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Implications and opportunities of regulatory action for crypto  
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Thank you,

Alexander M. Bakken

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- Abstract -

Throughout the thesis we have examined the crypto market along with the EU proposed Markets in Crypto Assets regulation. With the objective of gaining an understanding of what crypto assets entail, such as their components, possibilities, and risks. Furthermore, we have aimed to establish a fundamental understanding of blockchain technology, and the thesis is outlined to assess what the technology enables, and how a legislative framework can impact the markets associated.

Crypto assets have mainly been unregulated the past decade in Europe, which is partly due to their decentralized nature and has led the crypto market to use computer codes as their code of conduct. The result of this has been an unprecedented number of scams, frauds, and some revolutionary innovations along with market uncertainty. In order for the market to gain integrity there is a need for a legislative framework that ensures stability, investor protection and promotion of innovation. Considering that the decentralized networks, in practice, is available to anyone, could make the regulatory enforcement challenging. Additionally, we cannot anticipate to what extent the market will react to the regulatory entrenchment.

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## **List of Abbreviations**

- AML** – Anti-Money Laundering
- API** – Application Programming Interface
- CBDC** – Central Bank Digital Currency
- DAE** – Digital Asset Entity
- DAO** – Decentralized Autonomous Organizations
- DApp** – Decentralized Applications
- DeFi** – Decentralized Finance
- DigFin** – Digital Finance Package
- DLT** – Decentralized Ledger Technology
- EBA** – European Banking Authority
- EDPS** – European Data Protection Supervisor
- EEA** – European Economic Area
- ESMA** – European Securities and Markets Authority
- EU** – European Union
- GDPR** – General Data Protection Regulation
- IA** – European Parliament’s Impact Assessment
- MAR** – Market Abuse Regulation
- MiCA** – Markets in crypto assets.
- MiFID** – Markets in Financial Instruments Directive
- MiFIR** – Markets in Financial Instruments Regulation
- SME** – Small and Medium Entities
- VASP** – Virtual Asset Service Provider
- Web3** – 3<sup>rd</sup> Gen Internet

# 1. Introduction

Throughout the last decade, the cryptographic industry has become one of the fastest developing industries worldwide. The disruptive qualities of distributed ledger technology, hereby DLT, and price development of crypto assets have attracted hopeful investors globally, despite the risks. The \$2.1 trillion (In April 2022) crypto sector is still subject to patchy regulation across the world (Jones & Wilson, 2022). There has been an increasing fear of fraud and malicious crypto actors who are taking advantage of the absence of a comprehensive legislative framework. The complexity of crypto assets, blockchain protocols, and uncertainty have eventually led many people to dismissing it as just a fad or a Ponzi scheme (Kolhatkar, 2021).

While the crypto asset industry has bloomed, a legislative framework has been absent. This emerges in the U.S Securities and Exchange Commission's concern over crypto asset-related frauds, money laundering, and terrorist financing, which has grown linearly with the increasing value of crypto assets – these are all challenges related to a possible regulation of crypto assets (“Bitcoin and the Challenges for Financial Regulation,” 2021). Countries all over the world are critical of crypto and the risks associated, and this has eventually led China, Egypt, Iraq, Qatar, Oman, Morocco, Algeria, Tunisia, and Bangladesh to entirely ban them, while forty-two other countries have restricted the use of crypto (Quiroz-Gutierrez, 2022). This is in great contrast to the countries and unions that aim to foster innovation while providing safety, such as the European regulatory measures aiming to embrace the phenomenon with policies that boost new digital technology (*Digital Transformation*, 2021).

This thesis aims to focus on the regulatory impact in Norway. Thus, the European legislative framework is highly relevant due to the European Economic Area Agreement, hereby EEA, which combines the European Union, hereby EU, and EEA Member States markets into one single internal market. Since crypto assets will most likely fall under the scope of capital freedom included in the EEA Agreement, European regulatory measures are highly applicable (*EEA Agreement / European Free Trade Association*, n.d.). In September 2020, the European Commission proposed Markets in Crypto Assets, hereby MiCA, which will be Europe's first step into a regulatory measure toward crypto assets. The proposal aims to create a harmonized legal framework for crypto assets throughout the EU and EEA. However, MiCA is not expected to come into force until 2024 (*Proposal for a REGULATION OF THE*

*EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937, 2020*), however on the 14<sup>th</sup> of March 2022 the European Parliament adopted their negotiating position of MiCA (Deloitte, 2022). The legislative effect MiCA will have on EEA countries will be unknown until the EEA committee determines to implement MiCA into the EEA Agreement (Regjeringen, 2021b), nevertheless, MiCA will likely be incorporated as it has ties to the European internal market (*Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937, 2020*)

This establishes the foundation for our thesis research question:

*What are the possible implications and opportunities of crypto assets and a legislative framework?*

This thesis will examine the regulatory effect on crypto assets, thus the crypto markets as a whole. In the MiCA proposal, crypto tokens are defined differently depending on their intrinsic capabilities. The proposed regulation aims to protect investors and strengthen financial stability by establishing the proper classification of digital assets and providing a legal framework for certification to operate. The purpose of these laws is to enhance financial stability, protect market integrity and promote innovation.

Blockchain technology is changing fundamental infrastructure in existing businesses and provides new ways to store, validate, communicate, and analyze data. Our study will look into the bridge being built between crypto assets and traditional investment and savings products through the lens of a regulatory framework. In addition, we will be examining the implications of a regulatory framework for crypto assets. Through examining this topic, we have discovered multiple challenges and advantages to the further development of the blockchain economy and its correlation to the proposed regulation.

In the cryptocurrency regulation summary: 2022 Edition, published by Nasdaq, provides a clear picture of countries' current policies on crypto regulations and further recent developments. In the report, it appears that governments, central authorities, supervisory authorities, and banks, individually and jointly, are working on creating a legal framework that is modern and accommodative but also acts cautiously. For



now, the international Financial Action Task Force, FATF, has issued revised standards on virtual assets and Virtual Asset Service providers, hereby VASP. According to the report, 52 participants are regulating VASPs, and six of these are prohibiting the operations of VASPs. The other 70 jurisdictions have not yet implemented the revised standards in their national law. However, Francois Vileroy de Galhau, the Governor of the French Central Bank, called upon Europe to introduce a regulatory framework for crypto assets. He said that Europe must be prepared to act quickly regarding digital currencies and payments. He added that failure to give this matter the attention it deserves might see Europe lose its grip on monetary sovereignty. In July 2021, The Ireland Central Bank Governor Gabriel Makhlouf warned that the risks to financial stability and consumer protection posed by cryptocurrencies are increasing as more individuals become involved in trading them. He also endorsed the technical architecture behind cryptocurrencies such as Bitcoin and Ethereum. He said the arrival of a digital euro was a matter of “how and when” rather than “if” (Nasdaq, 2022).

## 1.1 Clarification

This thesis focuses on the regulation of crypto assets and aims to establish which regulatory needs crypto assets have and the possible implications thereof. The reasoning is the exceptional growth we have seen in crypto assets regardless of the lack of regulation over the last few years. As the crypto market is expanding further, governments and unions are trying to figure out a way to regulate crypto assets. Hence, the study tries to uncover the need for regulatory measures in crypto markets, specifically in Norway, which is why the EU’s Digital Finance Package and MiCA will be highly relevant. Although the European Parliament and Council proposed MiCA in 2019, it is yet to be adopted. Therefore, the study will mainly focus on the main objective and purposes of MiCA. Thus, the purpose of this study is to examine the possible legal natures of crypto assets.

The data collected for this thesis occurred in the timeframe from November 2021 – June 2022. This thesis will not extend beyond the defined purpose; consequently, other areas may be excluded and limited in this study.

## 1.2 Method

This thesis is composed with a conceptual research methodology as the study is conducted in an observational and analytical manner to obtain the information and identify different variables involving crypto assets and regulatory measures.

The first section of the thesis deal with fundamental aspects of crypto assets and how crypto assets work. This section will further elaborate on what crypto assets offer and their structure. The second section of the study introduces regulatory measures and possible regulations, as well as an insight into challenges with regulating crypto assets. The third and final section will analyze the research regarding crypto assets and their legal nature with a judicial method to recognize the regulatory impact. Further on, this section will discuss the regulatory implications along and review the current practices and activities of the crypto asset markets. This section uses the accumulated data is used to draw a conclusion that will answer our research question.

The data in this thesis has been collected through different crypto organizations, articles, and publications from the EU, the Norwegian Financial Authority, publications from the crypto industry and regulatory bodies, as well as scientific reports, which are consistent with our chosen methodology. As this is a relatively fast-moving and innovative field, it is necessary to point out the possibility that relevant reports and articles have not been publicly published during this thesis. We have also conducted interviews with central participants in the field during the study to gain a perspective on both sides of the crypto asset industry. Since this thesis sets out to provide a factual overview of the legal nature of crypto assets, the collected data is adequate to reach the thesis purpose.

To summarize, the method applied is designed to observe and analyze the available information within the thesis topic to be able to assess the possible impact and consequences of regulating crypto assets. Nevertheless, it is believed that regulating the industry will be beneficial overall.

## **2. Blockchains - A new asset class?**

This section presents an insight into the main components of blockchain infrastructure and crypto economics, the crypto market, as well as introduces possible challenges to the cryptographic industry.

Looking back, the first crypto asset was presented in 2008 when Satoshi Nakamoto published the Bitcoin whitepaper and later initiated Bitcoin in 2009. An alternative payment solution isolated from traditional infrastructures, based on cryptographic truth instead of trust. Bitcoin tokens represent the ownership of cryptocurrencies and are stored on public ledgers. The Bitcoin blockchain essentially serves as the trusted third party instead of traditional financial institutions. The network is secured by nodes and incentivizes honest participation (Nakamoto, 2009).

The limitations of the Bitcoin blockchain inspired developers to create the Ethereum Blockchain. The development was led by Vialik Buterin and launched in 2015. Ethereum is a smart contract platform that provides developers with secure protocol standards that others could further create applications on top of. The inauguration of Ethereum accelerated the development of the industry and enabled new innovations such as decentralized financial markets, online-voting systems, and ownership guarantees. Ethereum enabled a new user-to-contract model which does not require as many interactions with the underlying blockchain as the Bitcoin blockchain. Hence, compared to Bitcoin, the Ethereum script is a more suitable programming language for decentralized applications and allows the writing of advanced smart contracts, containing all the necessary logistics for decentralized applications. The Ethereum virtual machine can be considered the trusted building layer, and developers can further develop contracts and specialize them to different functions and needs (Ethereum Organization, 2022a).

Blockchains can be either decentralized or centralized, meaning that the computers that run the respective distributed ledger networks can be operated by anyone who initiates the software or by a centralized entity or group. Initially, the crypto industry wanted to be free from regulations and pledged to the decentralized aspect. However, in recent years, the question regarding decentralization has been critically approached, thus the unregulated nature of such assets. Open-source software enables users to examine the codes used to build blockchain protocols and facilitates the necessary public trust in the software, like government-issued certifications and regulations (*What Is Open Source?*, n.d.). Through the development and evolution

of blockchains, there has been a significant increase in the number of cryptocurrencies available in the market, from Bitcoin in 2008 to more than 18.000 different crypto assets in 2022 (Hayes, 2022). The continuing evolution and development also expose the difficulties of regulating and supervising the entire scope of crypto assets.

## 2.1 Blockchain Infrastructure and Economics

An essential piece of the cryptographic infrastructure is Distributed Ledger Technology, hereby DLT. Blockchains are enabled by the operation of DLTs and refer to the technological infrastructure and protocols that allow simultaneous access, validation, and record updating in an immutable manner across a network spread across multiple entities or locations (Frankenfield, 2021).

In the blockchain infrastructure, the three main elements are **(1)** the virtual state machines that are deterministic protocols, **(2)** the creation of token ledger, and **(3)** private key signing, which did not exist until the creation of crypto assets and forms the core of crypto assets as a whole. They require rules, logbooks, and the possibility to make transactions, which is beneficial for the consumers and investors in the market.

### **Virtual State Machines**

A blockchain uses DLT and is described as synchronized global ledgers - transaction recordkeeping - shared among computers. Nodes verify and update the information stored on the ledger, and smart contracts automatically execute new actions (IBM, n.d.).

Nodes are the engine of all blockchains and serve three primary purposes: **(1)** to confirm and validate transactions, **(2)** to create new coins, and **(3)** to make blockchains secure. This process of adding another block to the chain is known as minting. Any computer that runs node software is considered a node operator. Nodes are indispensable and fundamental components of blockchain network infrastructure (Nibley, 2021).

Blockchains provide a tamperproof, highly transparent, and counterparty risk-guaranteed contractual system that is operated and governed by computer nodes. The

consensus algorithms are key features of the software and determine the operating rules of the network to ensure consensus across all participating nodes. Blockchain networks are dependent on the network of specialized nodes, which replaces centralized entities. Nodes act as the governmental authority within the network. Given the inherent capabilities of the virtual state machines, there is not necessarily a need for additional inputs, guidelines, or implications. The development of blockchains protocols is both complex and complicated and contains a high risk of bugs in the contracts that malicious participants could exploit.

Termed by Vitalik Buterin, The Blockchain Trilemma addresses the challenges developers face in creating a blockchain that is scalable, decentralized, and secure — without compromising on any facet. So far, no one has been able to solve this dilemma without compromising the various elements. However, it is essential to notice that it is only considered a model to conceptualize blockchain technology's various challenges. It is yet to be discovered if this is the inherent limitation of blockchain networks (CertiK, 2019).

### **Creation of a token ledger**

Furthermore, for the first time in history, distributed recordkeeping allows us to have unique and fungible digital objects that are also scarce. This includes tokens that represent the underlying smart contract. A smart contract is a code that dictates what actions can or cannot be executed. Smart contracts inherit capabilities to receive, store and send funds/information, and interact with each other (Ethereum Organization, 2022b).

There are several ways to build blockchains as the infrastructure can be designed decentralized or centralized and be based on various consensus mechanisms. Creating new opportunities for global “communities”, as well as private corporations and consortiums (*Enterprise on Ethereum Mainnet*, 2022).

Initially, fungible tokens are intended to be utilized for the purpose of enabling certainty of authentication and reliability, transfer of value, and ownership guarantees without a counterparty verifying the information, object, or certificate. Hence, the token's main utility is operating and governing the blockchain where it originated. With recent innovations, blockchains are becoming interoperable, and participants in the digital space can “wrap” tokens into smart contracts, enabling users to transfer them onto other blockchains and thereby utilizing the value in multiple ways.

As the blockchain industry has evolved, lawmakers strive to create a range of definitions that will include all possible token alternatives (Frankenfield, 2022).

Apart from tokens with a determined utility, a new specter of tokens has been developed. Non-fungible tokens do not necessarily have a specific use case related to blockchain infrastructure. However, non-fungible tokens have the same foundational features as fungible tokens. Since they are minted on a blockchain-based system, they are impossible to counterfeit and easily transferrable. Furthermore, non-fungible tokens are non-divisible and have multiple qualities (Nadini et al., 2021). Artists have utilized them to access a global market and establish direct connections with their communities, as well as for game makers to provide ownership of in-game assets for their players. Given the non-fungible tokens' abilities, they are suitable to be used in traditional markets and could be a breakthrough in relation to global adoption (*How Tokenization Is Putting Real-World Assets on Blockchains / Nasdaq*, 2017).

### Private key signing

Nick Szabo initially presented the term smart contracts in the 1990s, and the execution of smart contracts is a critical element of all blockchain architectures (Gord, 2016). Smart contracts are immutable, deterministic, and autonomized once deployed. When initiating a blockchain transaction, users approve the digital orders and, smart contracts are the element that ensures the information and execution are implemented on the blockchain.

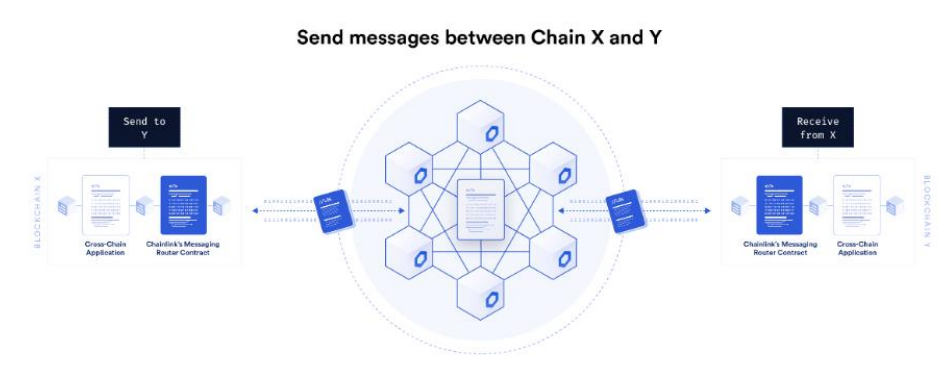


Figure 1: Cross-chain communication interoperability utilizing oracle networks (*Cross-Chain Interoperability Protocol (CCIP) | Chainlink, n.d.*)

Token smart contracts are used to create, track, and assign ownership rights to specific digital tokens existing on blockchain networks (*What Is a Smart Contract?*, 2021). Just like traditional agreements, legal parties in smart contracts are obliged to sign the respective digital document which, is the formal certificate. Hence, the

private key and wallet features are the third and final critical feature of blockchain networks and enable participants to transact with each other without being dependent on an intermediary.

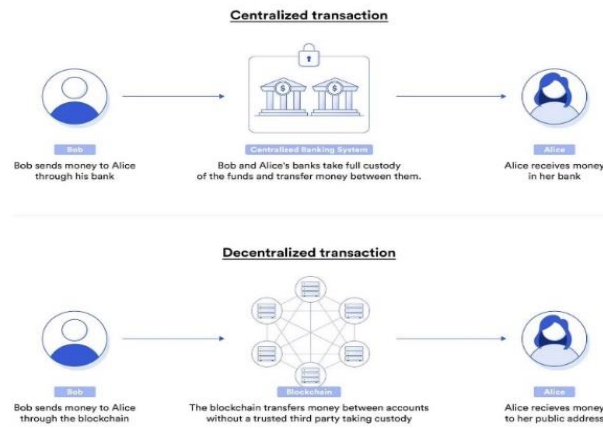


Figure 2: Transaction using decentralized blockchains instead of centralized intermediaries: (What Is a Smart Contract?, 2021)

However, basic smart contracts initially enabled the three main features mentioned above and are characterized by the contractual definitions for on-chain reliability, tamperproof properties, and security. Today, more advanced smart contracts have enabled the interpretation of existing data sources and can integrate the databases into blockchain networks (Ethereum Organization, 2021). Another element of blockchain networks is the possibility to create additional applications, layers, or networks that can connect and communicate with the fundamental ledger. The creation of Oracle networks and cross-chain communication have enabled additional features to the blockchain infrastructure necessary for any integration into traditional infrastructure.

Oracles are essential key pieces of blockchain infrastructure because oracle networks create accessibilities and capabilities beyond private key signing, the creation of a token ledger, and state machines. Such as **(1)** validated data which consists of providing data inputs into smart contracts, **(2)** Off-chain computation which includes concepts and standards, and **(3)** cross-chain communication, which enables interoperability between blockchains, also known as chain-to-chain data. Oracle networks can generate consensus about anything and do not generate blocks. They inject information that the oracle network has come to a consensus about into the blocks of different blockchain ledgers. Consequently, the blocks and the contracts within interact with multiple data inputs in a valuable way (Chainlink, 2022).

## **Crypto Economics**

Initially, given blockchain protocols consensus mechanisms, blockchains are designed to run without interference from governmental authorities. Crypto economics is unique in the way that it incentivizes participants to act honestly and sustainably without relying on trust.

The idea of the token economy was propounded first by the Harvard psychologist B.F. Skinner in 1972. He believed a token economic model could control behavior (*Social Token Economy*, n.d.). Tokenomics determine two things about a crypto economy – the incentives that set out how the token will be distributed and the utility of the tokens that influence its demand. Supply and demand significantly impact price, and projects that get the incentives right can surge in value (Stevens, 2022). Crypto economics arguably changes traditional game theory, such as the prisoner’s dilemma, and turns it from a non-cooperative game into a cooperative game. Imagine that you have a certain stake in a risk-free outcome, both rational players would have predetermined choices, and trust between the parties would be eliminated. Game theory prevents internal corruption and helps rational decision-making for oligopolies and other economic structures. Game theory is at the heart and soul of all financial and crypto economic systems and is one of the most significant factors in maintaining its integrity (Ivanontech, 2021). The main takeaway is that consensus mechanisms could eliminate the need for a centralized governing authority. Although consensus mechanisms encourage honest participation, there is still a risk of hostile network takeovers. This raises the question of whether a regulatory framework could impact the development of decentralized distributed economics, hence blockchain network ecosystems, and if it is intrinsically necessary to create one in relation to the core concepts of crypto economics.

Distributed ledger networks have enabled the vast number of applications that cooperatively make the crypto market. However, these networks’ permissionless and decentralized nature has also created a complex present, given the potential impact of ledger technology within the traditional infrastructure. Although crypto markets are infamous for their decentralized, unregulated, and permissionless nature, some crypto assets are regulated as financial instruments as defined in MiCA Article 4(1), point (15). However, most crypto asset falls outside the scope of *de lege lata*. In



light of all the recent black swan events, including Covid-19 pandemic and the Russian invasion of Ukraine, and with the recent involvement of financial institutions and venture capital, as well as further contributions related to bridging traditional and crypto markets. It is time for *de lege ferenda* with view for the future law.

## 2.2 Crypto Markets

Crypto markets started with decentralized organizations, decentralized applications, and individuals. It has evolved into broader markets, resulting in crypto assets providers, such as centralized exchanges, blockchain-as-a-service, and storage providers. As the digital transformation continues to evolve, blockchain middleware could be reliable enough to secure trillions of values in traditional markets. They could potentially serve as an abstraction layer for society, businesses, financial institutions, and governments and be integrated into existing infrastructure, delivering smarter and more efficient solutions. Thus, such organizations would also have to be acknowledged as trustworthy.

DAOs have three main traits; **(1)** Member-owned communities without centralized leadership, **(2)** a safe way to collaborate with internet strangers, and **(3)** a safe place to commit funds to a specific cause. DAOs must be equally accessible to all network participants and execute actions according to mutually pre-agreed rules and commands. Also, it would not leak sensitive information to unintended entities while extracting as little value as possible from the process (SmartContent, 2021). Given the digital nature of this market, there is a need for full transparency and cooperation between parties. The market is governed by the computer nodes, operated by smart contracts, and initiated by agreements. Immutable computer programs ensure that markets run deterministically.

Furthermore, traditional paper proof and intermediary guarantees are inefficient and expensive. By utilizing blockchain infrastructure, individuals, financial institutions, and governments can verify and exchange assets at a lower cost, more efficiently and transparently, than traditional alternatives. To what extent such technology could impact other areas of society once regulations are in order, is yet to be discovered.

For a market to function properly, there must be a supply and demand for something. Decentralized Applications, hereby DApps, could be considered as the digital

cogwheel within the intangible market. The smart contract bases are becoming extremely advanced and enable innovative products. The development of blockchain products enabled by the issuance of crypto tokens and the creation of blockchains have extensive reach and could be integrated into any web Application Programming Interface, both within traditional markets and Web3. A well-developed section of the crypto market is Decentralized Finance. Within this sector, there have been developed numerous applications related to money markets, synthetic assets, decentralized exchanges, staking protocols, and stablecoins. For this market to function properly, there is a demand for price feeds provided by Oracle networks presented in Private key signing, for example, money markets:

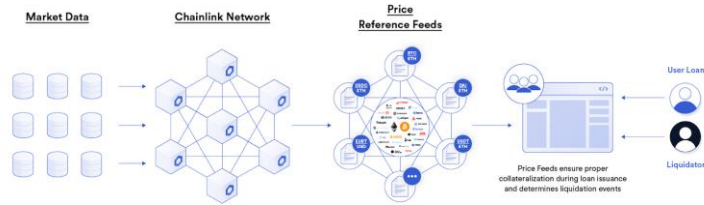


Figure 3: Oracle network providing market data into price reference feeds utilized in Decentralized financial markets: (77+ Smart Contract Use Cases Enabled by Chainlink, 2020).

Contracts usually define the terms and obligations between two or more independent parties. Historically, centralized intermediaries have been required to verify if these terms and conditions are met. With the advent of blockchain technology and smart contract applications, we can now replace intermediaries with decentralized infrastructure. Thus, reducing counterparty risk and improving operational efficiency. The lack of capabilities for interacting with external resources is known as the blockchain oracle problem and represents one limitation for everyday contracts on blockchains (77+ Smart Contract Use Cases Enabled by Chainlink, 2020).

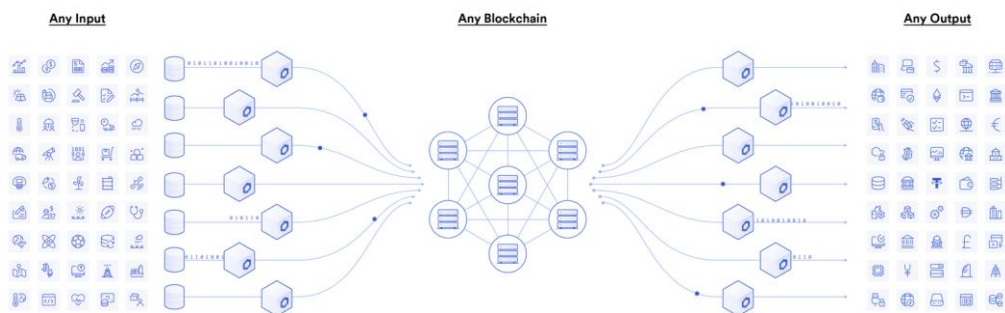


Figure 4: Off-chain computation being implemented on-chain through oracle networks: (77+ Smart Contract Use Cases Enabled by Chainlink, 2020).

Furthermore, implementing blockchain abstraction layers could create new revenue streams, access to the blockchain economy, native blockchain interoperability, and a future-proof integration gateway.

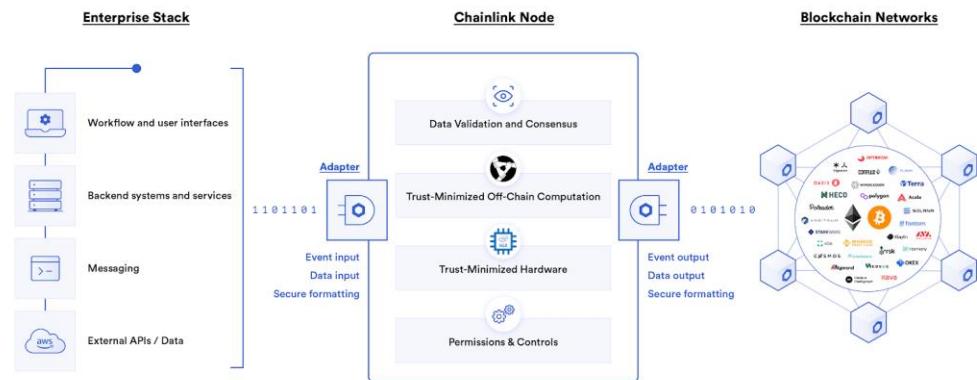


Figure 5: Examples of enterprise use cases for blockchain compatibility using oracle networks: (77+ Smart Contract Use Cases Enabled by Chainlink, 2020).

Blockchain network's disruptive inception and revolutionary capabilities and similar technologies initially created divergent perceptions between countries, municipalities, and individuals worldwide. The lack of an overall union framework could lead to a lack of user confidence in the assets and undermine efforts to use crypto assets for digital innovation, as well as regulatory fragmentation, which will reduce participants' cross-border possibilities and enable regulatory arbitration, cf. MiCA p. 16 (4). It is pointed out that such processes could enhance small and medium sized enterprises and possibly function as a more effective global financial infrastructure. Hence, by streamlining capital-raising processes and enhancing competition, issuances of crypto-assets can allow for a cheaper, less burdensome, and more inclusive way of financing small and medium-sized entities cf. MiCA p. 15 (2).

## Crypto Assets

Crypto assets are digital assets that exist on or are a part of blockchains. Tokens can be conceptualized as assets, when one purchases tokens, one automatically becomes the controller of the token. This new asset class is encrypted, which means that it is programmed in software, and ledgers can be decentralized, distributed, or centralized. The permissionless nature of the blockchain networks makes them highly scalable and cost-efficient. The same principle that applies to transactions

fees when making purchases may be used to crypto economics, since the Ethereum Virtual Machine levies a price for the proceeding of the transaction.

Crypto assets have different functions and characteristics and can be applied as a medium of exchange or for other purposes as described above. Cryptocurrencies are a type of crypto asset and were first created as an alternative to fiat currency, however, they are not considered a legal tender globally or to have any intrinsic value. Therefore, the value is argued to be based on supply and demand. As most crypto assets are not defined by current legislation, hence they are not subject to securities law (FCNB, n.d.). With the exception of Anti-money laundering, hereby AML, and taxation regulations. Crypto assets are intrinsically comparable to traditional investments from a purpose perspective. For example, companies traditionally use stocks to raise capital for further operations in exchange for fractional ownership and shareholder rights. In relation to stocks, decentralized autonomous organizations issue tokens, and as mentioned in section 2.1, tokens have different capabilities and could be transitory. Hence, there are several distinctions between crypto tokens, cryptocurrencies, and alternative coins. Crypto tokens are a type of cryptocurrency that represents an asset or specific use and reside on their blockchain.

- Tokens can be used for investment purposes, to store value, or to make purchases.
- Cryptocurrencies are digital currencies used to facilitate transactions.
- Altcoins and crypto tokens are types of cryptocurrencies with different functions.
- Created through an Initial Coin Offering, crypto tokens are often used to raise funds for crowd sales.

(Frankenfield, 2022).

Where crypto assets are defined as digital representations of value or rights that have the potential to bring significant benefits to both the market participant and consumers cf. MiCA p. 15(2). According to the proposal for a regulation of the European Parliament and of the council on MiCA and amending Directive 2019/1937, such assets are introduced broadly as crypto assets.

**Table 1:** An overview of the definitions from MiCA article 3.

<b>Crypto asset</b>	Means a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology.
<b>Asset reference tokens</b>	Mean a type of crypto asset that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities or one or several crypto-assets, or a combination of such assets.
<b>E-money tokens</b>	Mean a type of crypto asset the main purpose of which is to be used as a means of exchange and that purports to maintain a stable value by referring to the value of a fiat currency that is legal tender.
<b>Utility tokens</b>	Mean a type of crypto asset that is intended to provide digital access to a good or service, available on Distributed Ledger Technology, and is only accepted by the issuer of that token.

*Cf. MiCA article 3.*

### **Stablecoins**

Stablecoins and asset referenced tokens distinct themselves from other crypto assets due to their intrinsic value. From a conceptual point of view, stablecoins are fundamentally a simple idea. A blockchain-based token whose value is pegged to another currency, essentially results in a superior form of traditional fiat currencies. A massive issue is that although Stablecoins are pegged to a currency, they are not always backed by full reserves to the Fiat currency. Token distribution events appear to be transparent, and the protocols are immutable. Hence, there is an equal playing field for all parties, and no further implications should be made. A judicial expulsion of decentralized applications could affect innovation and create undesired market barriers, and raises the question; what is the cost of centralization?

Nevertheless, some crypto regulations are already apparent in most countries worldwide. The dilemma is solved by either acknowledging the phenomenon or not. In

Europe, there has been a shared interest in creating a harmonized framework that supports the basis of the Markets in Financial Instruments II directive, hereby MiFID II, and the Market Abuse Regulation, hereby MAR, which includes enhancement of innovation and financial stability, as well as customer protection. The MiCA proposal is comprehensive and aims to regulate the entire crypto value chain. Naturally, such things are not easy but necessary for legal contributions within the union.

Stablecoins represents a significant market share of the total crypto market. They are the practical solution to using foreign currency on-chain, proving that the market is still very immature. The tokens are the users' entrance pass to blockchain networks and can be used in a practical and multilateral way. However, there are differences, and most crypto projects and tokenomics have failed. Significant security issues have been related to these developments, and only a few well-developed, battle-tested blockchain networks are active today.

Crypto assets appear to have similar traits to a diverse set of financial instruments, which is the main challenge for regulators as these markets are highly sensitive and should not be excessively controlled. The outcome of these legislation could be impacted by the notable current macroeconomic environment. We do not, however, see any serious risks that laws will not foster innovation. Blockchain tokens, crypto assets are simply an asset and have different traits. The market has already established itself and legitimized, though a subject too patchy regulations that create legal uncertainty.

## 2.3 Challenges

Throughout the thesis, it has been stated that a central part of crypto assets is that they are decentralized, which is a part of the foundation which makes them difficult to regulate since it challenges the entire idea with crypto assets, that they should be self-regulating and unbreakable (Østbye, 2021). However, in theory, it should work, but in practice, it has become clear that extended regulation is needed to ensure a fair, even, and well-functioning market. The lack of regulation and the increasing popularity of crypto assets along with new cryptocurrencies alternatives have led to an increase in the risk for fraud, which many have taken advantage of, as seen in Chainalysis' crypto crime report of 2022 (*Crypto Crime Trends for 2022*,

2022). It was reported that scammers took \$14 billion of crypto assets in 2021, which shows the increasing amounts that get scammed each year, thus weakening investor trust and increasing the overall skepticism. The high-technology features of crypto assets are often thought to be un-hackable, but the technical nature of crypto assets also attracts highly sophisticated scammers and hackers (DeMatteo, 2022). As stated above, the crypto asset market has experienced a bull run over the last few years, which can contribute to developers who wish to participate, who might rush their crypto assets and blockchain technology into the market.

On the other hand, there are not only positive attributes to introducing a regulatory framework. The legislative scope also needs to find a balance between consumer and investor protection and not further inhibit innovation in order not to reduce the growth and incentives for further innovation. Furthermore, it is important that crypto asset-related businesses, such as issuers and the industry itself, receive proper guidance on how to apply the legislation. Another perspective on the regulatory framework on crypto assets is knowing and understanding all the associated risks, such as the impact on ecosystems to other related crypto asset issues. Therefore, it is important that the industry, market participants, and regulators work together to achieve a sufficient and well-thought-out legislative framework (Summerfield, 2019).

Even though MiCA aims not to inhibit innovation, the question arises as to whether regulation itself includes a reduction of innovation. It is a known phenomenon that regulatory framework affects innovation – and too comprehensive legislation often inhibit innovation (Blind, 2012). Considering this, the EU, in 2017, adopted a tool for all EU regulatory frameworks, the Innovation Principle, to ensure legislation does not suppress innovation. This is highly beneficial for EU legislation as a whole, and especially for the crypto asset industry since the EU wishes to enhance the blockchain technology to reach the technology's full potential by limiting the associated risks (European Parliament, 2022), which aligns with the EU's digital transformation. Looking toward the MiCA regulation as another challenge with regulating crypto assets is that technology is constantly changing, which leads to the question of whether a regulatory framework can keep up with possible futuristic innovation and development. Looking at the timeframe of MiCA, it is not expected to be adopted into force until 2024, which is a few years away. Comparing that to the crypto asset trends over the last few years can possibly add extra challenges to

efficiently implementing the legislation. Another point is the probable continuing evolution of crypto asset technology. An additional aspect is the supervision and control of all the different types of crypto assets to ensure the correct crypto assets achieve the correct legal definition and control the implementation of it.

Today the crypto asset industry in Europe is mainly outside the EU regulatory scope, except for AML and taxation regulations and a few national regulations within the EU. Since the crypto blockchains are designed not to have intermediaries, which includes both advantages, such as enabling safe and transparent transactions without a central register, and disadvantages, for example, if a consumer or investor loses their wallet key, there is no central register to help, and the money is inherently lost as the responsibility lies upon the consumer and investor. This means that there is no regulation for consumer and investor protection with crypto assets which can increase the risk of participants losing their money either to scams or the high volatility associated with crypto assets. Looking further into the market perspective, all the risks accompanying crypto assets have the possibility of increasing financial instability, which again influences market manipulation along with financial crime (European Parliament, 2022), thus, supporting the need for a legislative framework both for the industry and participants.

### **3. Regulation**

Decentralization and DLT are becoming more familiar to individuals around the globe, and blockchain protocols are being adopted without the presence of a legislative framework. Open-source software enables users the ability to examine the codes used to build blockchain protocols and facilitates the necessary public trust in the software. From a market perspective, most decentralized organizations, as well as enterprises and authorities are using trusted base layers - for example, Ethereum to further develop products such as decentralized applications (*Geroni, 2021*). The amount of widely adopted blockchain protocols is limited. However, the number of possible contributions to the blockchain networks is indefinite, and there is necessarily no need for a vast amount of blockchain networks. The distinctions in the protocols today are mainly related to the scalability, security, and decentralization features. However, one could argue that the security standards required from market participants are sufficient for a functioning market and that the crypto market is self-regulatory in its nature (*Majaski, 2022*). Furthermore, blockchain enthusiasts have a shared interest in promoting personal privacy, radical



transparency, and eroding the authority of nation-states, or at least reducing states' scope of responsibility. Crypto-libertarians are characterized by an individualist approach to human interaction, a capitalist approach to economic organizations, and a market-based approach to governance.

As previously mentioned, the first crypto asset was Bitcoin, which partly came as a result of the financial crisis in 2008/2009 and introduced the idea to being unregulated to remain neutral from government interference and policies. Through the evolution of crypto assets, different retailers now accept Bitcoin as a form of payment. Additionally, in 2021, as the first country in the world, El Salvador adopted Bitcoin as an official currency (Lund, 2022). Furthermore, VISA has entered an agreement with the cryptocurrency Ethereum, connecting an individual's digital wallet with their card to execute real-time purchases (Bambysheva, 2021). However, with this being a possibility, a question submerges if this makes crypto assets appear safer than earlier and attracts new consumers and investors to the crypto asset market.

On the other hand, The Norwegian Central Bank does not believe it to be a high possibility that crypto assets will make banks and the Norwegian krone unnecessary any time soon, as there is a high amount of trust within the Norwegian society (Norges Bank, 2021a). This thought is also supported by the SIX White paper about the "*Future of Money*" which states a low possibility of Bitcoin takeover scenario (Dahinden et al., n.d.) p. 48. However, it is crucial for the Central Banks to be aware of the impact crypto assets will have on Central Banks; as of today, they take money out of the Central Banks' rotation and into their own blockchain rotation. Also, according to experts, it is very likely that there will be a sharp fall in crypto assets in 2022; this can perhaps be a result of crypto assets are getting more recognized by major financial institutions along with the enormous growth we have seen in the latest years (Knudsen, 2021).

From a consumer and investor point of view of crypto, regulations must come into effect. The European Banking Authority, EBA, has identified several characteristics and risks consumers and investors need to be aware of when deciding to invest in crypto assets, such as losing money due to the high volatility, hackers, fraud, losing their key to their digital wallet as well with the lack of protection (Finanstilsynet, 2013). In May 2021, the American Federal Trade Commission reported that crypto investors had lost more than eighty million dollars in investment scams with

various cryptocurrencies between October 2020 and March 2021 (Kolhatkar, 2021). This underlines the importance of establishing consumer and investor protection within crypto assets, as it is within reason to state that as investing in crypto becomes more and more popular, various scams will follow.

The lack of regulatory frameworks has had its pros and cons. Nevertheless, there is no secret that early adopters have been willing to take the risks associated with these markets, and the nature of such assets makes investors attractive targets for malicious actors. We find that the current knowledge about technology is increasing, and we are shifting towards a more advanced stage of the internet, known as Web3. In just a matter of a decade, distributed ledgers and blockchain technology have developed to become the most disruptive technology to advance and could reinvent the relationship people have with entire sections of the economy. Today, approximately 1.7 billion people do not have access to a bank account, and \$650B is paid in global remittances annually, with an average cost of 6% (Andreessen, Horowitz, 2022, p. 25). The extensive reach and abstraction possibilities challenge traditional infrastructures and create new solutions. Thus, moving the economy from probabilistic paper guarantees and dependence on third-party entities to establish trust, toward trust-minimized deterministic cryptographic guarantees.

Furthermore, Web3 provides users with property rights; everyone can own a piece of the internet. Storing assets and other values on blockchain networks – could reduce the dependence, inefficiencies, and risks associated with financial institutions and big tech companies, which today receive an unprecedented amount of the value created by its users and create suited solutions for specific customers. In order to understand the full perspective on this, it is important to distinguish the impact on the different industries. The main advancement is that Web3 empowers a collective owned future over a corporate or government owned future. Traditional infrastructures usually have single points of failure and control, while web3 is resilient, equitable and, participatory.

A technological imperialistic approach has proven to be beyond our evolution, and too extensive requirements for implementation into current financial and political systems would likely diminish innovation. Although the crypto market is characterized as self-regulatory, it would be beneficial to establish a regulatory framework to reduce the risks associated with the market, legitimize the use and services

enabled by blockchain technologies, as well as enhance the willingness to explore similar technologies. Hence, creating a higher degree of credibility, stability, and predictability. Globally, we have seen numerous efforts to establish legal frameworks in crypto markets. Starting with Canada in 2014 and anti-money laundering and suspicious activity compliance, national frameworks are now ranging from initial coin offerings prospects, service providers, crypto assets as legal tenders, investor protection as well as formal recognition of decentralized autonomous organization company structure and taxation of digital assets throughout the world (Nasdaq, 2022).

Both governments and crypto market participants want a legislative framework to ensure a reliable future for crypto assets. Consequently, in order for crypto assets to become a viable savings and investment alternative for consumers and investors, it is crucial that crypto assets will be regulated. Therefore, this section will provide an overview of the regulatory scope, including the traditional financial regulation to crypto regulation today, as well as a view of possible regulations for crypto assets in the future.

### 3.1 Traditional Financial Regulation.

Compared to traditional savings and investments products to crypto assets, the regulation contrast is great. Looking at the popularity growth of cryptocurrencies over the last few years, it is important that a legislative framework will enter into force to protect consumers and investors from the risks associated with crypto assets.

Norway's traditional financial regulation is heavily influenced by the EU and EEA Agreement, as the financial markets are a part of one of the four freedoms most central in the agreement, which are the free movement of capital, services, people, and goods within the EU and EEA area (European Union, n.d.).

#### **Markets in Financial Instruments Regulation and Directive II.**

There are several different regulations in place to ensure an effective financial system throughout the EU. MiFID II and MiFIR are two key EU legislations in financial regulation that entered into force in January 2018 (*MiFID II*, n.d.), which have been implemented in the Norwegian Security Trading Act through the EEA Agreement in 2019 and 2020 (*MiFID II/MiFIR - historikk*, 2020). They regulate the

companies that offer services related to financial instruments. MiFID II and MiFIR are based on the first MiFID from 2004, which proved itself insufficient during the financial crisis in 2008/2009; thus, MiFID II and MiFIR got adopted in order to attempt to cover the regulation needs exposed during the crisis, as well as adapt to the technological development in the economy. The two main purposes of MiFID II and MiFIR are to increase both transparency and consumer protection to secure trust in the financial European internal securities market (*MiFID II / MiFIR*, 2017). At first glance, it looks like MiFID II and MiFIR is suitable for crypto assets as they focus on transparency and improving consumer and investor protection will be beneficial for the market. In the aftermath of the financial crisis, the Norwegian government claimed that the financial markets were not robust enough and that there was a need for democratic insight, regulations, and governance. The Norwegian economy is based on mixed principles from capitalism and socialism; therefore, we have an egalitarian approach to free markets. This gives Norway an advantage compared to other EU countries once regulations are established (Regjeringen, 2009), (Regjeringen, 2013).

### **Market Abuse Regulation.**

Another key EU legislation included in Norway's regulations of financial instruments and products is MAR, which expands the regulatory scope for financial instruments and markets, also making the financial regulation framework more harmonized through the EU and EEA. MAR's main purpose is to maintain integrity in the securities market and to achieve an effective and well-functioning internal market. MAR contains requirements that require resources for skills, development, implementation, and investments (*Markedsmisbruksforordningen (MAR)*, 2012). MAR and the Security Trading Act establish the scope for which financial instruments are under the umbrella of traditional financial regulation. The term includes stocks, obligations, bonds, mutual fund shares, and derivatives, to mention some. However, crypto assets usually do not fall under the same definition, hence category. This is despite the fact that the different instruments will give the investor a capital gain or loss when the investment is realized. Therefore, it is essential to establish the main differences between financial instruments and crypto assets. This represents one of the biggest questions in regard to crypto asset regulation.

### **Markets in Crypto Assets.**

In order to ensure a sufficient legislative framework, it is important to correctly define the different crypto assets, which is what MiCA is trying to achieve. MiCA's main objectives are closely related to the objectives of these regulations and thus regulates the market as a whole. The main intention of these regulations is to mitigate risks, protect market integrity and enhance financial stability.

Comparing financial regulation to crypto asset regulation today, it becomes apparent that there are significant differences and perhaps loopholes that some issuers and participants take advantage of today, as seen with the number of scams performed in the market. Looking back to the bull trend, different crypto assets have had in the last five years, along with the popularity, is one of the contributing factors to why the European Commission created MiCA, so consumers and investors can get access to different crypto assets without compromising the internal capital market, as the rules are set up in the internal market (Vermaak, 2020). Thus, in order for the EU to keep up with the evolving times and not create an uneven playing field in the crypto market across the EU, it is crucial that they take a stand on crypto assets. Nevertheless, any new and comprehensive legislative framework will have repercussions across the entire market. This includes issuers, consumers, investors, and the market integrity as a whole. Further on, the study will examine the different implications related to the repercussions.

### 3.2 Crypto Regulation Today.

As previously stated, crypto assets are decentralized, thus, self-regulating, which is the main way that crypto assets are regulated today. Yet, decentralization does not ensure against that some participants will gain a central position in the system, consequently acquiring a significant impact on the protocol. Additionally, indirect regulation of crypto assets is an external regulating mechanism, also known as the invisible hand by Adam Smith, which correlates with the modern economic market. However, as seen through the scams and frauds happening, the market forces and decentralization alone are insufficient enough to regulate every condition of different crypto assets (Østbye, 2021).

With the exception of a few EU countries, Germany, Malta, and France (Zanderson, 2021), there are little to no national regulatory frameworks specifically designed for different crypto assets in the EU today. However, within the three main

types of crypto assets, some regulatory measures which are partly applicable to them (Tukun, 2020).

#### Investment / Asset referenced tokens.

Considering investment tokens can be seen as financial instruments, they could go through the Securities Trading Act as they correlate with objectives and purposes. However, some investment tokens are secured with a non-generic underlying asset. These types of assets are not typically financial instruments as these rights are unique and, therefore, could be difficult to trade in financial markets. Nevertheless, the EU Commission considers both investment tokens and stablecoins to go under the financial instrument definitions described in MiFID II, and the Security Trading Act (Tukun, 2020).

#### Payment/ E-money tokens.

Payment tokens are included in the money laundering regulation. Where Norwegian crypto exchange services are approved by the Norwegian Financial Authority when registered, they are reportable when suspicious transactions occur.

Stablecoins are a combination of investment tokens and payment tokens and are hence under the financial institutions' act which is also connected to MiFID II under the EU Commission. The Central Norwegian Bank has stated that stablecoins aimed at the public, with a face value guarantee, will fall under the e-money directive in the Financial Institutions Act (Tukun, 2020).

#### Utility tokens

In principle, utility tokens are not regulated in EU financial regulation, however, this is not due to any lack of regulatory need (Tukun, 2020). Thus, the EU proposal, MiCA, includes tokens that are not of direct financial character (Næsse, 2021).

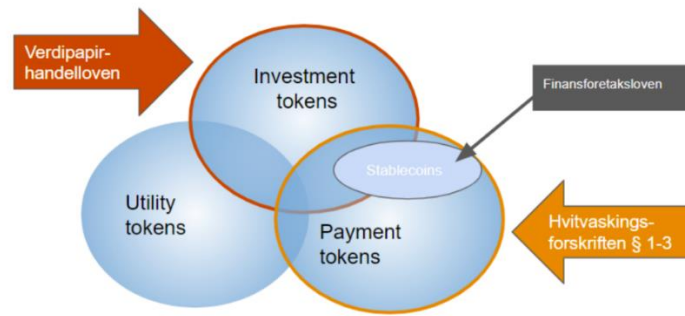


Figure 6: Overview of Crypto regulation (Tukun, 2020)

In addition to this, there are two legislations that apply to crypto assets in Norway are Anti-money laundering, hereby AML, and taxation regulations.

Through EU legislation, specific requirements for the different exchange services and issuers have been established, which in Norway are incorporated in AML regulation (Tukun, 2020). However, apart from this, exchange services are, for the most part unregulated consequently, there is risk associated with them, especially for investors and consumers (Finanstilsynet, 2013). The Norwegian Financial Authority does not supervise the exchange services with the exception of AML supervision. Thus, a false sense of security can be added for investors and consumers who uses Norwegian approved exchange platforms (Gjedrem, 2021).

Furthermore, the Norwegian Tax Authority has been at the forefront regarding taxation of crypto assets and now includes regulations on sales, purchases, fortune, mining, DeFi, and Non-fungible tokens. Crypto assets are considered fortune, and all transactions related to the transactions trigger taxable such events as capital gains, or losses (Skatteetaten, n.d.)

### 3.3 Possible Crypto Regulation.

Since Norway is a member of the EEA (Regjeringen, 2021a), the EU's regulatory approach will be highly relevant for Norway, cf. art. 42 (1) EEA Agreement. This can also be seen through the legislative framework of MAR and The Securities Trading Act.

It is not uncommon that new and innovative technologies influence how finance work and are beneficial for the financial markets as they can be a contributing factor to minimizing barriers and making financial markets available to both businesses

and consumers (*Digital Finance*, 2020). Looking at the trend during the pandemic, new investors and consumers have sought to invest in other products than traditional investment and savings products. The reasoning behind this could be a mix of new technology and the fact that cryptocurrencies have profiled investors along with celebrities facing the products as well, despite that EU and Norwegian Financial Authorities warn against it (Gjedrem, 2021). In March 2018, the European Commission started to examine the different opportunities, and challenges crypto assets have, as they are one of the main applications of blockchain technology in finance. In 2019, it was argued that some crypto assets could fall under the scope of EU legislation. However, some provisions of the legislation may inhibit the use of DLT under the EU legislative framework. Nevertheless, ESMA and EBA both underlined that beyond fighting money laundering and terrorism financing, most crypto assets fall outside the EU legislative scope (*Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937*, 2020) page 1.

Thus, for crypto assets to fall under the umbrella of EU legislation, the European Commission adopted a Digital Finance Package, also known as DigFin, in September 2020. DigFin includes a digital finance strategy and four legislative proposals for crypto assets to ensure digital resilience throughout the EU and EEA (*Digital Finance Package*, 2020). Through DigFin, the EU support the digital transformation and development while ensuring consumer and investor rights, along with achieving financial stability (*The European Commission's Digital Finance Package Explained - KPMG Estonia*, 2021). DigFin is based on the MiFIR and MiFID II regulatory framework (*Markeder for kryptoverdier*, 2020), and is set out to ensure a similar regulatory approach in the EU (Tukun, 2020)

The DigFin strategy segment set out different general lines on how Europe can maintain the purpose of supporting digital transformation in the coming years while risk regulating the area. The digital finance strategy has four main priorities, **(1)** removing fragmentation in the Digital Single Market, **(2)** adapting the EU regulatory framework to facilitate digital innovation, **(3)** promoting data-driven finance, and **(4)** addressing the challenges and risks with digital transformation, including enhancing the digital operational resilience of the financial system (*Digital Finance Package*, 2020). By the EU and EEA embracing and boosting digital finance



through the strategy, they have the potential to unleash European innovation and thus create opportunities for the financial markets around Europe to develop and hence support Europe's economy in several means (*Digital Finance Package, 2020*). Furthermore, in the world of crypto assets, it is not as simple as having one regulation fit all, as there are several different types of crypto assets with unique rights and attributes. Therefore, it is essential that crypto assets attain the correct classification in order to achieve sufficient regulation. Thus, a central question is whether different types of crypto assets will fall under the legal definition of electronic money or financial instruments (Tukun, 2020).

One out of the four EEA relevant proposals the EU commission has proposed through DigFin is the MiCA proposal to ensure a fair playground for crypto assets and participants (*Digital Finance Package, 2020*). As well as ensuring the benefits of the internal market to issuers and service providers (*Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937, 2020*) p. 4. MiCA is proposed as a regulation and not a directive to ensure a more harmonized legislative framework, leading to a lower risk of different interpretations and approaches. This, again, can lead to an uneven playing field for the protection of consumers and investors, as well as ensuring fair competition and the market integrity of crypto assets (Vermaak, 2020).

MiCA seeks to achieve four different objectives; they are as follows:

1. Provide legal clarity and certainty to promote the safe development of crypto assets and the use of DLT in financial services.
2. Support innovation and fair competition by creating and enabling framework for the issuance and provision of services related to crypto assets.
3. Ensure a high level of consumer and investor protection and market integrity.
4. Address potential financial stability and monetary policy risks that could arise from an increased use of crypto assets and DLT.

cf. 1.4.1 (*Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-Assets, and Amending Directive (EU) 2019/1937, 2020*).

Additionally, MiCA aims to tackle the regulatory obstacles and gaps in the use of security tokens and DLT in EU financial services legislation, reduce consumer and investor protection risks, as well as the market integrity risks for unregulated crypto assets, and the risks towards a level playing field along with financial stability and monetary policy risks (Zandersone, 2021)

According to the proposal for a regulation of the European Parliament and of the council on Market in Crypto-assets and amending Directive (EU) 2019/1937 tokens are introduced broadly as crypto assets, where crypto assets are defined as digital representations of value or rights that have the potential to bring significant benefits to both the market participant and consumers, cf. MiCA p.15 (2). In order to achieve these objectives, MiCA sets out to regulate crypto assets that are not already under the scope of MiFID II and the e-money directive. Thus, it aims to get every digital representation of value or rights under its legislative scope. Hence, MiCA sets out to regulate the four different crypto asset types mentioned in section 2.2 under crypto assets, utility tokens, asset-referenced tokens, and e-money tokens (Vermaak, 2020). However, MiCA will not include every type of crypto assets, entity, and service. This determines whether the assets, entities, and services fulfill the different terms decided by MiCA. MiCA also aims to define the various crypto assets in their correct classification. Regarding issuing and promoting of crypto assets under MiCA, issuers and services are required to publish whitepapers with the needed information. Another requirement is that member countries ensure that their national laws correlate with the whitepaper (Vermaak, 2020).

Furthermore, MiCA presents issuers' obligations and requirements for asset-referenced tokens in articles 15 till 42. A crypto asset issuer is defined in article 3 no.1 point 6 as "a legal person who offers to the public any type of crypto-assets or seeks the admission of such crypto-assets to a trading platform for crypto assets."

According to article 15, issuers of asset-referenced tokens need to be established in the EU and authorized by the competent authority of their home member state to offer their tokens to the public. The requirements in article 16 must be fulfilled to receive a certificate to operate in the EU. Issuers of asset-referenced tokens are obligated to prepare and publish a whitepaper that satisfies the requirements in article 17, and the approval of a competent national authority is required. This creates a

question as investor protection might result in market inefficiencies as users are limited to certain services.

Such a certificate inherently involves that the issuer being subject to anti-money laundering and anti-terrorist EU financing regulations. The EU regulations set up specific requirements for the different exchange services, in Norway are included in the AML regulation (Tukun, 2020). With the exception of AML, exchange services are mostly unregulated and compose the risks associated with them, especially for investors and consumers (Finanstilsynet, 2013). This raises two interesting questions; What do the fast development and the entrance of new crypto assets to the market mean for the market overall? What value do regulations have compared to the complexity, and how will regulators be able to deal with the fast market development?

## **4. Analysis and Findings**

In order to get a perspective on crypto assets' legal nature as well as to understand possible implications, the study has analyzed different findings throughout the process.

### **4.1 Institutional Input**

From a regulatory perspective to the issuers of crypto assets, the study has gained an institutional insight into crypto asset regulation, consulting with some of the central players in the crypto asset industry.

From an overall perspective, there is little doubt that the crypto industry needs additional regulation to the current regulation. This will be beneficial for all participants in the crypto asset industry. Another perspective on the regulating of crypto assets could be the technology behind it. Blockchain is thought to significantly impact how business is conducted in the future. A crypto company we talked to believes blockchains may reduce costs, potential paperwork, and latency, especially with the help of a comprehensive legislative framework. It is crucial that Norwegian banks and financial institutions facilitate the use of crypto assets in order to achieve their potential. Looking at the past few years, it can appear that the governments in Europe, which again correlated with the creation of MiCA, cannot ignore the crypto

asset market due to the market size that does not indicate any decrease in size in the near future.



Figure 7: Cryptocurrency total market capitalization in USD: (Cryptocurrency Prices, Charts And Market Capitalizations | CoinMarketCap, n.d.)

Since national regulators across the EU are waiting for the adoption of MiCA, the banks in Norway are ‘sitting still’ given the pending of a European regulation. Thus, the proposal of MiCA in 2019 has led banks all over Europe to wait for the possible adoption of MiCA until implementing additional regulations towards the crypto asset market. The delay in regulation and fence-sitting has led Europe to hang behind the crypto asset wave around the world, especially seen to how the United States of America has handled it.

As previously stated, Bitcoin was the initiator and developer of crypto assets. After Bitcoin was developed, Ethereum was introduced later, which again advanced smart contracts. This can be said to have ties with the development of digital central-bank money. CBDC is being developed in central banks around the world these days to be inclusive and keep up with the times.

The crypto asset market faces several challenges, where divergent regulation and misunderstandings could be one of the biggest challenges to crypto assets. As crypto assets are international, a potential global regulatory framework is thought to be impossible due to self-interest challenges and tensions throughout the world. Another main challenge for the crypto industry is abuse and fraud. Thus, through the EU MiCA proposal, it is possible to get a coherent regulation beneficial for the European internal financial market, when adopted. Possible regulatory advantages include better abuse and fraud protection that benefit consumers and investors. It could also make it easier to start new crypto projects with safe and predictable frames. Another advantage is stronger cooperation between banks and crypto asset

issuers. Today, most banks are careful due to AML risks. However, there are not only positive attributions associated with a legislative framework. Some possible negative attributions are the correlation between the costs that come along with new and comprehensive regulations and the requirements needed from the issuers. Thus, it can end up driving smaller issuers out of the market, only leaving the biggest and not necessarily best service providers in the industry. As previously mentioned, crypto assets are designed to be unregulated and independent as crypto assets are meant to achieve full inclusion. However, a possible consequence of a regulatory framework could break this condition.

Nevertheless, there has been a positive shift toward the crypto asset industry in the last few years. Looking towards the United States of America again, there has been a major focus on the market, which has benefited the industry and continued the growth. Thus, it is reasonable to state that the caution toward crypto assets is based on a mix of lack of knowledge, including simple misunderstandings and narratives, which has also become a political matter that may not be fully beneficial. Based on this, it is possible to state that the lack of understanding of cryptocurrencies may have contributed to the banning and restrictions of crypto assets in several countries. One of the possible reasons behind the controversy of crypto assets is that the foundation of monetary policy is based on a traditional, hence old, and perhaps outdated, monetary policy that, in reality, does not apply to crypto assets. Having a monetary policy that is coherent to the financial times is difficult as the financial system keeps evolving. This can also be seen in the financial crisis back in 2008/2009, where the then-current financial regulation was not comprehensive enough to control the triggering factors as well as the scope of the crisis. This has immense consequences for countries, governments, businesses, and individuals. The crisis created a new foundation for an upgraded financial regulatory framework around the globe. Further on, a question arises whether the financial regulatory framework could evolve along with financial innovation if the scope of the crisis could be limited or even prevented, considering the fact that the world economy is cyclical. Circling back to the scope of crypto asset regulation, the same question remains, what effect and impact does the lack of regulation have on the market, consumers, and investors.

Looking further into the different types of crypto assets, the industry, and experts, state the possibility of a worse financial crisis than the one we saw in 2008/2009. The lack of consumer and investor protection, along with the lack of crypto

stability, can have significant consequences on household debt, which again is one of the biggest threats to the financial system (Norges Bank, 2021b). Some of the risks associated with the lack of consumer and investor protection are navigating through all the different options one has when choosing what to invest in when only relying on the market powers. Thus, the possibility of investing in something with bad software is highly present, which can threaten household debt and the financial system if the scale is large enough. Moreover, crypto assets is not the only matter with high risk to the financial markets, as prolonged and extensive money printing also introduced a high risk due to inflation and its effect on interest rates.

Another perspective is the relationship between regulators and crypto issuers. The bridge between understanding crypto assets and understanding the legislative framework is essential for regulation to be sufficient. One of the fundamentals of crypto assets is that they are designed to be unregulated and independent. Some claim to be connected to the 2008/2009 financial crisis in order to be unaffected by other economic volatility and cyclicity. This contribution introduces one of the larger challenges, which is to supervise crypto assets. Thus, this amplifies the importance of a well-functioning legal framework with a broad enough scope to cover every aspect.

One of the challenges regarding crypto assets regulation is that the scope of crypto assets mainly falls outside the scope of the Financial Authority in Norway, as today, the Financial Authority only supervises the money laundering aspect of crypto assets in Norway. This can lead to a false sense of security for investors and consumers, thinking approved issuers are safe and have less risk associated with them. The Norwegian Financial Authority has warned about buying crypto assets (Finanstilsynet, 2013). In regard to having a successful legislative framework, it is critical that the different crypto assets are correctly classified to the different definitions introduced in MiCA. For instance, the German Parliament stated that crypto assets are financial instruments (Simmons & Simmons, 2019), which parallels the consumers' and investors' views on crypto assets, where they are under the legislative scope of the Financial Contracts Act.

Considering the market is constantly evolving, the financial authorities around Europe are awaiting clarification on the EU's take on crypto assets which again contributes to the EU falling behind, impacting issuers and consumers. Looking towards Switzerland, which is not a part of the EU or EEA, has established a business-

friendly crypto market environment and thus is at the forefront of DLT regulations. This exemplifies the outcome of legal certainty and regulatory framework, producing more than a thousand companies providing six thousand jobs (Brunner, 2022). On the contrary, if they were to be classified as investments, MiFID II is a natural regulation to be adopted for crypto assets as well.

Trust is an important factor in any economy, which is also the case for cryptocurrencies. When debit- and credit cards first were introduced in Norway, consumers were skeptical to transition from cash to card; thus, the consumer-protection regulation got adopted. This strengthened the trust consumers have in payment cards as they were protected to a certain degree against abuse and scams. The same approach can be transferred to the crypto asset market. As seen during the start of the Russia and Ukraine war, Russians performed a bank run to protect themselves against the war's impact on Russian monetary policy and the currency depreciation. It is then possible to portray a different reality where cryptocurrencies are the main form of savings and investment, their value would not be dependent on the government. This has been performed in El Salvador as their government embraced Bitcoin and made it a part of the country's legal tender. However, the execution has not been seamless and now faces possible state bankruptcy after bitcoin purchases (Sæter, 2022). This portrays the high volatility and risks associated with crypto assets. However, there are no signs that Norway and the Bank of Norway will go in the same direction as El Salvador (Norges Bank, 2021a). Another view of trust is trusting the different crypto asset issuers and the technological infrastructure. Currently, there is no regulatory framework to protect the consumers and investors who participate in the crypto asset markets other than the market's self-regulation mechanism. This can result in fewer market participants, which ultimately can disturb a well-functioning and efficient market while maintaining integrity.

The regulatory mechanism applicable to crypto assets today is the Anti-Money Laundering Act in Norway, as there is no overall European legislative framework yet, in addition to no initiative from the Norwegian Financial Authority to create or expand the scope of the financial regulation. The purpose of the Anti-Money Laundering Act is to prevent and detect transactions related to the proceeds of crime or terrorist acts, cf. Anti-Money Laundering Act §1. The Anti-Money Laundering Act almost has a 30-year-old history in Norway and is built on the international cooperation group Financial Task Force and the EU directive regarding money

laundering (Finansdepartementet, 2018). Analyzing the implications of the Anti-Money Laundering Act, one has to look at several objectives. One is the legitimacy of crypto issuers, which is seen in the warning from the Norwegian Financial Authority. Another one is converting cryptocurrencies into national currency to use them as collateral in loans – today, banks find it difficult to accept crypto assets as the origin of collateral due to AML and financial risks. This is despite the regulation of money laundering in crypto assets. Based on this, question arises whether regulation will make the transactions more transparent and thus easier to prove like it is for stocks and funds in traditional financial regulation.

To sum it up, the MiCA proposal's main challenge with regulations is the unwanted consequences that come with them. Today crypto assets are regulated through money laundering measures; however, it is necessary to point out that banks get caught breaking AML frequently. This can have ties with the differences in AML practices around the world. Crypto assets could amplify this issue, but on the other hand, crypto assets are more transparent than traditional instruments which is a positive attribution for the financial system. Another important view on regulation is the innovation perspective, as too strict and comprehensive regulation can put a damper on innovation, which is a characteristic of crypto assets, and weaken incentives.

## 4.2 Evolution of Crypto and Regulation

In practice, one could arguably state that given the nature of issuances, a regulatory framework could not directly impact the technological innovations, as the computer programs could be initiated by anyone and anywhere. Nor are the regulations intended to do so. However, the complexity of auditing and assessing products being released in the market is creating a paradise for malicious actors. Also, bugs in the codes of developed products might not be discovered before it they are taken advantage of. Thus, it is crucial to provide a flexible framework that considers all factors and promotes innovation. One may argue that extensive regulation of the technology itself could come at the expense of innovation. However, the overall sentiment towards jurisdiction in Europe is striving to establish a legislative framework, desiring a harmonized outcome. Considering the lack of a general regulatory framework and guidelines has led to different approaches on how to deal with the entrenchment and distinctions in the approach towards digital assets and



cryptocurrencies, a level playing field for all market participants is favorable to minimize regulatory arbitrage and provide further legitimacy and cooperation within the EU. The main similarity of all recognized parties is that they want to maintain the innovative nature of the industry, to ensure that a regulation that is not too extensive, ultimately inhibiting innovation and, not making the EU Member States unattractive for blockchain based businesses.

For now, crypto assets and service providers have been required to comply with regulations related to securities law and rules for advertising, marketing, and social media. In the US, the SEC uses the “Howey test” to determine whether a virtual currency is a security. By this, all Initial Coin Offerings are treated as securities, except Bitcoin and Ethereum. The Commodity Futures Trading Commission (CFTC) interprets the term “virtual currency” as any digital representation of value (a “digital asset”) that functions as a medium of exchange, as well as any other digital unit that acts as a form of currency regardless of its formats such as tokens, coins or digital units distributed through smart contracts (Barton et al., 2022). Furthermore, opportunists might argue that stable coins could be the practical tokens that will bring smart contracts to the masses. Stablecoins are arguably the first and only real-world use-case of crypto today that is fully sustainable and rapidly scaling. Essentially creating a bridge between the crypto economy and the real-world economy, stablecoins could reinforce the dollar as the global reserve currency in this new economy. Today, the total market capitalization of stablecoins is \$155B as of 20.06.2022:



## Total Stablecoin Supply

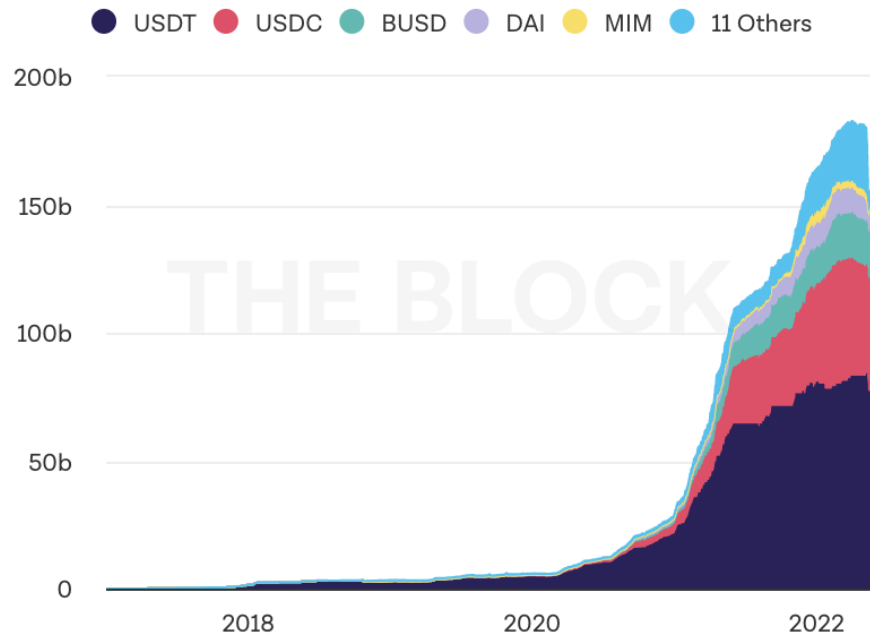


Figure 8: Total stablecoin supply 2017 - 2022 valued in USD: (Stablecoin Supply Charts and Banned Tether (USDT) Addresses, n.d.)

Crypto-idealists would likely argue that people should adopt crypto-native assets instantly; however, a pragmatic transitional phrase is a reality. Firstly, internal operations in financial institutions and corporations, and eventually externally. Accordingly, it would create a socio-economic profit given the ability to transmit dollars between institutions frictionlessly, and orders of magnitude would be faster and cheaper. Also, stablecoins can leverage existing DeFi protocols. Recently, Circle Internet Financial announced they had received certification to issue a regulated and euro-backed stablecoin based on a full-reserve models. This includes the same trust, transparency, and security measures that also made their inaugurating product, USDC, one of the world's most trusted stablecoins. The "EUROC" will be issued as an ERC-20 token on the Ethereum blockchain with the potential for cross-chain capabilities. This could enable near-instant foreign exchange between USD and EUR. This essentially makes the issuer a competitor in the \$6.6 trillion daily markets (LLC, 2022)

The European Data Protection Board has raised concerns in relation to the latter framework (EDPB, 2022). In this economical, technological, and legal paradigm shift, new procedures for financial control are enabled, allowing governments to apply comprehensive legislation that enables them to undermine fundamental

human rights to privacy and data protection. Hence, it disputes the innocence presumption. In examination this thesis, we find that the crypto economy and potential regulation could be considered the ultimate litmus test for corrupt and honest nations.

Current regulations impose that market participants must perform AML/KYC and CTF assessments. The protection of such data is highly regulated in the GDPR framework and must be evaluated in every situation. Regarding this matter, a penal expulsion of un-hosted wallets might not be reasonable and create further issues and criminals without improving the fundamentals. Such restrictions create disadvantages for retail investors', reducing their ability to secure their assets and utilize their investments, which are essential features in the crypto sharing economy.

### 4.3 Opportunities and implications of a legislative framework

Adoption a legislative framework with crypto assets under its scope will introduce both opportunities and implications as a regulatory measurement will have repercussions. This study mainly has a Norwegian view, thus European, so the MiCA proposal has been very relevant. Throughout the thesis, different question related to the proposal have been raised and highlighted.

The overall benefit of the regulation is trust in issuers and crypto asset service providers. However, the global aspect of decentralized issuance and ownership, and the credibility of open-source software are seemingly not accounted for. Considering that crypto assets enable new ways of economic communication for consumers and businesses. The most adopted crypto assets are issued by decentralized autonomous organizations, which MiCA does not capture. The process of being legitimized as an issuer is expensive, and there is simply no way for existing organizations to meet the “legal persons” requirement.

Furthermore, MiCA Article 27 demands the identification of holders of tokens. On this foundation, another question has emerged about regulatory implications, what is the cost of centralization? Suppose the EU was to exclude the operations of decentralized alternatives. This could create significant disadvantages for the players of these markets operating within the EU and force investors and organizations out of the union. Anyhow, the aftereffect could have two outcomes; issuers of decentralized alternatives continue to exist without any legislative framework within the

EU. Secondly, further development could be impeded, thus preventing innovation. Given the crypto ecosystems' integrated features, decentralized solutions are decisive for the functionality of the crypto market and the products created in them. What do the fast development and the permissionless entrance of new crypto assets to the market mean for the market overall, and what value do regulations have compared to the complexity? Also, how will regulators be able to deal with the fast market development? Intrinsically, the permissionless nature has been a critical characteristic of the overall market and enhances the fast development of useful applications. These applications have proven valuable to investors and the evolution of the market as a whole. With the abilities of Web3, users are able to connect their wallets and directly utilize any blockchain-based application. Hence the silos of the internet are broken down. When introducing a complex legislative framework, there will intrinsically be higher barriers and costs for developers and organizations to be granted the certificate necessary to provide their application in the market. There is also an overall lack of general understanding of how to interpret the regulations, which could create uncertainty. On these bases, there is little doubt that the EU regulatory authority should consider a way to embrace the concept of decentralized autonomous organizations, which could facilitate new methods for sourcing money for any enterprise and legitimize the use of decentralized digital markets.

A survey regarding central bank digital currencies (Kosse & Mattei, 2022) conducted by the Bank for International Settlements states that 90% of the 81 central banks participating are exploring Central Bank Digital Currencies, hereby CBDC, and more than half are experimenting with solutions based on blockchain technology (Knudsen, 2022b). Technological advancements and reduced usage of cash have raised questions about the future of payment processes and the potential impact of DLT on financial infrastructure. Over the past years, case studies performed by international organizations such as Depository Trust & Clearing Corporation, Bank for International Settlements, and central banks have explored solutions related to CBDC and blockchain-based infrastructure possibilities in the future. However, there are also multiple implications related to the development of CBDCs. In a report (Yoshinaga, 2022) published by the IMF on June 7th, 2022, a recommendation on specific features such as consensus mechanism was presented and shows that permissioned non-Pow DLT is the preferred choice going forward. Mainly anchored in eco-friendly components. Furthermore, the report (Yoshinaga, 2022) also

states that there should be implemented features related to compliance, resilience, and offline capabilities (Sarkar, 2022).

The Norwegian Central Bank established a task force to explore the institution's possibilities of implementing another payment alternative. In a memorandum presented in 2018 (*Norges Bank memo 1-2018 - Digitale sentralbankpenger*, 2018), the task force presented an overview of variables to consider in the development of CBDCs. In their second memorandum, the task force explored possibilities to achieve the purpose of a CBDC. The task force bases its development on an assessment of socio-economic benefits and costs and highlights consequences for the payment infrastructure, financial stability, and monetary policy. The task force assessed that CBDC could be used as an alternative supplement to cash payments and function as an emergency solution in the occurrence of errors in traditional infrastructure (Norges Bank, 2018). The Norwegian bank is responsible for promoting a secure and efficient payment system. Today, CBDCs are limited to being used by other financial institutions in pilot projects, and a wider usage of digital currencies would likely be beneficial. CBDC represents a claim on the central bank in the official currency unit. Hence CBDC could be a preferred cash equivalent. Primarily, there is a focus on the necessity and desire for CBDC to ensure an efficient and robust payment system as well as the trustworthiness of the system (*Digitale sentralbankpenger - tredje rapport fra arbeidsgruppen*, n.d.). The task force acknowledged the benefits and necessity of CBDC in a changing payment environment. The report published in 2021, presents possible features and solutions, the effect on Norwegian banks, and their recommendations (*Digitale sentralbankpenger - tredje rapport fra arbeidsgruppen*, n.d.).

Accordingly, the investigation has led to experimental testing based on open-source technologies and is estimated to finish in 2023 (Østbye, 2022). Given developments within global financial infrastructure, issuing CBDC could be critical for nations to partake in the evolution. CBDC inherits qualities that traditional alternatives do not have, and DLT compatibility could be a requirement in future innovative solutions presented by international financial organizations. However, throughout the past decade, the economic conditions have seemingly become more remarkable. In relation to currencies and assets, there has been unprecedented inflation at historical all-time highs. Governments, central banks, and financial institutions have applied all means to further drive the economy given the presence of black swan events,

which represent a rare and unpredictable economic event that significantly impacts society or the world. This has resulted in increased relative prices between goods and currency, and increased taxes. Thus, resulting in a decrease in consumer purchasing power. Arguably, the future holds great challenges and possibilities for central banks to create a more transparent and efficient financial infrastructure. From the assessment of section two of this thesis, we find beneficial contributions to the backend infrastructure and possible use cases of blockchain-based CBDCs. Trust is an essential fundamental expectation within the financial system, and it must not be compromised in the further development of CBDC and financial infrastructure. In the examination of this thesis, we find that the crypto economy and potential regulation could be considered the ultimate litmus test for corrupt and honest nations.

The EU DigFin package contains the regulation proposal MiCA which aims to cover the crypto assets that fall outside the legislative scope of traditional financial regulation. Suppose MiCA succeeds in creating a beneficial legislative framework for all parties involved. In that case, it could lead to better and larger market participation from new consumers and investors, as well as banks and big companies, as some of the main risks associated with crypto assets are likely to decrease with a more comprehensive regulation than is present today. Additionally, the crypto assets market could also benefit from this. More market participants will result in a more well-functioning market, which is also consistent with MAR's objective. However, there are certain risks with implementing a regulatory framework in a sector that has mainly remained unregulated apart from AML and taxation regulations. Another aspect of having a legislative framework throughout the EU and EEA is to ensure financial stability within the financial system throughout the Member States that make up the entire internal market regulation in the EU and EEA Agreement.

In order to gain a perspective on the possible regulatory implications of crypto assets, the European Parliament issued an impact assessment (IA), which analyzed different aspects of the implementation of MiCA. Looking at the economic perspective, several components come into play. With any new sector regulation, there is a need for incorporation, which requires resources within compliance and the costs associated with it. The IA states that the economic costs related to the costs are thought to be proportionate to the risks associated and that most costs will be a one-time occurrence. The technology also influences the economic impact behind DLTs

as they are thought to lower cost and be advantageous to the fintech industry and its infrastructure.

Additionally, the Explanatory Memorandum of the MiCA proposal can potentially decrease the financial and administrative burdens for all stakeholders within the crypto asset market (Zandersone, 2021). Another important factor is that innovation needs to be secured and not expected. The IA has looked at different options when it comes to innovation and states that MiFID II might have a platform for innovation to occur. Hopefully, with the help of EUs measures towards innovation in the field will balance out the challenges related. Thus, a legislative framework is necessary to achieve its objectives for the EU to fully benefit from the technology and the market. Additionally, with a legislative framework in force, it introduces the opportunity for a better and more comprehensive market. However, it is crucial that the implementation is supervised and controlled sufficiently to ensure that the legislative scope meets the required objectives of MiCA, as well as not dampening innovation and changing the market in an unfortunate matter.

### **General Data Protection Regulation**

Since the General Data Protection Regulation (GDPR) was adopted in 2016 (*The History of the General Data Protection Regulation | European Data Protection Supervisor*, n.d.), it has greatly impacted how personal data is stored and handled from both a business and consumer perspective. Thus, GDPR is another relevant implication of a legislative framework on crypto assets when analyzing the legal nature of crypto assets as a whole. Analyzing GDPR towards the crypto asset industry, some particular issues become apparent. Within GDPR, there is a requirement to have a data controller, “the natural or legal person, public authority, agency, or other body which alone or jointly with others, determines the purpose and means of the processing of personal data”, cf. GDPR art. 4 (7), however, the blockchain technology itself composes difficulties in designating a specific person as a data controller since computers alone do not fulfill the definition of a data controller, at least with current legislation, therefore, liable for a GDPR breach. The blockchain technology behind crypto assets is designed to be decentralized. It thus in theory does not have one individual alone as a controller, which is beneficial for the pricing

and transparency of crypto assets but imposes issues with GDPR. As there is no ‘true data controller’, this impacts on all aspects of GDPR.

Another aspect of the tension between the two is GDPR articles 16 and 17 regarding the rights of rectification cf. art. 16 and the right to erasure cf. art. 17.1 are particular challenges as blockchain transactions are irreversible. Thus, there is a breach of GDPR. As MiCA is expected to be adopted by 2024, there needs to be a clarification on guaranteeing that blockchains and GDPR do not conflict. Despite the tension, given the technological advantages that crypto holds, it could be a possibility that technological innovation can help to advance and enhance data protection if the blockchains are designed with that purpose (Finck, 2019).

The economic crime aspect of crypto assets has received much attention in the last few years, which has also been reinforced through different media outlets, which again has reinforced the negative stigma of crypto assets and criminal economic activity. However, the European Commission has stated that Data Protection requirements must correlate with AML regulations. The European Data Protection Supervisor (EDPS) has recommended that safeguards should be in place to guarantee compliance with the GDPR principles and objectives (*Data Protection Requirements Must Go Hand in Hand with the Prevention of Money Laundering and Terrorism Financing* / *European Data Protection Supervisor*, 2022).

Additionally, the EDPS is consistently working with the challenges and balancing GDPR and considering the challenges the digital world can have on GDPR. The EDPS is hosting a conference this June 2022 to find the best solution to achieve a well-balanced and efficient enforcement of GDPR going forward (*News / European Data Protection Supervisor*, n.d.). Therefore, since the European Commission is highly aware of the challenges and possible issues of the GDPR enforcement in the future, and has instances working toward it, thus it is within reason to believe that AML regulations will be balanced out to be within the scope of GDPR.

## **Environmental Impact**

Examining the environmental impact that crypto assets have today, along with a possible change after the adoption of MiCA, will have on Europe’s



sustainability goals, such as the United Nations 2030 Agenda for Sustainable Development, also known as the Paris Agreement (Sabev, 2019). The IA report states that there is no significant impact on the environment except for the operation of crypto assets, such as mining through proof-of-work (Zandersone, 2021). The operation has shown to have larger energy consumption than certain countries use combined (Reiff, 2022). The operation is based on the decentralized nature of crypto assets. The high energy consumption was created as a defense mechanism against hijacking the entire network, considering there is no single independent point of control (Bogna, 2022). Nevertheless, the high energy consumption of crypto assets has received negative repercussions and has led to a ban on mining in several countries (see section 1).

A similar ban on mining in Norway was also up for discussion but ultimately rejected (Knudsen, 2022a). Additionally, Sweden proposed to the EU to ban bitcoin mining as they believe that mining imposes high risks on Europe's goal to achieve the Paris Agreement (Tully, 2021). With the skepticism surrounding the operations of crypto assets, the popular cryptocurrency Ethereum is working towards developing and transitioning to a low-energy proof-of-stake to become a more sustainable option in the industry. On the other hand, with the increasing popularity and growth and the possible new wave of investors and consumers when a legislative framework comes into force, it can be questioned if this will significantly decrease the energy consumption we see today. However, it is a step in the right direction; the continuing development and use of DLTs can also further improve and lower the energy use (Zandersone, 2021). The ban on mining can also be seen in the light of the high energy prices Europe has experienced through late 2021 and so far in 2022, along with Europe's wish to be independent of Russian oil and gas, which has been strengthened after Russia's invasion of Ukraine early 2022. Furthermore, apart from the crypto asset operations itself, another environmental impact is physical electronic waste, to be able to achieve the most efficient mining, the equipment used is often upgraded in order to keep up with the demand, which again creates much electronic waste which is another negative aspect of the environmental impact of crypto assets (Bogna, 2022).

On the opposing side, crypto asset service providers, issuers, and developers argue they can take advantage of unused electricity and thus prevent energy waste or reduce emissions. Apart from this aspect, there is also incentive present to make the

crypto asset industry more sustainable, with everything to lists and overviews of more sustainable crypto assets along with continuing development of the technology, but is this enough to save the high environmental impacts? If the crypto assets industry could take advantage of all the energy in the world and thus use the typically wasted energy, it could be a part of the solution. Around the world, there are several different sectors and industries that use enormous amounts of energy to provide basic needs to humankind. For example, looking towards the oil and gas sector, where energy is wasted as gas is burned off due to poor transportation methods or where gas loss through leakage is not monitored. Suppose the crypto asset industry and oil and gas industry can become adaptable to each other to take advantage of the energy wasted. In that case, it could be highly beneficial for all parties involved as the overall waste and use of energy would decrease (Bogna, 2022). Additionally, blockchain ledgers could be used as an emission register.

However, suppose the EU would commit to a ban on mining through a judicial expulsion. In that case, it could reduce the right incentives to transform crypto operations to become more sustainable. Nevertheless, due to the EU's view on crypto assets and digital finance, it would be highly unlikely that a ban would be adopted. This is consistent with the fact that the EU rejected a ban on proof-of-work in March 2022 (*EU Parliament Votes against Bitcoin Mining Ban*, 2022).

### **The future of crypto**

Although critics have condemned blockchains, the initiatives exploring the potential of blockchain technology and crypto assets for infrastructure purposes and structural change indicate something else. Blockchain technology is being adopted in all areas of the economy, and new business models such as Nodes-as-a-Service, Asset-as-a-Service, and Blockchain-as-a-Service are capitalized. However, blockchain technology is still in the early phases of development as we currently explore solutions through private or public companies, organizations, and institutions, or government projects.

Examples of this are The Hamilton project, which highlights privacy and traceability (Narula et al., n.d.). DSP from the Bank of Norway highlights security, efficiency, financial stability, and decreased use of cash (*Digitale sentralbankpenger*, n.d.). The guardian project tests which institutional-friendly DeFi using

permissioned liquidity pools made up of tokenized bonds and deposits, and verifiable credentials (Allison, 2022). Other examples are Project Whitney and project ION, which highlight tokenized assets, infrastructure, and settlements. (ZA). In the Project BRØK by Brønnøysundregisteret, they created blockchain based shareholder registers (Digdir, 2020) and highlighted issues related to GDPR, interoperability with existing infrastructure, and scalability (Brekke, 2019).

The crypto markets have been battle-tested for years, and given the velocity of existing projects, the risks associated with such developments must be considered. However, the most important factor is security. For large scale adoption to occur, blockchains must be resilient against cyber-attacks. Through the examination of this thesis, we have understood that the Norwegian institutions have come far one this assessment and are focusing on how to provide society with an alternative that is sustainable and designed in correlation with its intended purposes, thus enhancing existing infrastructure. The results of these projects are still to be revealed; however, the outcome might change fundamental aspects of economic interaction forever.

At the Davos gathering, Ray Dalio stated that the greatest risks are irreconcilable differences that, in one way or another, will substantially hurt the world economy (Lacina, 2022). Regarding regulations and crypto assets service providers, it has been stated that crypto assets are new, but financial crime is not, and malicious participants will be sanctioned. A global standard for crypto asset market regulations is desirable given the decentralized nature of the market. However, the current implementation of cross-border financial legislation has proven that this will take years, and conflicts of interest make it impossible to eliminate regulatory arbitrage going forward. Thus, it is important that it is being approached ethically to amplify human rights and needs.

Today, the digital economy is firmly ingrained in modern society, and a few entities mainly control the applications and infrastructure. Furthermore, Metaverse has become the buzzword that embodies the next generation of internet experiences, where everything is connected on blockchain networks. The Metaverse represents a deeper digital future that is singular, immersive, and open, hence should be described as decentralized, trustless, community-owned, and secure (Futureverse, n.d.).

The synergy effect in blockchain technology is unprecedented, and the solution lies within Web3, which is described as a decentralized computing network. Web3 technology enables users and communities to collectively utilize network infrastructure. Blockchain based protocols and application layers are required for this to be possible. This essentially proposes a digital world where boundaries between experiences are eliminated, for example, Decentralized Finance and digital markets. From the proposed regulations, it appears decentralized organizations, applications, and encrypted currencies will continue to exist unregulated. The regulations focus mainly on centralized markets, defining tokens to classify crypto assets and creating national issuance and investor protection standards. This is necessary for crypto assets and businesses to be regulated under existing law, and one could say that it links *de lege lata* and *de lege ferenda*. *De lege ferenda*, in this case refers to blockchain protocols.

From our understanding, looking at these developments' compatibility, we find it possible that "centralized and decentralized" solutions might evolve into a collective future. A solution wherein centralized organizations and governments around the world enact legislative measures that serve as the entry point to a permissionless decentralized economy, hence granting legitimacy to autonomous decentralized organizations creating crypto assets. The demand for such solutions is impossible to foresee, but all this being equal, people tend to choose the most cost-friendly and effective alternative.

## 5. Conclusion

The thesis aimed to analyze the possible implications and opportunities of crypto assets and a legislative framework in the EU with a conceptual research methodology to obtain the different variables of crypto assets and regulatory measures. The regulation objectives of MiCA are to create a safe crypto market while promoting innovation. However, there are conflicting interests and additional needs in the proposed MiCA regulation. There are not only positive attributions associated with implementing a legislative framework to the crypto asset market, especially considering they have mainly been unregulated throughout the last decade. It is therefore uncertain how the market will react to a comprehensive regulation and how it will affect both the different market mechanisms and the European markets as a whole. Moreover, from an environmental aspect, European legislators must ensure a sustainable future.

The relevancy of the thesis is tied up with the rapid changes and the public deception of crypto assets, seeing how crypto assets are used today and how they can impact the world. The research indicates that financial infrastructure has potential for improvement, and blockchains and crypto assets could enhance economic interaction. Recent black swan events have highlighted inefficiencies in the current economic foundation. The covid-pandemic which resulted in a government overreach, followed by the Ukraine and Russia war accelerated the extensive quantitative easing programs and exclusions from global financial services. However, these programs have been a destabilizing irregularity since 2008. We stated that crypto asset regulations could pose the ultimate litmus test for governments, thereby their willingness to emancipate economic choices. The idea of crypto assets and blockchain technology can potentially improve how we conduct economic interaction. Nevertheless, they also introduce challenges for governments and consumers to reach their full potential. Crypto assets are constant, so it is important to be regulated.

The essential features of blockchain technology enable the creation of trust-minimized applications required in all digital agreements to establish cryptographic guarantees. Thus, moving economic interaction from probabilistic paper guarantees and dependence on third-party entities to establish trust, toward trust-minimized deterministic cryptographic guarantees. Furthermore, Web3 provides users with property rights; everyone can own a piece of the internet. By storing our assets, as well as other values, on blockchain networks, we could reduce the dependence,

inefficiencies, and risks associated with financial and digital interaction. Web3 empowers a collective-owned future over a corporate or government owned future. Traditional infrastructures usually have single points of failure and control, whilst web3 is resilient, equitable, and participatory. The crypto market is dependent on decentralized solutions that are not legitimized through the proposed regulations. Thus, EU participants will not be able to comply with the regulations if they utilize decentralized applications and blockchain networks. Use limitations could create disadvantages to European consumers and investors and therefore is, not fully sufficient.

For the crypto market to become a sustainable and viable option, there is a need for a legislative framework to be in force and for trust to be present. In addition, since the crypto asset market has proven unreliable, it is necessary that investor and consumer protection is adopted in order to ensure incentives. White-collar crime is not a new phenomenon and has existed in the financial market for centuries, which is some of the reasoning behind the other financial legislative frameworks assessed in the thesis, as they contribute to a well-functioning and effective market. In order for the crypto market to become a legitimate option, there must be a legislative framework in force. Additionally, for the crypto market to possibly be included in the EU internal market, it is a prerequisite that regulatory measures are in place to ensure an even, secure, and fair market.

Considering that the crypto market is still relatively new, immature, and constantly changing, new theories and information is coming out quickly, so the thesis has only factored the information that was published until June 2022. By including a Euro-pegged stablecoin and further legal clarity and providing transparent and business-friendly market conditions, legislators create a foreseeable environment and offer room for innovation. Today, there are still vast economic differences between the EU Member States; thus, blockchains could enable a more efficient cross-border infrastructure. Crypto assets could therefore enhance the objectives of the union and even out the conditions for member states going forward, and ultimately make Europe a desirable destination for blockchain companies. Although a legislative framework can create entry barriers going forward, we find it likely that crypto assets will benefit from the inaugural regulations.

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