	Central Securities Depository
CSDR	Central Securities Depositories Regulation
DAO	Decentralized Autonomous Organization
DeFi	Decentralized Finance
DLT	Distributed Ledger Technology
DORA	Regulation on Digital Operational Resilience for the Financial Sector
EBA	European Banking Authority
EMR	E-Money Regulations (UK)
EmbA	Embargo Act (Switzerland)
ESMA	European Securities and Markets Authority
EU	European Union
EUR	Euro

FAA	Financial Advisers Act (Singapore)
FATF	Financial Action Task Force
FCA	Financial Conduct Authority (UK)
FIT	Financial Instruments Test (Malta)
FinCEN	Financial Crime Enforcement Network
FINMA	Swiss Financial Market Supervisory Authority
FinSA	Financial Services Act (Switzerland)
FinIA	Financial Institutions Act (Switzerland)
FMIA	Financial Market Infrastructure Act (Switzerland)
FSMA	Financial Services and Markets Act (Singapore)
FSMA RAO	Financial Services and Markets Act Regulated Activities Order (UK)
ICO	Initial Coin Offering
IEO	Initial Exchange Offering
IPO	Initial Public Offering
ISA	Investment Services Act (Malta)
ITAS Act	Innovative Technology Arrangements and Services Act (Malta)
KAGB	Kapitalanlagegesetzbuch – German Capital Investment Code
KYC	Know Your Customer
KWG	Gesetz über das Kreditwesen – German Banking Act
MAR	Market Abuse Regulation
MAS	Monetary Authority of Singapore
MDIA	Malta Digital Innovation Authority
MDIA	Malta Digital Innovation Authority Act
MFSA	Malta Financial Services Authority

MiCA	Markets in Crypto-Assets Regulation
MiFID	Markets in Financial Investments Directive
MiFIR	Markets in Financial Instruments Regulation
MLR	Money Laundering, Terrorist Financing and Transfer of Funds Regulations (UK)
MSB	Money Services Business
MSE	Malta Stock Exchange
MTF	Multilateral Trading Facility
NCA	National Competent Authority
OTF	Organized Trading Facility
OECD	The Organisation for Economic Co-operation and Development
PilotR	Regulation on a pilot regime for market infrastructures based on distributed ledger technology
PSA	Payment Services Act (Singapore)
PR	Prospectus Regulation
P2P	Peer-to-peer
PSR	Payments Services Regulations (UK)
SEC	Securities and Exchange Commission (USA)
SFA	Securities and Futures Act (Singapore)
SFR	Settlement Finality Regulation
SME	Small and Medium-Sized Enterprise
SS	Settlement System
SSR	Short Selling Regulation
STO	Security Token Offering

SECO	Swiss State Secretariat for Economic Affairs (Switzerland)
SRO	Self-regulatory organization (Switzerland)
TD	Transparency Directive
TSOFA	Terrorism (Suppression Of Financing) Act (Singapore)
UK	United Kingdom
US	United States of America
USD	United States Dollar
VFA	Virtual Financial Asset
VFAA	Virtual Financial Assets Act (Malta)
ZAG	Zahlungsdiensteaufsichtsgesetz – German Payment Supervision Act

CHAPTER 1

INTRODUCTION

Distributed Ledger Technology (DLT) is a digital ledger where data is not collected in a single center but can be controlled by anyone, meaning it is decentralized. In 2008 Satoshi Nakamoto created the first blockchain based token, which is one application that is a part of DLT, a peer to peer (P2P) monetary system called Bitcoin (Nakamoto, 2008). After the emergence of Bitcoin, DLT increased in popularity. Today, Bitcoin is the best example of DLT and blockchain usage. This database is not managed by a single person or organization, participants can keep a common record of this data. In this way, there is no need for intermediaries or a central authority or a clearinghouse and each participant has a copy of the database. This database can be accessed by anyone however, the data held in this ledger cannot be easily changed. All access and potential changes are transparent. Due to security; any changes to the data requires the consent of 51% of the participants. This however is an almost impossible task. The only other alternative would be for a hacker to access the computers of 51% of participants to make changes. Furthermore, since the data stored in the blockchain is encrypted, personal information of the data owners cannot be accessed unless the data owners declare it (Furnari, 2021a). As a result, blockchain technology is being used to develop more efficient products at lower cost, without intermediaries but with transparency and security. (Ehrentraud et al., 2020)

At the moment there are three prevalent blockchain applications. The one described above is the most widely used public blockchain. However, there are also private blockchains and consortium blockchains. A private blockchain is not accessible

to everyone, and participation in the network requires the approval of the person or organization that manages the blockchain. In consortium blockchains, participants are granted access to the network according to predetermined rules; in this system, not everyone can access the network, but it differs from the private blockchain in that the access rules are determined in advance. Anyone who has the required features is allowed to access the network. (Tevetoğlu, 2021)

With the emergence of Bitcoin in 2009, blockchain technology continues to evolve and expand its place in our lives. The fact that decentralized and transparent structures can be created with blockchain technology appeals to many people. The blockchain that arose after Bitcoin and made the second big revolution is Ethereum. Ethereum technology makes it possible and widespread to create smart contracts (Khan et al., 2021). Smart contracts are computer codes that are deployed in a decentralized manner on a blockchain and automatically executed in response to certain events (Ene, 2020). Smart contracts can fulfill the terms of an agreement between parties without the need for human coordination or intervention. Smart contracts aim to enable faster, cheaper, decentralized, and transparent transactions (Buterin, 2013). However, as they are still being developed, it is not possible to say that they offer all these benefits. Smart contracts are recorded on a blockchain, which allows verification of the contracts. Smart contracts can automatically execute and enforce the contract with the "if-then-else" principle, meaning that the realization of the desired result can be linked to another event (European Insurance and Occupational Pensions Authority, 2021).

The development of blockchain technology and the cryptocurrency ecosystem is attracting the attention of many entrepreneurs. Startups are being founded in many different areas where this technology can be used, especially in finance, insurance, art,

and gaming. Although some of them are successful, a large number of them fail for various reasons. The biggest reason some of them fail is that they do not have enough funding (Ante & Fiedler, 2020a).

Therefore, blockchain entrepreneurs have developed their own system called Initial Coin Offering (ICO), where they can raise investments. In an ICO, companies use smart contracts to send their company's coins to investors in exchange for a certain amount of money. Companies issuing tokens distributed through ICO may grant certain rights to their investors to be used on their own platforms. However, these tokens do not make the investor a shareholder and do not give any management rights. There are no middlemen in ICOs, and it is the cheapest form of fundraising for companies. ICO is the fastest way to raise money from all over the world. There are no strict legal restrictions on the issuance of an ICO, and therefore companies can organize ICOs very quickly, but without control (Fisch, 2019a).

The other collecting financial resources method on blockchain is Security Token Offering (STO). Shares of the company can be sold as security tokens, as well as bonds, company income or even real property owned by the company can be tokenized and sold. In addition, with these tokens, the management rights can be transferred to the investors. Since security tokens use blockchain technology, they are recorded in distributed ledgers in a decentralized way, with this feature, ICO and STO are similar to each other. However, because governments are more willing to regulate STOs, investors believe they are more reliable than ICOs (Maas, 2019a).

Besides ICOs and STOs, there is also a method called Initial Exchange Offering (IEO). For an IEO, companies need an intermediary organization, and it is not possible for companies to sell their own tokens as in ICOs and STOs. Intermediaries first review

the project and make a deal if they think the project can develop and if they think it is not a fraudulent project. After the exchange platforms agree with the companies that want to do IEO, they list and promote the tokens on their platforms. In return, they receive a certain fee and commission. Having intermediaries gives investors confidence, and investors can exchange their tokens for another token at any time (Furnari, 2021a).

The funding methods mentioned above provide various benefits to both issuers and investors and have attracted the interest of parties due to the fact that they have features that conventional funding methods such as public offerings, venture capital, angel investors and crowdfunding do not have. Moreover, digital assets' supply and demand have increased because of the desire to make more profit by taking advantage of the rapid price changes of the distributed tokens. Governments have taken various stances on tokens and their use by companies as a means of raising funds, some ignoring them by doing nothing, some banning them, and others regulating them. Those that regulate seem to have two different attitudes; either they include virtual assets and their offerings within the scope of their existing laws and adapt them accordingly to their existing infrastructure, or they create a new system by enacting special laws. The main objectives of regulators are primarily to protect investors, prevent market manipulation, and prevent money laundering and terrorist financing.

The research questions: Which blockchain-based fundraising method can be used to replace conventional fundraising methods? What should be done to prepare the legal infrastructure for digital assets? Should new laws be created or can existing laws be applied?

The aim of this master's thesis is to provide detailed information about blockchain-based fundraising methods along with conventional fundraising methods,

explain and compare the laws of selected countries that regulate tokens and their offerings. Publish an academic resource to guide entrepreneurs who want to raise funds, investors who want to invest in these assets, and legislators of countries that want to regulate but have not yet done so.

Two different research methods were used in the preparation of this thesis. Firstly, a detailed literature review was conducted by analyzing scientific studies, articles, and reports on the subject. In addition, the reports of the competent authorities of the countries, relevant non-governmental organizations and reliable companies in the sector were examined and the necessary explanations related to the thesis were made and the topics were classified. Secondly, comparative legal research was conducted on observational data comprised of laws and regulations of countries that regulate tokens and blockchain-based funding methods. This descriptive qualitative study provides a detailed review of current legal practices in the US, the UK, Switzerland, Singapore and the EU, where blockchain funding methods are most widely used. It also examines the laws of Germany and Malta, EU member states that have taken completely different legal approaches. Two articles were used to select the countries covered in this study where regulations have been examined.

The first article used is “The Geography of Initial Coin Offerings” by Winifred Huang, Michele Meoli, Silvio Vismara. In this article, several factors that influence digital entrepreneurship activities across countries are identified and their impact is examined. These factors include the financial system development, the development of information and communication technologies (ICT), the expansion of crowdfunding platforms, the regulatory status of ICOs, and the tax structure. In conducting this study, the researchers first examined the ICOs available on the Internet, relying heavily on

ICObench.com. Initially, they collected information on 1,012 ICOs. They then verified the accuracy of the information obtained from coinmarketcap.com, cointrends.top, coinschedule.com, cryptoslate.com, icodrops.com, tokendata.io and tokenmarket.net. As a result of this review, 81 ICOs that did not match or did not have country information were removed from the list. Afterwhich, 16 more ICOs prior to 2017 were removed from the list. This left us with 915 ICOs covering 73 countries that were completed between January 1, 2017, and March 31, 2018. As shown in Appendix A, the United States, Russia, the United Kingdom, Singapore, and Switzerland are the top 5 countries with the highest number of ICOs based on the sample. The total number of ICOs in EU countries is also noteworthy (Huang et al., 2020).

The second article used is "Security Token Offerings" by Thomas Lambert, Daniel Liebau, and Peter Roosenboom. This study examines factors believed to influence the success of STOs, including voting and cash flow rights granted to investors, characteristics of the issuing company, and characteristics of the token offering. The study is based on proprietary data obtained from Digital Asset Network as of December 31, 2019. This data was supplemented with confirmed STOs from BlockState, Cointelligence, Coinlist, Coinspeaker, Cryptodaily, Cryptoslate, DAS Finance, STOAnalytics, STOCheck, STOWise and TokenMarket. A total of 280 STOs were received from these sources, but after reviewing their whitepapers and conducting detailed research, it was determined that 86 of them were utility tokens and not securities tokens that had been organized as STOs to avoid the legal uncertainty of ICOs and these 86 offerings removed from the list. In addition, 9 offerings were identified as stable coins and 2 offerings were identified as traditional offerings and therefore were delisted. 2 STOs that were not completed before December 31, 2020, and 57 STOs were also

delisted due to insufficient data. As a result, the study was completed with 124 STOs organized between April 2017 and December 2019. According to the available data, as shown in Appendix B, the United States, the United Kingdom, the Cayman Islands and Switzerland had the most STOs. They were followed by Singapore, Germany, Liechtenstein and Estonia all had the same number of STOs. However, the total number of EU countries is also noteworthy (Lambert et al., 2021).

As seen in both studies, the US, the UK, Switzerland, Singapore and the EU are the preferred countries for raising funds with blockchain technology. Another reason for studying the EU is the enactment of new and specific laws for digital assets and their offerings. Among the EU countries, Germany was chosen because it is the most economically and financially important country in the EU. Malta, on the other hand, is worth studying because it is the first country to regulate tokens and their offerings.

This thesis consists of five chapters; Chapter 1 is an introduction in which the main topic is introduced. Chapter 2 covers conventional fundraising methods which consist of an introduction and explanation of initial public offering, venture capital, angel investor and crowdfunding. Chapter 3 explains the use of blockchain technology in fundraising which provides an overview of tokens, followed by the concept of tokenization and its application areas, and finally, blockchain-based fundraising methods. Chapter 4 details legal framework of blockchain based fundraising which discusses laws adopted by the US, the UK, EU, Germany, Malta, Switzerland and Singapore in relation to tokens and their offerings. Chapter 5 concludes with a discussion of all findings.

CHAPTER 2

CONVENTIONAL FUNDRAISING METHODS

2.1 Initial public offering

Companies looking to expand their business or in need of cash must first decide whether to proceed with debt financing or equity financing. Both methods have pros and cons that need to be evaluated on a company-by-company basis. For companies that choose equity financing, the most basic method is a public offering of shares. A predetermined number and type of shares are offered for sale at a predetermined price to raise funds (Honjo, 2021).

Becoming public is a very important and big step for companies, and it is not an easy process. Simply put; for a company to go public, it must first meet the criteria established in the securities laws of the countries where the shares will be offered for sale and apply for registration. The application must be accompanied by documents and information required by the competent authorities of each country. Following the application, if the company is approved to offer its shares to the public, the company sells its shares through intermediary institutions and banks (Zattoni & Judge, 2012).

The main benefits of a well-managed IPO are that it provides the company with the capital it needs, helps it achieve its growth objectives and enhances the company's reputation. IPOs make companies transparent and institutionalized, and buying and selling of shares increases the company's visibility (Pagano & Panetta, 1998).

The drawbacks of IPOs are that they are costly and time-consuming due to strict regulation of countries' securities laws. Another disadvantage is the need to disclose certain information that may hinder the commercial competitiveness of the companies

(Chemmanur et al., 2008). Lastly, if voting rights are given to the investor along with the shares distributed, there is a possibility that the management and decision making of the company may change to the detriment of the former shareholders.

2.2 Venture capital and angel investor

For start-up or emerging companies, getting the investment they need is the most important condition for their survival. For this reason, they try to raise money they need by borrowing and/or raising funds in exchange for equity. Angel investors and venture capital funds are the first choice for companies seeking investors in exchange for their shares. In addition to these, crowdfunding, which will be discussed in the next section, is becoming more popular, but it differs from angel investors and venture capital in several aspects (Drover et al., 2017).

Angel investors are typically wealthy individuals who invest their personal wealth in startups. Angel investors become shareholders by investing in the early stages of companies whose projects they like. They invest for the long term and have high profit expectations. Angel investors do not get too involved in the management of the companies they invest in, but they do mentor and guide the investee companies and do not hesitate to use their existing connections to help the company grow (OECD, 2011).

Venture capital funds, on the other hand, are usually professionally managed and the money invested may belong to a group of people, a foundation or a company. In most cases, they do not invest in the early stages of a company, as angel investors do, but rather when the company is more developed and has demonstrated high potential. In return for their investment, they become shareholders like angel investors, but they are more active in the management of these companies, and in some cases, they want to take

over management completely. While they want to see the companies they invest in become more institutionalized, they do not think long term like angel investors do, they want to get the company to their desired level as quickly as possible and sell it or take it public. Their profit expectations are not as high as angel investors, but the amount they invest is much higher than angel investors (Davila et al., 2003).

The mentorship, experience and connections of the investors can be used to a great advantage in these methods. Furthermore, the other benefit of startups is that if the company goes bankrupt, the investors do not ask for their money back, but instead if cash is raised through debt financing, the company has to pay it back. The disadvantages of these methods are that a small group of people or companies invest as angel investors and venture capitalists. And these investors tend to invest in companies that are geopolitically close to them.

2.3 Crowdfunding

Crowdfunding is a recently developed method of raising capital that differs from traditional methods in that funds are solicited via digital platforms. It has become increasingly popular over the last fifteen years (Mollick, 2014). According to European Securities and Markets Authority (ESMA), crowdfunding is a means by which entrepreneurs present their projects on an internet-based platform to raise capital usually from non-professional investors (ESMA, 2014b). Crowdfunding methods can generally be divided into four categories. Donation-based, lending-based, reward-based, and equity-based crowdfunding (Griffin, 2012).

Donation-based crowdfunding, the funder donates to the project, which means the funder does not expect any return or gain. This method is often used for arts and

humanitarian projects. Lending-based crowdfunding, the funder essentially loans money to the entrepreneurs, therefore there is an expectation of repayment and interest earning income. In reward-based crowdfunding, funders have no financial expectation, they are eligible to receive a set reward in return for their funds. These rewards can be in the form of receiving a promotional product or service (Block et al., 2021).

Lastly, equity-based crowdfunding allows funders to invest in the company in exchange for shares and dividends. There are strict regulations that govern equity crowdfunding. It is important to note that equity-based crowdfunding can only fund companies, while the other three crowdfunding methods can fund both companies and individuals (Cumming et al., 2021). Furthermore, while the other crowdfunding methods can be accessed by anyone, equity-based crowdfunding can only be accessed by accredited investors. Even if there is no accreditation requirement, there may be some restrictions on fund holders, which will be determined by the laws of the relevant state (Cumming et al., 2018).

The central aim of crowdfunding is to provide inventors and innovative entrepreneurs direct contact with people who usually do not invest i.e., the 'crowd'. They are able to raise funds and avoid dealing with banks or other traditional investment avenues (Schwienbacher & Larralde, 2010). But crowdfunding can also be used for purposes other than raising money. In particular, crowdfunding can be used to prove to potential investors that a product is in demand and to attract investment. In addition, crowdfunding can also be used to market the actual product through various awards (Mollick, 2014).

However, it is crucial that the project being crowdfunded should not be too complex and should be explained in a simple way. In general, the crowd does not have

enough experience to perform a detailed analysis (Cumming et al., 2019). Therefore, it can be argued that innovative and complex projects receive less investment in crowdfunding than traditional and simple projects (Chan & Parhankangas, 2017).

CHAPTER 3

THE USE OF BLOCKCHAIN TECHNOLOGY IN FUNDRAISING

3.1 General information about tokens

Tokens are instruments that allow the holder to claim a share, a permit, or a right. In terms of crypto-assets, tokens are digital assets issued on a blockchain network. Therefore, they are issued in a decentralized manner, within the rules of distributed ledger technology. The main difference between tokens and coins is that they do not have separate blockchain. Tokens are generated using the blockchains of coins, but it is not possible to issue other tokens on blockchains that do not have smart contracts or programmability, such as Bitcoin. The first and most widespread coin to offer this possibility is Ethereum. Many companies have used the Ethereum blockchain network to issue tokens for various purposes, and over time, other blockchain networks have emerged to provide the same opportunity (Balkan, 2021).

Tokens can serve many different purposes and have a wide range of applications. The types of tokens are generally divided into three main groups, although there are also hybrid instruments. These are security tokens, payment tokens and utility tokens, and the main commonality between them is that they are all digital assets issued on distributed ledgers (FINMA, 2018).

(1) Payment tokens: Payment tokens are used as a means of payment in a blockchain-based ecosystem and have no other function. Payments can be easily made with payment tokens as the equivalent of cash. Payment tokens are usually issued via Initial Coin Offering (ICO) in the early stages of a project. These tokens are not subject to securities laws in most jurisdictions because they are a means of payment and are

generally covered by banking and payment services laws. Payment tokens can be purchased wherever the use of digital assets as cash equivalents is not prohibited (Lambert et al., 2021)

(2) Utility tokens: Utility tokens are tokens that can be used in their own projects and give the holder the right to consume a product or service, aiming to support and develop the project to which they are issued (Catalini & Gans, 2019). These tokens, called utility tokens, provide their holders with the right and opportunity to use and benefit from a particular product or service. They are not securities, capital markets or payment instruments (Howell et al., 2020). Utility tokens are not purchased for profit, they are purchased to be used in the ecosystem in which they are issued and to benefit from the rights they provide to their holders. Utility tokens are typically issued by non-profit organizations through ICOs before or during the development of the product or service to be delivered. Utility tokens do not fall under the securities or banking laws of most jurisdictions, so they can be purchased in many countries. Utility tokens are theoretically subject to consumer and tax laws (Lambert et al., 2021).

(3) Security tokens (or asset tokens): Tokens that function similarly to traditional financial instruments such as stocks, bonds, or derivatives. A security token may be a tokenized version of a conventional security instrument, or it may be a new investment product that can be tokenized using blockchain technology, which governments may interpret as a security, even if not in their laws. Thus, security tokens are subject to the securities laws of each country. Company shares can be sold as security tokens, as well as bonds, company revenues and even real estate owned by the company can be tokenized and sold. In addition, with these tokens, not only economic rights can be transferred but also management rights can be shared with investors and voting rights

can be given to them. Both investors and issuers of a security token have profit expectations. Issuers are usually companies and aim to make money for themselves and their investors. The value of security tokens varies depending on the value and activities of the company. Security tokens are usually created by an Security Token Offering (STO) using blockchain technology and these tokens usually issued by startup companies when the legal processes are completed. However, some older companies may issue security tokens later to raise capital (Deloitte, 2020).

3.2 Tokenization

Blockchain and other distributed ledger technologies (DLTs) are revolutionizing financial markets by facilitating the exchange of value without requiring an established central organization such as a government, bank or other intermediary (OECD, 2019). One of the most prevalent uses of DLTs in financial markets is tokenization of assets, where both tangible and intangible assets are represented digitally on a distributed ledger. The process of asset tokenization involves the creation of digital tokens that represent real assets issued on the blockchain. The idea of asset tokenization is that any real asset can be stored on a blockchain, including stocks, bonds, real estate, commodities, and even intellectual property rights (Hileman & Rauchs, 2017). Also, financial institutions are increasingly exploring and showing interest in tokenizing real-world assets, with some even issuing digital bonds. The reason for this interest is that much of the world's wealth is invested in illiquid assets, and financial institutions are looking to capitalize on this trend. In addition, one study of the tokenization market estimates that it will grow to $16.1 trillion by 2030 (Kumar et al., 2022). Another study estimates that it will reach $24 trillion by 2027 (Deloitte, 2023). This has the potential to

change many aspects of how the financial industry works, from the way people invest to how regulators manage the market (OECD, 2020).

Asset tokenization has many benefits, such as automation and disintermediation which accelerate efficiency by providing faster and low cost transactions. It also ensures transparency, improves liquidity potential, and betters the tradability of illiquid assets (OECD, 2021).

Fractional ownership is made available through asset tokenization. It lessens obstacles to investments. It also promotes inclusive access by retail investors, high priced or insufficiently divisive asset classes are more accessible. Accessibility of funding is increased with asset tokenization, it facilitates the availability of private financing from investors to small and medium sized enterprises (SMEs) (Deloitte, 2018).

However, using DLTs in tokenized markets can be risky and challenging because the business models, processes and technology are still new. For instance, there may be operational problems like scalability due to the large amount of transactions in global financial markets. Also, there may be uncertainty in settlement finality, which means that payment instructions may not be absolute and binding. Additionally, there may be difficulties in connecting different networks to ensure interconnectability infrastructures. There are a number of issues to consider such as the compatibility of DLT-based systems with existing infrastructure, network consistency, strength of the market, and potential threats by hackers. These risks are worsened by ongoing advances in the fields of quantum computing and cryptography, these advances could lead to compromises in the DLT systems (OECD, 2020).

Regulating and assigning accountability to DLT networks can make it challenging to identify sole owner and node responsibility due to inability to identify

single account point. This is the downside to the governance of entirely decentralized ledgers. Many countries have yet to clearly establish the legal status of smart contracts. Therefore, these contracts are unenforceable. This lack of clarity increases the concern for financial consumer protection. Code auditing and permission to alter the code are also concerns (Nassr, 2021).

There are concerns surrounding money laundering and the financing of terrorism within the blockchain system. There are also questions about protection of data and privacy, such as how digital IDs are handled, where data is stored, and how it is used. All these issues are vital especially in markets that use public permissionless networks and tokens (OECD, 2020).

In conclusion, while the potential benefits of DLTs and smart contracts in asset tokenization are significant, there are also a number of risks and challenges that must be addressed. Tokenization is a relatively new concept, and there is still much to be learned about the best practices for implementing it effectively and safely. It is important for regulators and market participants to work together to ensure that the risks are managed effectively, and that the potential benefits can be fully realized.

3.3 Blockchain-based funding methods

3.3.1 Initial coin offering

Although startups and small and medium-sized enterprises (SMEs) far outnumber large corporations, their growth potential is often limited due to difficulties accessing capital markets and adequate funding (Carpenter & Petersen, 2002). Initial coin offerings (ICOs), the first of which used blockchain technology was the Mastercoin project in

2013, have created new opportunities for companies that have difficulty accessing capital. The number of projects organizing ICO and the amount of money raised by these companies increased day by day, and between 2013 and 2019, approximately 1500 companies raised over $28 billion in funds (Maas, 2019a). ICOs allow entrepreneurs to raise funds in a cheaper and more flexible regulated way than conventional funding methods (OECD, 2019). Companies give the utility or payment tokens they create to their investors in proportion to their investment and the price of the coins distributed with the ICO depends entirely on supply and demand. Purchasers of these tokens, which are not considered securities under state securities laws, are legally recognized as donors, not investors. This allows ICOs to be subject to more flexible and relaxed legal obligations (Howell et al., 2020). The downside of unregulated ICOs is that scammers, taking advantage of the lack of government control and regulation, have used this method to collect millions of dollars from people for their projects that do not exist or are not worth investing in. In return for the money they have collected, they have distributed their coins, which are worthless or cannot be valued in the future (Chohan, 2017). In addition, some investors and governments associate tokens and coins with crimes such as fraud, money laundering, hacking, or theft. As a result, companies' approach ICOs with suspicion (Ante & Fiedler, 2020b).

However, ICOs may not be suitable for every company or project. While decentralized projects or companies using blockchain technology can benefit greatly from ICOs, they are often not suitable for regular businesses. Furthermore, since the token created in an ICO cannot be used outside of the project and does not give the investor any ownership or dividend rights, therefore the desired amount may not be raised for every company (Fisch, 2019b).

3.3.2 Security token offering

Security Token Offerings (STOs), organized using blockchain technology, offer different opportunities than conventional fundraising methods for companies looking to raise capital from external sources. The main purpose of STOs is to raise money from investors in exchange for the transfer of shares or other financial instruments such as IPOs and ECFs, but tokenized securities have four main advantages over traditional securities. First, these tokens can be sold or exchanged for another token or coin on secondary markets 24/7. Second, tokenized securities can be cleared and settled quickly and instantly. Third, these tokens can be stored privately in investors' personal accounts without the need for intermediaries. Lastly, because security tokens are created using blockchain technology, all transactions are recorded transparently but encrypted (Lambert et al., 2021). In addition, as countries regulate security token offerings and new developments emerge, STOs are likely to grow as an alternative to IPOs, equity crowdfunding, and private equity to fund startups and small and medium-sized businesses (Ante & Fiedler, 2020b).

As mentioned in the first paragraph, creating and selling security tokens is one of the ways to raise funds through blockchain technology, but it is important to note that security tokens are recognized as securities by countries and are subject to the securities laws and regulations of the country in which they are issued, and this is one of the most important features that distinguishes STOs from ICOs. STOs have emerged over time and out of necessity as an evolved version of ICOs to fulfill needs that ICOs could not. While STO investors gain certain rights with the tokens they purchase, ICO investors have limited rights and can be considered more like donors. For this reason, STOs are not a subspecies of ICOs, but a more advanced blockchain-based fundraising method

(Deloitte, 2020). Additionally, the price of the tokens distributed with the ICO depends entirely on supply and demand, while the tokens distributed with the STO vary according to the value and activities of the company.

The efforts of countries to regulate security tokens, the daily improvement of the technological infrastructure and the listing of these products by secondary markets show that STOs will continue to develop. Tokens have the ability to represent all kinds of things due to their structure. Thus, companies can tokenize many things such as shares, profits, debts, and receivables as securities. Also, security tokens can also be used as payment tokens or utility tokens. This greatly expands the target audience of the security token issuer (Maas, 2019b).

3.3.3 Initial exchange offering

Initial Exchange Offering can be defined as an ICO or STO conducted by platforms (cryptocurrency exchanges) that allow customers to purchase tokens with fiat currency or use tokens to conduct trading activities. Cryptocurrency exchanges provide liquidity to the issuing company by facilitating the buying and selling of the issued tokens. IEO differs from ICO and STO in that cryptocurrency exchanges act as intermediaries between investors and the companies issuing the tokens (Deloitte, 2020). Cryptocurrency exchanges are similar to crowdfunding platforms in that they promote tokens and issuers. Since investors can quickly buy and sell various investment instruments on these platforms, they have many members. Having ready investors also provides a great advantage to companies that want to issue tokens. Investors also have more confidence in the products offered on cryptocurrency exchanges because

cryptocurrency exchanges do their research before the investor to determine whether the tokens were issued for fraud to avoid damage to their reputation. In addition, cryptocurrency exchanges provide technical and legal support to issuers whose tokens they wish to list. Issuers even transfer some of their legal obligations such as Know Your Customer (KYC) or Anti Money Laundering (AML) obligations to cryptocurrency exchanges (Furnari, 2021b).

CHAPTER 4

LEGAL FRAMEWORK OF DIGITAL ASSETS AND BLOCKCHAIN BASED FUNDRAISING

4.1 The USA

There are no specific laws governing cryptoassets in the United States. Therefore, the first step in applying financial regulations and laws is to classify crypto assets as securities or commodities. If the asset is defined as a commodity, it is regulated under the Commodity Exchange Act of 1936 (CEA) and the regulations thereunder administered by the Commodity Futures Trading Commission (CFTC). However, if the asset is defined as a security, the issuance, trading and broker-dealers and intermediary platforms are governed by the Securities Act of 1933 and the Securities Exchange Act of 1934. The SEC is the authorized and responsible authority under these laws. However, if the asset being examined is not a security, commodity or derivative thereof, it is excluded from the scope of the above laws (Scott et al., 2023).

In 2015, in a case against Coinflip, the CFTC for the first time classified virtual currencies such as bitcoin, ether and litecoin as commodities under the CEA because their function is as a medium of exchange or store of value and they are not legal tender (*CFTC, In the Matter of: Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan*, 2015). The CFTC later reiterated this position in 2016, stating that bitcoin and other virtual currencies are commodities and therefore subject to the CEA (*BFXNA Inc. D/b/a Bitfinex*, 2016). In 2018, the federal court in McDonnell v. CFTC adopted the CFTC's view that virtual currencies are commodities. The classification of cryptocurrencies as commodities brings them within the CFTC's broad enforcement and rulemaking

authority, but it should be noted that the CFTC's authority over commodity spot markets is limited to the enforcement of anti-fraud and market manipulation rules. That is, it does not require cryptocurrency trading platforms to register with the CFTC, and it does not mandate specific procedures for marketing cryptocurrencies to investors (Scott et al., 2023). Trading venues for futures, options, forwards, and swaps as well as leveraged and margin trading sites are required to be registered with the CFTC and comply with other CEA rules. In addition to registration with the CFTC, trading venues also have minimum capital requirements and follow strict recordkeeping procedures. Furthermore, a certain amount of capital must be deposited with a secondary bank or other financial institution outside the trading venue to protect investors in case the trading venue goes bankrupt (Charles, 2014).

The CFTC has imposed sanctions on many companies and platforms that have failed to comply with the registration requirement and other provisions of the CEA (CFTC, 2018). However, to avoid registration and other legal obligations a majority of crypto-asset trading platforms that offer both spot and derivatives trading establish two companies and conduct their derivatives trading through the company they register with the CFTC, while they conduct spot market trading through the second company, which they do not register with the CFTC such as FTX and Coinbase (Scott et al., 2023).

It should be noted, however, that an asset that is defined as a commodity can also be classified as a security. Therefore, the fact that virtual currencies are commodities does not mean that they cannot be treated as securities (*CFTC v. McDonnell*, 2018); each case must be evaluated on its own merits. If a cryptoasset is classified as a security, the public offering, trading, and platforms that facilitate the transaction of that

cryptoasset is responsible for complying with the securities laws and is subject to SEC oversight under those laws.

Under Section 5 of the 1933 Act, all securities issued in the United States which are not exempted by law must be registered with the SEC. When securities are registered, essential management and financial information about the issuing company is disclosed along with information about the security. This required disclosure helps inform investors about the security, it also allows the investors to fully comprehend their investment, which is how the SEC seeks to protect them. If an unregistered offering of securities takes place, the SEC has the right under the Securities Act of 1933 (15 U.S.C. 77t.) to impose sanctions and fines on the issuer. Registration is done by completing the required forms. On these forms the issuer is asked to disclose the corporate structure of the issuer, the business in which the company is engaged, all of its assets, by whom or whomever the company is managed, the company's certified financial statements, and a detailed description of the security to be issued. Once filed with the SEC, this information is made public if the application is approved. Obviously the information provided must be accurate, the SEC does not guarantee the validity of the information. The issuer of the security is responsible for any false information provided, and investors have the right to sue the issuer if the information is determined to be false (SEC, n.d.).

To protect investors, lawmakers' definition of security covers a broad range of investment types in Section 2(a)(1) of the Securities Act of 1933, and courts also interpret this definition in the same manner. Under U.S. securities law, investment contracts are also classified as securities, and the SEC analyzes companies' fundraising activities under investment contracts. Digital token offerings are also considered

investment contracts by the SEC because they are blockchain-based fundraising methods (Mendelson, 2019).

The Securities and Exchange Commission (SEC) uses the Howey test to determine if an asset is an investment contract and therefore qualifies as a security. The Howey test originated in 1946 when the U.S. Supreme Court established the criteria for determining whether an asset is an investment contract under the 1933 Act or not. Howey Company had decided to sell some of their farmland in the state of Florida to meet its financial needs. While selling, the company told the buyers that it would rent these lands from them and grow, collect and market the products, and share profits. Since most of the buyers did not live in Florida and did not have enough knowledge about agriculture, they liked this option and bought the land. The SEC then brought an action challenging Howey's leaseback agreement, alleging that Howey failed to report and register the agreements as securities with the SEC.

As a result of the lawsuit, the U.S. Supreme Court stated that to determine if the transactions made are investment contracts. It is necessary to "Invest money in a common enterprise with reasonable expectation of profit from the efforts of others". If the transaction meets these criteria, it is considered a security and must be made in accordance with security laws.

So, according to the Howey test, investments are considered securities if four conditions are met: (1) investment of money, (2) a common enterprise, (3) the investor expects to make a profit, and (4) the investor's profit is dependent on the efforts of a third party (*SEC v. W. J. Howey Co.*, 1946).

In 2019, the SEC's Strategic Center for Innovation and Financial Technology (FinHUB) published a report setting forth the circumstances in which digital assets are

securities under an investment contract according to the 1933 Act. While this report is non-binding, it states that each digital asset should be evaluated separately. According to the report, the most important issue in applying the Howey test is to determine whether the investor has an expectation of profit from the managerial efforts of others. To establish the existence of managerial efforts by others, the efforts must be so substantial that they cannot be disputed and must affect the failure or success of the enterprise (SEC, 2019).

Offerings of crypto assets are also subject to scrutiny under the Howey test. This is because the issuer of the crypto asset is raising funds to develop its blockchain-based system. And the development, promotion and operation of that system depends on a particular group of people. Token issuers also make an effort to increase the price of the tokens being distributed, and this is expected by investors. As a result, assets acquired through the issuance of crypto assets are deemed as profit made by the managerial efforts of others and are considered investment contracts (SEC, 2019).

Although the first ICO was conducted in 2013 with the MasterCoin project, the SEC did not review this digital asset offering at that time and did not subject it to the Howey test. Until 2017, ICOs were also organized without notifying the SEC and did not face any sanctions. However, in 2017, for the first time an unregistered ICO by the DAO Organization came under SEC scrutiny. The DAO Organization organized an ICO on the Ethereum blockchain and raised approximately $150 million by selling tokens that investors could sell on secondary markets. The DAO was then cyberattacked and approximately one-third of the funds raised were stolen. A technical fix by Ethereum later returned the stolen funds to the funders. Although investors were refunded, it became a hot topic as it was one of the largest ICOs in terms of the amount of money

raised. This caught the attention of the SEC, which investigated the ICO and issued an investigative report called the DAO Report (SEC, 2017). Since the publication of this report, the SEC has launched several investigations and imposed sanctions against ICOs for unregistered securities offerings and alleged fraud (Mola, 2023).

Exchange markets that facilitate any types of securities trading activities must comply with the Securities Exchange Act of 1934 and various regulations as well as be registered as a national security exchange, such as the New York Stock Exchange (NYSE), Chicago Board Options Exchange (CBOE) and NASDAQ. However, there are some venues known as Alternative Trading System (ATS) that function under Alternative Trading System Regulation. Broker dealers who have registered in accordance with the Alternative Trading System Regulation are not required to register as a national securities exchange (17 CFR 242.300.).

Under the 1934 Security Act, exchanges must accept applications for membership from broker dealers who are registered with the SEC and meet the required qualifications (15 U.S.C. 78f(b)(2)). Exchanges must both publicly disclose the qualifications of their members and obtain the approval from SEC. Non-brokers cannot trade on these platforms on their own, but can trade with an SEC-registered broker. In contrast ATS's are allowed to restrict use of their platforms to subscribers as long as the total trading value sits below the allowed volume limit. Additionally they are not required to get approval from the SEC to alter and implement new trading rules, on the other hand they are required to provide information concerning their rules operation and fees structure (Scott et al., 2023).

However, many cryptoasset trading platforms in the U.S. operate in violation of the above-mentioned securities laws, even if they offer securities trading services. No

platform has been prosecuted or fined for doing so. Simply by facilitating the trading of crypto-assets on the spot market, they are obliged to comply with the anti-fraud and anti-market manipulation provisions of the CEA, and the CFTC has the authority to investigate and impose sanctions. In addition, the Treasury Department's Financial Crimes Enforcement Network (FinCEN) defines cryptoasset trading platforms as money services businesses. Service providers are therefore required to register with FinCEN as money services businesses. They are also subject to the Bank Secrecy Act and must comply with know-your-customer (KYC) and anti-money laundering (AML) requirements to prevent the financing of crime and terrorism through money services businesses or the use of these platforms to conceal such proceeds. Some states have also enacted additional regulations for cryptoasset trading venues. However, the varying requirements across states have burdened the platforms and restricted access to their platforms in some states (PwC, 2022).

4.2 European Union

Since the crypto asset prices increase the EU member states have yet to establish a system to regulate and monitor crypto currencies on a common level. Instead they have only dealt with this issue internally within their individual countries. However, member states such as Germany and Malta have come up with innovative ways to deal with the crypto assets albeit differently. Germany has applied pre-existing laws and rules to the crypto industry whereas Malta has focused on attracting companies which are directly crypto related (TaylorWessing, 2022).

The Markets in Crypto Assets Regulation (MiCA), drafted in 2020, is a law that and regulates the issuance, trading and listing of crypto assets on secondary markets

across 27 member states of the European Union. MiCA was approved by the European Parliament on April 20, 2023 but is not yet in force, it is estimated to be implemented between late 2024 and early 2025. It is intended to be approved by the legislators of the EU member states and will be binding on all member states. In general, MiCA aims to legalize the cryptoassets sector within the EU and protect investors. It introduces a set of rules for crypto asset issuers and crypto asset service providers (CASPs). The tokens covered by MiCA are listed as asset referenced tokens, e-money tokens and other crypto-assets, including utility tokens (Hallak, 2022). However, central bank digital currencies, non-fungible tokens, decentralized finance protocols, non-transferable digital assets, digital assets distributed free of charge, digital assets distributed automatically by the system, and financial instruments (securities tokens and derivatives) are not covered by MiCA (S&P Global Ratings, 2022).

The main obligation for issuers of crypto-assets under this law is to have an entity established in the EU and to publish a document called a "white paper", which is similar to a prospectus. The content of the white paper is detailed in the law. Crypto asset service providers must also have an entity established in the EU and must be authorized by the National Competent Authorities (NCA) of an EU Member State. Once this authorization is obtained, crypto asset service providers can operate in all EU Member States. NCAs are responsible for supervision under this law and are empowered to impose various sanctions in case of non-compliance (PwC, 2022).

While existing securities and financial laws generally apply to security tokens in the European Union, the EU has amended some of its existing legislation to support businesses using DLT and has added new DLT-compliant provisions. It has also organized and launched a pilot project for security tokens (Laura, 2021).

As mentioned above, security tokens are subject to existing securities laws, and the definition of security is set forth in these laws. The main concept for the definition of securities in the EU is set out in MIFID II.

According to Article 4 (44) of MIFID II (Directive 2014/65/EU):

> Transferable securities mean those classes of securities which are negotiable on the capital market, with the exception of instruments of payment, such as:
>
> (A) shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares;
>
> (B) bonds or other forms of securitised debt, including depositary receipts in respect of such securities;
>
> (C) any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures. (p. 385)

According to the above rule, the most important characteristic of a security is that it must be transferable. In addition, the product must be negotiable and tradable on capital markets, and must not be used as a means of payment (FSMA, 2022).

The designation of a product as a financial instrument within the EU, including crypto assets, brings it under the jurisdiction of the European Securities and Markets Authority (ESMA), which is an independent institution. ESMA has overall responsibility for investor protection and financial stability in the EU (Ferrari, 2020). However, ESMA has stated that it is the responsibility of the National Competent Authority (NCA) to determine whether the product issued through an ICO or STO meets the above definition of securities (ESMA, 2019). Also, there are certain rules and regulations that security token issuers and intermediary platforms that list and facilitate the trading in these tokens must comply with. These rules may be different in each Member State, or they may be the same as those established by the EU authorities,

ESMA and the European Banking Authority (EBA), to provide guidance to the NCAs of the EU Member States.

The primary rules to be followed by issuers of security tokens are the rules relating to the prospectus. The Prospectus Directive and the Prospectus Regulation must be complied with if the issuer of an asset designated as transferable securities under MIFID II and the secondary markets on which the asset is traded operate within an EU Member State. In addition, if the company issuing or trading the asset is based in a country outside the EU and the issued asset is to be sold in any EU Member State, it must also comply with the above regulations. There are, however, some exceptions to the obligation to publish a prospectus in the Prospectus Directive (Maas, 2019a).

The purpose of the Prospectus Directive and the Prospectus Regulation, as in every country, is to inform and protect the investors. The Prospectus Regulation also provides information on the content of the prospectus and how it should be prepared. According to the Regulation, the prospectus should contain information about the financial position of the issuer, such as, the assets and liabilities of the company, the profit and loss position of the company, and the characteristics of the issued asset, why it is being issued and what rights it provides to its investors. In addition, the prospectus should be easily understandable and the information provided should be at a level that can be analyzed by an investor. According to the Prospectus Regulation, the approval of the National Competent Authority of the EU Member State in which the security is to be sold must first be obtained and this approval is then notified to ESMA. Once the approval has been obtained, the prospectus is published and must also be made publicly available on the website of the issuer or the trading platform or other intermediary, if any (Sietiņš, 2019). It is important to note that a security issued after obtaining approval

from one EU Member State or after obtaining the passport explained in the Prospectus Regulation can be offered for sale in the other Member States without obtaining approval for a new prospectus (Prospectus Regulation (EU) 2017/1129).

The application of the prospectus regime for traditional securities to crypto assets has several shortcomings. The most prevalent is that companies issuing crypto assets publish a so-called 'white paper' instead of a prospectus. In this document, the financial status of the company is not detailed, and more general and technical issues related to the issued asset are mentioned, so it does not fully comply with the prospectus requirements specified in the law. However, companies issuing crypto assets that fall under the scope of securities or trading platforms are required to prepare a white paper in accordance with the Prospectus Regulation (ESMA, 2018). Due to non-compliance with the Prospectus Regulation, the Italian financial regulator Commissione Nazionale per le Societa e la Borsa (CONSOB) decided to suspend two crypto-asset offerings to Italian investors (Ferrari, 2020).

Another regulation that securities issuers must comply with is the Transparency Directive. According to this directive, if the issuer is a company within the EU or if the securities it issues are offered within the EU, it is obliged to continuously disclose interim reports, annual financial reports, information about the company's significant trading activities and information about security holders, as specified in the Transparency Directive (ESMA, 2014a).

Another entity with legal obligations are platforms that facilitate the sale or trading of crypto assets. These platforms are generally referred to as Crypto Asset Service Providers (CASPs), and the rules for CASPs that list or trade securities are also regulated under MiFID II. To list securities, CASPs must first be authorized by the

National Competent Authorities of an EU Member State under MiFID II and this authorization is then notified to ESMA. They must be authorized as a regulated market, multilateral trading facility (MTF), organized trading facility (OTF) or systematic internaliser (Camilleri, 2020).

Until 2018, there was no regulation on money laundering and terrorist financing that CASPs, which generally provide crypto-asset trading and custody services, were required to comply with. In 2018, the existing Anti-Money Laundering Directive (AMLD) was amended to include CASPs within its scope. (AMLD5). However, even before AMLD5, CASPs trading and custody of securities tokens were already obliged to comply with AMLD rules, as entities engaged in the professional trading and custody of securities had to comply with AMLD requirements. However, CASPs providing exchange services between crypto assets rather than fiat and those providing services for ICOs are not covered by this law, but the EBA has stated, and ESMA has supported, that AMLD5 should be extended to cover them (ESMA, 2019).

In addition, issuers of crypto-assets that qualify as financial instruments, such as security tokens, must comply with the Market Abuse Regulation (MAR), which traditional securities issuers must also comply with. Not only issuers, but also CASPs, brokers and even investors have to comply with this regulation. However, security token trading platforms have certain obligations to prevent, detect and report market abuse (ESMA, 2019). Furthermore, intermediary platforms carrying out settlement activities for security tokens are required to comply with the Settlement Finality Directive and the Central Securities Depositories Regulation and make the necessary adaptations, otherwise they may be sanctioned by ESMA (Šafro, 2022).

Lastly, the EU Commission has also published a regulation called pilot regime for market infrastructures based on distributed ledger technology (PilotR) to facilitate DLT-based service providers in securities markets, which entered into force on March 23, 2023. According to this DLT PilotR, there are three different types of DLT-based securities service providers. These are DLT multilateral trading facility (DLT MTF), DLT securities settlement system (DLT SS) and DLT trading and settlement system (DLT TSS). The latter refers to a situation where the other two systems operate in the same institution. PilotR introduces different exemptions for DLT MTFs and DLT SSs, while DLT TSSs are able to apply for the exemptions listed for both. Applications for these exemptions are made to the relevant NCAs and authorizations may be granted for up to six years or for the duration of DLT Pilot Regime. It is important to note, however, that if infrastructure providers wish to benefit from the exemptions set out in DLT Pilot Regime, they must provide services for securities and financial instruments that comply with the limits explicitly set out in PilotR. In addition, AML and MAR provisions are not covered by the exemption (BaFiN, 2022).Ultimately, by March 2026 ESMA will have prepared an advisory report to the EU Commission, the EU Parliament and the Council which will be three years from the effective date of PilotR. Following this report, the scope, duration and content of DLT Pilot Regime will be reassessed (TaylorWessing, 2022).

4.3 Germany

The laws established for the EU also apply to Germany, but as ESMA and EBA note, the National Competent Authorities of the EU countries may regulate and supervise differently. In Germany, the National Competent Authority for the regulation and

supervision of financial services is the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin). Since 2013, German lawmakers and BaFin have been working to make the country more appealing to companies interested in, developing, and investing in financial technology through legislative changes and regulations (PwC, 2022).

According to BaFin, based on the German Banking Act (Kreditwesengesetz, KWG) not all tokens are seen as security or financial instruments (BaFiN, 2019). To qualify as securities, they must meet the requirements of the EU Prospectus Regulation, the German Securities Prospectus Act (Wertpapierprospektgesetz - WpPG) and the German Securities Trading Act (Wertpapierhandelsgesetz - WpHG). Or, to qualify as a financial instrument, they must meet the requirements of the German Banking Act (Kreditwesengesetz - KWG) and the German Investment Firm Act (Wertpapierinstitutsgesetz - WpIG) (BaFiN, n.d.). Although the definitions of securities under these laws are not very different, they generally must meet four criteria. Transferability, negotiability and tradability on financial markets, grant certain rights to the holder, as is the case with traditional securities and finally tokens must not fall under the category of instrument of payment. Whether tokens meet all criteria is still unclear. Currently it is assessed on a case by case basis (BaFiN, 2018)

However, there are two main legal regulations that apply to digital assets. The first is the German Banking Act (Kreditwesengesetz, KWG), which is the law that businesses providing banking services in Germany must comply with, and the second is the German Investment Firms Act (Wertpapierhandelsgesetz, WpIG), which applies to securities and investment services (Clifford Chance, 2020a).

For the issuance of tokens classified by BaFiN as financial instruments or securities, the issuer and the intermediary platforms used to trade these tokens are subject to BaFiN authorization, unless an exemption applies to these tokens. However, BaFiN authorization is also required for investment, financial and banking services activities related to crypto-assets in general, such as advertising and marketing of these tokens. Even the issuer or service provider established outside of Germany offering services within Germany must be licensed (BaFiN, n.d.).

In addition other vital regulations that applies to crypto assets are EU Prospectus Regulation and German Securities Prospectus Act (WpPG). According to these regulations, the issuer of the token must provide investors with management and financial information about itself, as well as a description of the characteristics of the issued cryptoasset, the rights it provides, and the potential investment risks. This information should be understandable and informative to the investor. Issuers of securities must also adhere to the EU regulations MiFIR and MiFID II. However, it is important to note that issuers of tokens, whether securities or not, trading platforms and third parties must also comply with the German Market Abuse Regulation (PwC, 2022).

Also in 2021, an innovative securities law came into effect. This law is the Electronic Securities Act (Gesetz zur Einführung elektronischer Wertpapiere - eWpG). Under this law, bearer securities can be issued entirely electronically without a physical certificate. It should be noted, however, that this is not an obligation but an option for issuers. Paper certificates facilitate the proof of ownership and ensure the trust of the parties in the transfer, but the new law specifies two electronic registry systems that can establish this trust. These can be either centralized registries or decentralized registries using distributed ledger technology (DLT) infrastructure (Heise, 2021).

Additionally, intermediaries providing custody and safekeeping services for cryptoassets are required to obtain the appropriate licenses under the KWG. This also applies to providers outside Germany offering services within Germany. However, if the service provider does not store the private cryptographic key of its customers in its own centralized systems, if it is stored decentrally and access to it is only provided by the customer, it does not need to obtain a license (BaFiN, 2023).

The German Money Laundering Act (Geldwäschegesetz, GwG) is the law for the prevention of money laundering and terrorist financing. Although not much different from the AMLD5 for EU countries, cryptoasset exchanges and wallet providers are required to comply with this law, and according to the GwG, the law can be interpreted broadly to determine obligations on a case-by-case basis. Another piece of legislation is the German Crypto Asset Transfer Regulation (Kryptowertetransferverordnung - KryptoWTransferV). This regulation contains rules that must be followed when transferring crypto assets and aims to prevent money laundering and terrorist financing (BaFiN, 2021).

To maintain fairness between crypto and traditional assets, Bafin neutrally examines assets case by case, carefully avoiding any technological biases, in order to apply appropriate regulations i.e. license requirement. BaFin has the legal jurisdiction to sanction and criminally prosecute individuals and firms who violate related rules and regulations. Although it possesses this power it has yet to apply it to any companies (PwC, 2022).

In 2019, Bitbond, which is wholly owned by Bitbond GmbH, became the first STO incorporated in Germany to be licensed and approved by BaFiN. BaFiN is also the first NCA in the European Union to approve a prospectus for an STO (Sietiņš, 2019). In

this STO, investors hold a token that confers the same rights as corporate bonds. The token matures on July 1, 2029, 10 years from the date of issuance, and confers fixed and floating-rate coupon rights to the holder (Bitbond, 2019).

4.4 Malta

Malta is the first state in the EU to specifically regulate blockchain-based funding methods (MFSA, 2019b). In 2018, three laws were enacted for blockchain and innovative technologies to ensure consumer protection, market integrity, and financial stability. The first of these laws, the Malta Digital Innovation Authority Act (MDIA Act), established the Malta Digital Innovation Authority (MDIA). MDIA generally cooperates with the Malta Financial Services Authority (MFSA), the national competent authority, on issues such as certification, supervision, registration of prospectuses and licensing of service providers for DLT-based companies. The second law, the Innovative Technology Arrangements and Services Act (ITAS Act) provides for the licensing and registration of entities providing technology services. Finally, and most importantly, is the Virtual Financial Assets Act (VFAA). This law regulates crypto asset offerings, virtual financial asset service providers and intermediaries (Herrera & Gerybaite, 2022).

According to the VFAA, DLT-based assets are divided into four categories. They are virtual tokens, electronic money, financial instruments and virtual financial assets. Virtual tokens provide only a specific financial good or service to the investor and can only be used on a specific platform. In addition, they are not traded on secondary markets and are not covered by the VFAA. Electronic money is also not covered by the VFAA and is subject to the Malta Financial Institutions Act, the Electronic Money Directive and relevant EU legislation. Financial instruments are regulated under the

Malta Investment Services Act (ISA) and MIFID II. The digital assets regulated by the VFAA are virtual financial assets. While the legislation defines virtual financial assets, it is more concerned with what they are not (PwC, 2022). According to the VFAA Article 2, sub-article 2, virtual financial asset is any digital asset other than a virtual token, electronic money or financial instrument that is used as a digital unit of account, store of value or medium of exchange.

According to these definitions, tokens issued in an ICO or IEO are covered by the VFAA if they are traded on secondary markets after issuance and are not virtual assets, electronic money or financial instruments. Therefore, issuers must register with MFSA and publish their white papers, which serve as prospectuses, in accordance with VFAA. In addition, they must establish a legal entity in Malta, appoint a VFA agent in accordance with the VFAA, provide the technical infrastructure specified in the law and regularly disclose the required information to the MFSA (MFSA, 2018). Furthermore, service providers of virtual financial assets and the platforms on which these assets are bought and sold must also obtain a license from the MFSA and they must establish a legal entity in Malta. Additionally, service providers are required to have a board of directors, a VFA agent, a money laundering reporting officer, an accountant and an auditor, as specified by the law (MFSA, 2021).

The market abuse rules under this law are the same as for traditional assets. Whatsmore, the Prevention of Money Laundering Act and the Prevention of Money Laundering and Funding of Terrorism Regulations, are also applicable in conjunction with the EU's AMLD 5 on money laundering and terrorism financing. Thus, there are AML/CFT and KYC obligations for issuers of virtual financial assets, service providers and secondary markets (MFSA, 2018)(MFSA, 2021). The MFSA and the Financial

Intelligence Analysis Unit (FIAU) are the most important bodies overseeing the implementation of local and EU laws on digital assets and can sanction companies for non-compliance. In 2021, they fined Paytah EUR 435,576 for non-compliance with various money laundering rules (Herrera & Gerybaite, 2022).

As mentioned above, financial instruments are regulated under the Malta Investment Services Act and MIFID II and not the VFAA. Financial instruments are also listed in the Second Schedule of the Malta Investment Services Act. Although the scope of financial instruments in the wording of this article is not the same as in MIFID II, MFSA has clarified that assets designated as transferable securities must be tradable and negotiable, must confer a specific right to the investor and must not be used as a means of payment (MFSA, 2020).

As tokens issued through a STO are also considered financial instruments, they are generally regulated by the Malta Companies Act, which regulates public offerings and sets out the rules for public companies to raise funds. Platforms that list and trade these tokens are also subject to the Malta Financial Markets Act and must be licensed under that Act (Zatsarynnyi, 2020).

The issuer of financial instruments is required to prepare a prospectus under the EU Prospectus Directive and the Malta Companies Act. In Malta, as in other countries, there are exemptions from the requirement to prepare a prospectus. The Second Schedule of the Malta Companies Act lists all the conditions for a prospectus to be valid. It should also be noted that the publication of the prospectus must be approved by an expert. The law specifies who may give approval as an expert. The issuer company submits the prospectus and all other documents to the Maltese Companies Registry for registration and approval and the result is notified to the issuer company within twenty

working days (MFSA, 2020). Obviously, since the strict rules and prospectus requirements for financial instruments in Malta are more stringent than in other EU countries, companies offering tokens may not conduct the offering here, but instead publish a prospectus in another EU country with easier conditions and then obtain approval from the Maltese competent authority without having to publish a new prospectus under Maltese law in accordance with the EU Prospectus Directive (Sietiņš, 2019).

Finally, in order to determine whether the digital asset to be issued is one of the assets listed in the VFAA, the MFSA has developed the Financial Instrument Test (FIT). The main purpose of this test is to determine whether the asset is a virtual financial asset or not. Based on the results of this test, the asset is categorized and the applicable laws and regulations are determined. The FIT is an 11-page Excel file on the MFSA website that contains questions about the issuer and the digital asset being issued. This file is mandatory for those seeking a VFA license and is submitted to the MFSA along with other required documents (MFSA, 2019a).

4.5 The UK

In the U.K., no new legislation specific to crypto assets has yet been enacted, but digital assets have been covered by amendments to existing legislation. The first classification of crypto assets was made in the Crypto Asset Task Force Report (CATF) published by HM Treasury, the Financial Conduct Authority and the Bank of England in 2018. In this report, tokens were defined and described as exchange tokens, utility tokens and security tokens (HM Treasury et al., 2018). Later in 2019, the Financial Conduct Authority (FCA) published a report and examined the regulation of tokens. According to this

report, tokens are divided into regulated and unregulated tokens. Exchange tokens and utility tokens are classified as unregulated tokens. Furthermore, exchange tokens are generally defined as digital assets that are used as a medium of exchange and are not linked to a central authority. Utility tokens are digital assets that generally provide the right to access a product or service, but do not provide any rights to the holder, such as securities, and are not used as e-money (FCA, 2019).

However, security tokens and e-money tokens fall into the regulated category. Regulated tokens are not subject to new regulation, but are covered by existing legislation and regulated by the FCA. E-money tokens are assessed on the basis of their characteristics under the E-Money Regulations 2011 (EMR) and the Payments Services Regulations 2017 (PSR). This type of token was included in the category of utility tokens in the CATF, but is subject to existing regulation and therefore needs to be assessed separately. E-money tokens are defined in the EMR as tokens that have monetary value, can be used as a means of payment, are accepted by others other than the issuer of the token, and are not explicitly excluded by law (HM Treasury, 2021).

Security tokens are covered by the Financial Services and Markets Act (2000) Regulated Activities Order (RAO) Chapter 3 where they are listed as "specified investments". To be classified as a security token, a digital asset must confer certain rights and obligations to the investor in the same way as traditional securities and must not fall into the category of e-money tokens (HM Treasury, 2023).

Companies issuing security tokens are subject to the Prospectus Act. Under the Prospectus Act, a prospectus must be published if the tokens are to be sold in the UK, or by a company registered in the UK, and do not fall within the exemptions from prospectus publication set out in the Act. Prospectuses are examined and approved by

the FCA. The prospectus must contain management and financial information about the issuer company and the characteristics of the asset being issued to inform investors. If the prospectus is approved by the FCA, the issuer must comply with the Market Abuse Regulation, the Disclosure Guidance and Transparency Rules and other regulatory requirements such as AML/KYC (HM Treasury, 2023).

In the UK, issuers of digital assets, platforms that facilitate the buying and selling of digital assets, intermediaries and brokers, wallet providers and other market participants are subject to authorization and licensing. Market participants are required to be licensed and authorized by FCA, however, only issuers of security tokens are not required to be authorized or licensed. Issuers of e-money tokens are authorized and licensed under the EMR, while e-money tokens issued by credit institutions, credit unions or municipal banks are authorized and licensed under the FSMA Article 9B of the RAO. If the issued tokens are used to facilitate payment services, they must be authorized and licensed under the PSR. Failure to comply with the authorization and licensing requirements is an offense under Section 23 of the FSMA, and the offender may be imprisoned for up to 2 years or fined an unlimited amount, or both (HM Treasury, 2023).

The promotion and advertising of financial instruments is also regulated in the United Kingdom. Entities or persons authorized under section 21 of the FSMA may engage in the promotion and advertising of financial instruments. They must also ensure that advertising and promotion is clear, fair and not misleading. In addition, firms must clearly indicate which digital assets they are authorized to promote. For example, when promoting unregulated utility and exchange tokens, firms are prohibited from displaying the authorization of a security token or e-money token obtained in accordance with the

regulations. Companies or individuals who violate these rules are committing a criminal offense (FCA, 2022).

In the UK, Money Laundering, Terrorist Financing and Transfer of Funds Regulations 2017 (MLR) are used to prevent money laundering and terrorist financing. With the 2020 amendments, digital asset businesses are also covered by this law and the FCA is designated as the supervisory authority. Under this law, cryptocurrency businesses must register and comply with other requirements, including appointing officers (HM Treasury, 2022).

4.6 Switzerland

The Swiss authorities place great importance on DLT and financial technologies and want their country to be a pioneer in this field. They have therefore supported the Crypto Valley Association in the canton of Zug, Switzerland and made it a center of attraction for the sector. However, similar to the UK and the US, Switzerland has not enacted a specific legislation on digital assets, and lawmakers have taken a technology-neutral approach to digital assets. However, in September 2020, the Swiss parliament passed the DLT bill and made a number of changes to existing laws concerning digital assets (Switzerland Federal Council, 2020).

In 2018, the Swiss Financial Market Supervisory Authority (FINMA) published a report on ICOs, dividing digital assets into three categories according to the purpose of their issuance. The categories are asset (security) tokens, payment tokens, and utility tokens. Payment tokens are tokens that are used to purchase goods or services, a.k.a. a means of payment. In general, payment tokens are not securities, unless they are operated outside of blockchain in which case they are considered securities. Payment

tokens are subject to the Banking Act (BA) and Anti-Money Laundering Act (AMLA). Utility tokens are tokens that provide access to a specific service or product and are not used as an investment instrument. Asset tokens, like traditional securities, provide the holder with rights such as shares, profits or voting rights. However, asset tokens are not limited to traditional securities such as stocks and bonds, any physical asset can be tokenized using blockchain technology. FINMA considers these tokens to be securities and therefore the issuance and trading of these tokens are subject to the Financial Services Act (FinSA), the Financial Institutions Act (FinIA), the Financial Market Infrastructure Act (FMIA) and the Swiss Code of Obligations. FMIA defines securities and the main characteristics of securities as being standardized, they can be certificated or uncertificated securities, derivatives and intermediated securities as well as appropriate for high-volume, standardized trading activities (Art. 2 let. B FMIA). Finally, some digital assets can also be defined as hybrid. A token may be classified as both a utility and a payment token, one type of hybrid, or it may meet the definition of both a payment and a security token which is another type of hybrid token. In such cases, these tokens must comply with various laws based on the type of hybrid tokens (FINMA, 2018) .

In Switzerland, there is no specific legal framework for blockchain-based fundraising methods; the class of digital asset being issued and traded determines which laws apply. Utility tokens do not require FINMA authorization for issuance, but a banking license is required if the asset being issued is a payment token, or securities-house license if it is an asset token. Furthermore, if the issued digital asset is classified as security and is not covered by the exemptions set out in the FinSA, the issuer is required to publish a prospectus and the information forms in the FinSA (Section

5.1.1.2.6). The published prospectus is reviewed by an FINMA-authorized institution and approved if the necessary conditions are met (Levin et al., 2022).

In addition, professional intermediary firms are required to obtain a license from FINMA under the Banking Act in order to accept public deposits and if they do not fall under the exemptions of the Banking Act. Institutions where payment tokens are traded and wallet providers are required to obtain this license (Switzerland Federal Council, 2018). However, in 2019, a new type of license was introduced for FinTechs. It is easier to obtain than a regular banking license, but has some restrictions. The most important of these is that the annual turnover of the institutions obtaining this license must be less than CHF 100 million, and if it exceeds this amount, it must be reported to FINMA and a normal banking license must be obtained. In addition, companies that obtain this license must provide their clients with detailed information on the technology they use and explain the risks involved. Furthermore, regardless of whether they obtain a banking license or a FinTech license, companies that professionally hold public deposits are required to reserve a certain amount of capital against the digital assets they hold (FINMA, 2023). Moreover, under the FMIA, financial market participants must obtain the relevant authorization from FINMA. For example, securities trading platforms must be authorized if they are not distributed or peer-to-peer platforms. In addition, securities dealers must also be licensed. According to FINIA, asset managers and securities firms must also be authorized by FINMA (Swiss Blockchain Federation, 2021).

As mentioned above, the legislative changes adopted by the Swiss Parliament in 2020 and became effective in 2021. The first of these is the “Uncertificated Register Securities". These allow securities to be registered electronically and are no different from traditional registered and certificated securities, providing the same rights and

imposing the same obligations. However, payment tokens, which do not confer any rights on the investor, cannot be issued as uncertificated registered securities. In addition, uncertificated registered securities may be registered in the traditional manner at any time. The second change relates to trading platforms. While previously there were three intermediary trading platforms defined in the law, a new trading platform called DLT Trading Facilities was introduced based on the view that these were insufficient for crypto asset trading. Like other intermediary trading platforms, it needs to be licensed and has its own set of obligations and exemptions. Finally, under the existing law, it was previously unclear what would happen if the custodians of investors' digital assets went bankrupt. With this amendment, additional obligations have been imposed on institutions and changes have been made for the benefit of creditors and investors in the event of bankruptcy, in particular for the protection of investors (Institute of Financial Services Zug IFZ, 2023).

The main regulations on money laundering are the Swiss Anti-Money Laundering Act (AMLA) and Anti-Money Laundering Ordinance (AMLO). All professional financial intermediaries must comply with the AMLA e.g., custodian wallet providers, central trading platforms and currency exchange offices. Financial institutions subject to the AMLA must first register with a FINMA-authorized self-regulatory organization (SRO) and then obtain an authorization from FINMA. Once authorized, due diligence, reporting, identification and recordkeeping obligations begin (Institute of Financial Services Zug IFZ, 2023). Non-custodial wallet providers and certain decentralized trading platforms are not considered financial intermediaries under the AMLA because they do not hold or have access to investors' private keys. These platforms do not have the authority to dispose of digital assets, but merely connect

buyers and sellers and facilitate peer-to-peer transactions. Only the issuance of digital assets with a payment function is covered by the law. Asset tokens are not covered by the AMLA if they are not issued by financial intermediaries such as banks or securities firms. However, if financial instruments are bought and sold with digital assets that have a payment function, they fall within the scope of this law and are subject to money laundering and know your customer obligations. Transactions involving the transfer, exchange of digital assets for other digital assets or conversion of digital assets into fiat money are also subject to the AMLA. Although FINMA is the competent authority, supervision under the AMLA is carried out by special entities authorized by FINMA (Switzerland Federal Council, 2018). The prevention of terrorist financing is ensured by the Embargo Act (EmbA) and related regulations, and the competent authority is the Swiss State Secretariat for Economic Affairs (SECO) (Levin et al., 2022).

4.7 Singapore

In Singapore, the Monetary Authority of Singapore (MAS) is designated as the competent authority. According to Financial Services and Markets Act 2022 (FSMA) Section 136(1), digital assets are separated into digital payment tokens and digital representation of capital market products.

Digital payment tokens are covered by the Payment Services Act (PSA), which was put into enforcement in 2019 for payment services. According to Section 2(1) of the PSA, digital payment tokens are defined as a medium of exchange that is not pegged to any currency and can be used to purchase goods or services, transferred, stored or traded electronically. E-money tokens (stable coins) are also covered by this law (PwC, 2022).

In 2021, some amendments were made to the PSA in relation to digital payment tokens, expanding the scope of digital payment token services and requiring providers of the transfer of these tokens, wallet providers and trading platforms must also be licensed, even if they do not hold any currency or digital payment tokens. In addition, these service providers are also subject to AML/CTF laws (Linning, 2022).

In Singapore, securities are governed by the Securities and Futures Act (SFA), which was enacted in 2001. Digital assets are defined as securities if they meet the definition of capital market products and are subject to this legislation. Thus, tokens of capital market products are treated as traditional capital market products and their issuers are required under the SFA to publish a prospectus and register with the MAS (Clifford Chance, 2020b).

Under section 2(1) of the SFA:

> "capital markets products" means any securities, units in a collective investment scheme, derivatives contracts, spot foreign exchange contracts for the purposes of leveraged foreign exchange trading, and such other products as the Authority may prescribe as capital markets products. (p. 35)

Platforms for the initial offering of digital tokens are required to obtain a capital market services license under the SFA. Digital token trading platforms are also required to obtain MAS-approved market operator licenses under the SFA. In addition, professional financial advisers are required to obtain a license under the Singapore Financial Advisers Act (FAA) (Blandin et al., 2019).

As stated earlier, the Financial Services and Markets Act came into enforcement in 2022. A number of changes to existing laws relating to financial services and markets were changed by this law. In relation to digital tokens, the most significant change is that service providers incorporated in Singapore but do not provide services in Singapore

must also obtain a license and comply with the AML/CTF rules. As a result, all service providers that provide services in Singapore, or are established in Singapore but provide services in other countries, are required to comply with the AML/CTF rules, unless they fall within the exemptions set out in the relevant law (MAS, 2022b).

Utility tokens, on the other hand, are unregulated and are described in Case Study 1 of the MAS 2020 report A Guide To Digital Token Offerings, where the laws applicable to the issuing circulator are all Singapore laws, including the Corruption, Drug Trafficking And Other Serious Crimes (Confiscation Of Benefits) Act 1992 (CDSA), Terrorism (Suppression Of Financing) Act 2002 (TSOFA) and United Nation Act (MAS, 2020).

Furthermore, under the Guidelines on Offering Digital Payment Token Services to the Public issued by MAS in 2022, the promotion of digital payment tokens in public places is prohibited. In addition, social media influencers are also prohibited from advertising these products. Digital token issuers and service providers may only display advertisements and promotions on their websites, apps and social media accounts (MAS, 2022a).

Lastly, in May 2022, MAS has launched a pilot project, Project Guardian, to identify the full benefits and harms of digital assets and decentralized finance. This project is being conducted in collaboration with financial institutions (Yuen, 2022) (MAS, 2022c).

4.8 Turkiye

In Turkiye, the law applicable to digital assets has not been comprehensively regulated. The Central Bank of the Republic of Turkiye made the first regulation on digital assets

by issuing the Regulation on the Non-Use of Crypto Assets in Payments. This regulation, which entered into force on April 30, 2021, defines crypto assets and establishes a prohibitive approach (Ödemelerde kripto varlıkların kullanılmamasına dair yönetmelik, 2021).

Article 3(1) of this Regulation defines crypto-assets as intangible assets issued using DLT or similar technology that are digitally transferable. However, crypto assets must be assets that, by their nature, are not fiat money, dematerialized money, electronic money, payment instruments, securities or other capital market instruments. The following articles list what cannot be done with cryptocurrencies. The direct or indirect use of crypto assets in payments and the provision of services for this purpose are prohibited. It is also prohibited for payment service providers to develop business models that involve the direct or indirect use of crypto assets in the provision of payment services and the issuance of electronic money, and to provide services related to such business models. Payment and e-money institutions are prohibited from intermediating the transfer of funds to platforms that provide trading, custody, transfer or issuance services of crypto-assets, as well as intermediating the transfer of funds from such platforms.

These prohibitions are not aimed at cryptocurrencies in general or at fundraising methods using blockchain technology, but only at preventing the use of crypto assets as a means of payment. However, in my opinion, this regulation can be interpreted to prohibit the issuance, trading and use of payment tokens that can only be used as a means of payment.

Then, on May 1, 2021, the Regulation Amending the Regulation on Measures to Prevent Laundering of Proceeds of Crime and Financing of Terrorism was issued, and

Crypto Asset Service Providers were included among the obligors under the Regulation on Measures to Prevent Laundering of Proceeds of Crime and Financing of Terrorism (Suç gelirlerinin aklanmasının ve terörün finansmanının önlenmesine dair tedbirler hakkında yönetmelikte değişiklik yapılmasına dair yönetmelik, 2021). Then, in May, the Financial Crimes Investigation Bureau issued the Guidelines for Crypto Asset Service Providers, explaining in detail the obligations of customer identification, suspicious transaction reporting, information and document provision, retention and presentation, and continuous information provision, and stating that failure to comply with these obligations will result in fines and imprisonment (MASAK, 2021).

CHAPTER 5

CONCLUSION

5.1 Policy implication of research

Digital assets and fundraising through blockchain technology are still unregulated in some countries. However, it would be in the best interest of countries to regulate them early, because governments cannot ignore blockchain technology and digital assets, where the demand and application areas are so high. First of all, I would like to point out that new and specific laws can be enacted to regulate digital assets and funding methods, or the necessary legal infrastructure can be prepared by amending the current laws or directly applying existing laws.

Looking at the countries that regulate this area comprehensively, we see that the first step is to classify digital assets and identify the competent authority. The laws and rules to be applied according to this classification should then be determined and put into practice.

It would then be appropriate to introduce rules for companies issuing digital assets according to their classification. Obligations to publish a prospectus, authorization and licensing should be specified. Authorization and licensing rules should also be established for platforms on which digital assets are traded, digital asset wallet providers and all intermediaries.

In addition, the most important regulation for states will be the rules on market manipulation, anti-money laundering and terrorist financing. These regulations may impose various obligations on digital asset issuers, trading platforms, wallet providers and all other intermediaries.

Legislators of countries such as Turkey, which have not yet established a legal infrastructure, can examine the steps taken by the selected countries above and make the most appropriate arrangements for themselves. Appendix C compares the approach taken by the countries studied in this thesis to regulate digital assets, how they classify digital assets, the classification criteria for security tokens, and the competent authorities in this field. In addition, Appendix C lists the relevant laws applicable in these countries and specifies the requirements for prospectus publication, authorization and licensing.

5.2 Concluding remarks

Although blockchain technology, a subset of DLT, has been used in many areas, its use in the financial sector is what has made it popular. After the emergence of cryptocurrencies with bitcoin, this technology has been used and developed in various areas of need. One of these areas is the means by which companies to raise the capital they require. Before the advent of ICOs, STOs, and IEOs using blockchain technology, companies attempted to raise capital through conventional fundraising methods, such as IPOs, crowdfunding, venture capital and angel investors. While these fundraising methods are still used, blockchain-based fundraising methods offer different alternatives and some advantages for companies and investors.

It should be noted that crowdfunding is the newest and most advantageous method of conventional fundraising. However, the advantages of blockchain fundraising for issuers, such as faster and cheaper organization, the ability to sell illiquid assets and the ability to fractionalize assets, cannot be achieved with crowdfunding and other conventional funding methods. Benefits for investors, including the ability to trade easily twenty four hours a day and seven days a week, store assets privately without

intermediaries, and record transactions transparently but in encrypted form, cannot be provided by conventional funding. In addition, IPOs are not possible, especially for start-ups and companies with insufficient financial resources. On the other hand, venture capitalists and angel investors, even when they invest in startups, are a very limited group of investors, and not every company can achieve the desired result due to the fact that Venture Capitalists and Angel Investors in some cases have or request management rights as well as equity ownership. Given these advantages, STOs may be preferable to IPOs, equity-based crowdfunding, venture capital and angel investing, as they allow investors to become shareholders in return for their investment and may even provide the opportunity to invest in many different financial products depending on the structure of the token created. Furthermore, lending-based crowdfunding can be considered a security offering because it allows companies to borrow as if they were issuing bonds, so STOs can also be used instead of lending-based crowdfunding. In addition, raising funds with utility and payment tokens distributed through ICOs, which are not subject to securities laws, can replace donation and reward-based crowdfunding due to its flexible legal infrastructure, fast, cheap and disintermediated organization. Furthermore, it can be said that, IEO could replace the function of intermediary platforms where crowdfunding is conducted, and IEO could also be more advantageous as it allows investors to exchange their tokens for another token or fiat money anytime.

With the popularity of blockchain technology, ICOs, STOs and IEOs have been organized and many companies have started to take full advantage of these alternatives for financing. At the same time, investors, realizing the advantages offered to them and experiencing the rapid increase in the price of the tokens being distributed, have begun to invest heavily in these tokens. As a result of the increasing supply and demand for

these tokens, some, but not all, governments have enacted regulations to protect investors and prevent criminal activity. These regulations on token offerings are either expanding existing laws, as in the case of the United States, United Kingdom and Switzerland, or creating new laws directly related to cryptocurrencies and tokens, such as in the case of the European Union, Malta and Singapore.

However, it should be emphasized that in both cases, the regulators of the countries are primarily focused on the classification of the digital asset. The United States uses the 1933 Act and the 1946 Howey test, the United Kingdom applies FSMA 2000 and EMR 2011, Switzerland refers to the FINMA report on ICOs published in 2018, and the European Union uses MiFID 2, which was updated in 2018, and MiCA, which was approved by the European Parliament in April 2023, and lastly, in Singapore, the FSMA, which was issued in 2022, is used to classify digital assets.

Countries classify their digital assets differently; in the U.S., digital assets are considered securities or commodities, in the U.K., digital assets are classified as regulated and unregulated, while in Switzerland they are categorized as payment tokens, utility tokens and asset tokens, although it is emphasized that hybrid tokens also exist. In MiCA, the EU's digital asset legislation, digital assets are classified as asset referenced tokens, e-money tokens and other crypto assets in addition to securities tokens under MiFID II. Germany has regulations in line with the EU classification, Malta, an EU member state, has a different categorization and divides them into virtual tokens, e-money, financial instruments and virtual financial assets. In Singapore, digital assets are divided into digital payment tokens and digital representations of capital market products.

Also, countries define the characteristics of securities and financial instruments differently in their securities laws or other relevant legislation. Digital assets that meet these definitions are also considered securities and are subject to existing securities laws. Prospectus requirements for issuers and licensing requirements for intermediary platforms are governed by these laws and are mandatory in all countries examined. While there is a registration requirement for security token issuers in each country, there is no registration requirement in the UK for security token issuers, there is for issuers of e-money tokens.

Furthermore, the registration and licensing requirements for digital assets that do not qualify as securities vary from country to country. In the US, only secondary platforms for futures, options, forwards and swaps, as well as leveraged and margin trading, are required to register with the CFTC. In the EU and its member states all digital asset trading platforms must however be licensed and have an entity in the EU. In addition, advertising and marketing of digital assets in Germany requires authorization. In the UK all market participants such as intermediary platforms, brokers, wallet providers are subject to authorization and licensing depends on the type of token. Moreover, promotion and advertising are subject to authorization. In Switzerland, all professional market participants must be authorized and registered, unless they fall within the exceptions set out in the law. In Singapore, all service providers providing services related to digital assets, such as trading platforms and financial advisors, must be licensed, and service providers established in Singapore but providing services in countries other than Singapore must also be licensed.

Lastly, all countries have laws in place to prevent market manipulation, money laundering and terrorist financing, and national authorities have not hesitated to impose

penalties on those who fail to comply with their obligations, which are perhaps the most important issues for governments.

In conclusion, creating a legal infrastructure for digital assets and their offerings, by bringing them within the scope of existing laws or by enacting new regulations, is an important step which has been taken in some countries such as the U.S., the U.K., Switzerland, Singapore, Germany and Malta to protect companies, investors, and the countries themselves.

APPENDIX A

DISTRIBUTION ICOs AMONG COUNTRIES

Country	ICOs
United States	178
Russia	111
United Kingdom	80
Singapore	75
Switzerland	46
Canada	29
Estonia	29
Hong Kong	20
Slovenia	18
Australia	16
China	15
Germany	15
Ukraine	15
France	13
Israel	13
Japan	13
Netherlands	12
British territories	18
Other countries	199
Total	915

The data set is taken directly from the article “The Geography of Initial Coin Offerings” written by Winifred Huang, Michele Meoli, Silvio Vismara in the year 2020

APPENDIX B

STO SAMPLE COMPOSITION BY COUNTRY

Country	Obs.
Australia	1
Austria	2
Bahamas	1
British Virgin Islands	1
Canada	2
Cayman Islands	11
Croatia	1
Denmark	1
Estonia	5
Finland	1
France	1
Germany	5
Gibraltar	2
Hong Kong	2
Ireland	1
Israel	1
Kyrgyzstan	1
Liechtenstein	5
Lithuania	3
Luxemburg	1
Malta	2
Mauritius	1
Netherlands	2
New Zealand	1
Panama	1
Paraguay	1
Puerto Rico	2
Seychelles	2
Singapore	5
Spain	1
Sweden	1
Switzerland	10
United Kingdom	11
United States	36
Total	124

The data set is taken directly from the article “Security Token Offerings” written by Thomas Lambert, Daniel Liebau, and Peter Roosenboom in the year 2021

APPENDIX C

COMPARISON OF COUNTRIES' LEGAL FRAMEWORKS FOR DIGITAL ASSETS

AND BLOCKCHAIN BASED FUNDRAISING

	The US	EU	Germany	Malta	The UK	Switzerland	Singapore
Specific regulations for blockchain	-No	-Markets in Crypto Assets Regulation (MiCA) -DLT Pilot Project	- EU Laws (MiCA, DLT Pilot Project)	-EU Laws -Virtual Financial Assets Act (VFAA). -Malta Digital Innovation Authority Act -Innovative Technology Arrangements and Services Act	-No, but have been covered by amendments to existing legislation	-No, but have been covered by amendments to existing legislation	-Financial Services and Markets Act (FSMA) -Payment Services Act (PSA)
Rules and regulations for classifying digital assets	-1933 Securities Act Section 2(a)(1) - Securities and Exchange Commission (SEC) v. W. J. Howey Co. (1946)	-MiCA Title 1. Article 3. (3-5) -Markets in Financial Instrument Directive II. Article 4 (44)	-EU Laws (MiCA, MiFID II) -German Securities Trading Act section 2 (1) (WpHG)	-EU Laws (MiCA, MiFID II) -VFAA Article 2, sub-article 2 -Financial Instrument Test (VFAA Article 47) -Malta Investment Services Act Second Schedule Chapter 370 (ISA)	-Financial Services and Markets Act (2000) Regulated Activities Order (RAO) Chapter 3 -E-Money Regulations 2011 (EMR)	-ICO Guidelines (Financial Market Supervisory Authority, 2018)	-FSMA Section 136 (1)

	The US	EU	Germany	Malta	The UK	Switzerland	Singapore
Classification of digital assets	-Comodity -Security	-Asset-Referenced Tokens (MiCA) -E-Money Tokens (MiCA) -Utility Tokens and Other Crypto Assets (MiCA) -Security Tokens (MiFID II)	-Asset-Referenced Tokens (MiCA) -E-Money Tokens (MiCA) -Utility Tokens and Other Crypto Assets (MiCA) -Security Tokens (WpHG, MiFID II)	-Virtual Token (VFAA) -E-Money -Financial Instrument (ISA) -Virtual Financial Asset (VFAA)	-Regulated Tokens (Security Token and E-money Token) -Unregulated Tokens (Utility Token and Exchange Token)	-Asset (security) Tokens -Payment Tokens -Utility Tokens	-Digital Payment Tokens (Exchange Tokens) -Digital Representation of Capital Market Products (Security Tokens)
Security tokens classification criteria	-Investment of money -A common enterprise -The investor expects to make a profit -The investor's profit is dependent on the efforts of a third party	-Transferability -Asset must be tradable and negotiable on capital markets -Asset must not be used as a means of payment	-Transferability - Asset must be tradable and negotiable on capital markets -Asset must grant certain rights to the holder like conventional securities -Asset must not be used as a means of payment	-Transferability - Asset must be tradable and negotiable on capital markets -Asset must grant certain rights to the holder like conventional securities -Asset must not be used as a means of payment	-Asset must grant certain rights to the holder like conventional securities -Asset must not be e-money tokens	-Standardised -Suitable for mass trading -Might be certificated or uncertificated securities, derivatives and intermediated securities	-Asset must grant certain rights to the holder like capital market product
Competent authority	-SEC -Commodity Futures Trading Commission (CFTC). -Financial Crimes Enforcement Network (FinCEN)	-European Securities and Markets Authority (ESMA) -European Banking Authority (EBA)	- German Federal Financial Supervisory Authority (BaFin)	-Malta Financial Services Authority -Financial Intelligence Analysis Unit -Malta Digital Innovation Authority	-HM Treasury -Financial Conduct Authority -Bank of England	- Financial Market Supervisory Authority (FINMA) -Swiss State Secretariat for Economic Affairs (SECO)	-Monetary Authority of Singapore (MAS)

	The US	EU	Germany	Malta	The UK	Switzerland	Singapore
Applicable laws	-Commodity Exchange Act of 1936 (CEA) -Securities Act of 1933 -Securities Exchange Act of 1934.	-MiCA -MiFID II -Markets in Financial Instrument Regulation (MiFIR)	-EU Laws (MiCA, MiFID II, MiFIR) -German Banking Act (KWG) -German Investment Firms Act (WpIG),	-EU Laws (MiCA, MiFID II, MiFIR) -VFAA -ISA	-FSMA RAO -EMR -Payments Services Regulations 2017 (PSR)	-Banking Act (BA) -Financial Market Infrastructure Act (FMIA)	-FSMA -PSA -Securities and Futures Act (SFA)
Other important rules and regulations	-Anti-fraud and anti-market manipulation provisions (CEA-1934 Act) -KYC and AML provisions (Bank Secrecy Act)	-Prospectus Directive and Regulation -Transparency Directive -Anti-Money Laundering Directive5 -Market Abuse Regulation	-German Securities Prospectus Act (WpPG) -German Securities Trading Act (WpHG) -German Market Abuse Regulation -German Money Laundering Act (GwG) -German Crypto Asset Transfer Regulation (KryptoWTransferV)	-Malta Companies Act -Malta Financial Markets Act -Malta Market Abuse Regulation - Prevention of Money Laundering Act -Prevention of Money Laundering and Funding of Terrorism Regulations	-Prospectus Act -Market Abuse Regulation -Disclosure Guidance and Transparency Rules -Money Laundering, Terrorist Financing and Transfer of Funds Regulations 2017 (MLR)	-Financial Institutions Act (FinIA) -Financial Services Act (FinSA) -Anti-Money Laundering Act (AMLA) -Anti-Money Laundering Ordinance (AMLO) -Embargo Act (EmbA) - Swiss Code of Obligations	-Singapore Financial Advisers Act (FAA) -Singapore AML/CTF - Corruption, Drug Trafficking and Other Serious Crimes (Confiscation of Benefits) Act (CDSA) -Terrorism (Suppression of Financing) Act (TSOFA) -United Nation Act

	The US	EU	Germany	Malta	The UK	Switzerland	Singapore
Registration, authorization requirement	- Trading venues for futures, options, forwards, and swaps as well as leveraged and margin trading sites are required to be registered with the CFTC -Security token issuers and secondary markets for security tokens are required to be registered with the SEC	- Crypto asset service providers must have an entity established in the EU and must be authorized by the National Competent Authorities of an EU Member State and this authorization is then notified to ESMA. (MiCA - MiFID II)	-Authorization is required for all investment, financial and banking services activities related to crypto-assets including advertising and marketing of the tokens (KWG)	- Authorization is required for Virtual Financial Assets and Financial Instruments issuers and service providers	-Issuers of digital assets are required to obtain authorization, excluding those issuing security tokens -Platforms that facilitate the buying and selling of digital assets, intermediaries and brokers, wallet providers and other market participants are subject to authorization and licensing depends on the type of token. -Promotion and advertising are subject to authorization	-According to Banking Act authorization is required for payment token issuers and professional intermediaries -According to FMIA and FinIA authorization is required for asset token issuers and professional intermediaries	-According to PSA authorization is required for all digital payment token service provider -According to SFA authorization is required for capital market product issuers and all service provider -Service providers that are incorporated in Singapore but do not provide services in Singapore must also obtain a license
Prospectus Requirement	-All securities issued in the U.S.	-Asset-Referenced Tokens, E-Money Tokens, Other Crypto Assets (MiCA) -Security Tokens (Prospectus Directive and Regulation)	-Asset-Referenced Tokens (MiCA) -E-Money Tokens (MiCA) -Other Crypto Assets (MiCA) -Security Tokens (WpPG)	-Virtual Financial Asset (VFAA) -Financial Instruments (Malta Companies Act)	-All securities issued in the U.K.	-All securities issued in the Switzerland	-All capital market products issued in Singapore

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