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The Impact of MiCAR on Crypto Assets Regulation in Europe

Identifying Critical Issues through Case Analysis

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Abstract

This thesis dives into the new Markets in Crypto Assets Regulation in the European Union, with the primary goal of explaining the novelties brought by the regulation, in contrast with the existing regulatory framework that may have contributed to failures and scandals within the crypto industry. To achieve this goal, an extensive critical analysis of recent scandals across the global crypto landscape will be undertaken. This in-depth case analysis seeks to determine the potential outcomes for the analyzed companies, had they been established in the European Union under the jurisdiction of MiCAR. The intention of this research is to provide a comprehensive assessment of how the implementation of MiCAR can address these issues and contribute to a more secure and trustworthy crypto industry within the European Union, by identifying any regulatory shortcomings and deficiencies that have played a role in failures and the emergence of unethical practices.

Summary

Introduction

The advent of cryptocurrencies and the subsequent rise of the crypto industry have brought about significant changes in the global financial landscape. As digital assets continue to gain popularity and acceptance, regulators around the world are grappling with the challenge of creating a robust regulatory framework to govern this nascent sector. The European Union (EU) is no exception, as it seeks to strike a delicate balance between fostering innovation and protecting investors in the realm of crypto assets.

This thesis dives into the new Markets in Crypto Assets Regulation (MiCAR) in the European Union, with the primary objective of exploring the novelties introduced by this regulatory framework. The purpose is to compare and contrast the MiCAR regulation with the existing regulatory landscape, which may have contributed to failures and scandals within the crypto industry. By conducting an extensive critical analysis of recent scandals across the global crypto landscape, this study aims to shed light on the potential outcomes for these companies had they been established in the EU under the jurisdiction of MiCAR. The intention of this research is twofold. Firstly, it aims to provide a comprehensive assessment of how the implementation of MiCAR can address the issues that have plagued the crypto industry, thereby contributing to a more secure and trustworthy environment within the European Union. Secondly, it seeks to identify any regulatory shortcomings and deficiencies that have played a role in failures and the emergence of unethical practices in the crypto industry.

To achieve these objectives, this thesis is structured as follows. Chapter I provides an overview of the definitions and analyzes the current background and political climate surrounding crypto assets. It sets the stage for understanding the complexities and challenges associated with regulating this rapidly evolving sector. Chapter II delves into an examination of how crypto assets are currently regulated in the many member states of the EU. By exploring the existing regulatory framework, including directives, guidelines, and national approaches, this chapter aims to provide insights into the regulatory landscape that preceded the introduction of MiCAR. It also seeks to identify gaps or limitations in the current regime. Chapter III focuses on the critics and ideas expressed in the literature regarding the regulation of crypto assets. By surveying

scholarly works and academic discourse, this chapter highlights different perspectives and arguments surrounding the regulation of cryptocurrencies, helping to frame the context in which MiCAR was proposed. Chapter IV conducts an in-depth analysis of recent issues in the crypto world. Case studies of scandals involving FTX, TERRA, and The Rock Trading are examined to identify the underlying issues and their criticalities. This analysis will contribute to understanding the potential ramifications and implications of such scandals within the EU, had MiCAR been in effect. Finally, Chapter V synthesizes the findings from the previous chapters and identifies the issues related to the scandals and their criticalities. By analyzing the regulatory gaps and deficiencies that contributed to these scandals, this chapter aims to provide valuable insights into the potential effectiveness of MiCAR in mitigating such risks and ensuring the integrity and stability of the crypto industry within the European Union.

In conclusion, this thesis seeks to explore the new Markets in Crypto Assets Regulation in the European Union and assess its potential to address the challenges and failures within the crypto industry. By critically analyzing recent scandals and their implications, this study aims to contribute to the ongoing discourse on regulatory frameworks for crypto assets and assess the regulatory ground for enhancing the security, trustworthiness, and investor protection within the EU's crypto ecosystem.

Chapter I - Definitions, analysis of current background and political climate of crypto assets

Crypto assets have become a popular subject in the world of finance, as the 2008 financial crisis led to a lack of trust in the traditional financial system, which combined with the growth of technological improvements, started the revolution for the development of crypto assets. Their decentralization, combined with the ability to operate outside a traditional financial system, made them a popular alternative for people looking to store and transfer value. As a result of this growing attractiveness, the crypto market has experienced a huge expansion over the past 10 years, and it has become a subject of interest for scholars and professionals. The attention shifted from the technology towards how to tackle their regulation to ensure customer protection without compromising its development and growth. This is a delicate equilibrium that needs to be reached, as a lack of regulation can lead to fraud and abuse, while overly stringent regulations can suffocate innovation and growth.

Crypto assets were born thanks to the invention of blockchain technology. Blockchain is a type of distributed ledger technology (further abbreviated in DLT) that is used to provide a record of transactions, in a safe and transparent way, while maintain decentralization as the transaction proof isn't validated by government authorities. It is the underlying technology that made possible the birth of crypto currencies and it opened a group of new potential improvements in the tech and financial industry.

In recent years, several countries around the world have started to acknowledge the need and act towards regulating the crypto market, with some countries implementing stricter regulations – even ban – than others. The regulatory landscape is still in evolution, and the debate around the best approach to regulating crypto currencies and digital assets is continuing across many institutions. The final goal would be the establishment of a balanced regulatory framework, that will protect customers while also promoting innovation and growth, and several countries are starting to take meaningful steps in this direction.

In general, the advent of blockchain technology and the subsequent development of crypto assets have had a significant effect on the financial industry. It opened several

possibilities for innovation, and it provided people with different options to traditional financial institutions. Even though there are still many challenges that need to be overcome, the potential benefits of this technology are vast, and its evolution continues to be attention-grabbing for the coming years. To give a definition, crypto assets are a "digital representation of a value or a right which may be transferred and stored electronically, using distributed ledger technology or similar technology" (Art. 3 (1) No. (2) MiCAR[1]). These assets are decentralized, meaning that central authorities, such as governments or banks, do not control them. Crypto assets were born out of the wish to create a novel form of asset that was not subordinate to the control and regulation of traditional financial institutions. Crypto currencies, which can be considered a branch of crypto assets, are in substance peer-to-peer electronic cash systems which allow payments to be sent directly from one party to another in a decentralized manner[2]; currently, there are approximately 5,000 existing crypto currencies, all sharing the same operating process. The oldest and most known crypto currency is Bitcoin[3], which was created in 2009 by an anonymous using the pseudonym Satoshi Nakamoto, and to this day it remains the market leader[4].

As Nakamoto explains in his white paper, crypto assets work by using a decentralized ledger called the blockchain, formed – as the word suggests - by a chain of blocks. Transactions are verified and recorded on the blockchain by a network of users, who receive rewards in the form of newly created units of the asset. This process, called mining, is used to control the supply of the asset, and therefore ensure its scarcity.

[1] European Commission. (2020, 9 24). REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 (COM(2020) 593 final).. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0593&from=IT

[2] Nakamoto, Satoshi. Bitcoin: A Peer-to-Peer Electronic Cash System. 2008. http://www.bitcoin.org/, http://www.bitcoin.org/.

[3] Ibid

[4] Corbet, Shaen, Brian Lucey, Andrew Urquhart, and Larisa Yarovaya. "Cryptocurrencies as a Financial Asset: A Systematic Analysis." International Review of Financial Analysis 62 (2019): 182-99. Web.

1.1 - The technology behind crypto assets

A distributed ledger is a technology that allows for to share a record of information across a network, without the need for a central validation process[5]. This means that the ledger is not owned by any one individual or organization but can be accessed by anyone who is given permission. For example, it can be a public database that is accessible by everyone, or it can be a private ledger that can only be accessed by a specific group of users. The potential uses of DLT have been explored by various market players, and the financial sector has been one of the most promising areas for its implementation. While the financial sector has been the primary focus of DLT, there are many other potential use cases. For example, DLT can be used in supply chain management to track the movement of goods from the manufacturer to the final consumer[6]. The use of DLT can increase transparency, reduce fraud, and provide a more efficient process for all parties involved.

As the potential of DLT is being explored, various market players have developed solutions that are being rolled out. Additionally, central banks around the globe are experimenting with DLT to determine whether efficiency and safety gains can be made by moving payment and securities settlement infrastructure to DLT[7]. While the central banking community agrees that DLT holds promise, further analysis is required given the systemic relevance of central bank operated market infrastructure.

One of the biggest advantages of DLT is its decentralized nature, which makes it in theory highly resistant to hacking, as the ledger is distributed across a network of computers, called nodes, and each node in the network has a copy of the ledger. If one node is hacked, the others will still retain a copy of the ledger, making it virtually impossible to alter the information. In addition to this huge benefit, DLTs can offer superior transparency and accountability than traditional proofing methods, as all transactions are recorded on the ledger and can be viewed by anyone with access to it.

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[5] Bullmann, Dirk, Jonas Klemm, and Andrea Pinna. In Search for Stability in Crypto-assets: Are Stablecoins the Solution? (2019). Web.

[6] Straubert, C.; Sucky, E. How Useful Is a Distributed Ledger for Tracking and Tracing in Supply Chains? A Systems Thinking Approach. Logistics 2021, 5, 75. https://doi.org/10.3390/logistics5040075

[7] Del Río, C.A. 2017. Use of distributed ledger technology by central banks: A review. Enfoque UTE. 8, 5 (Dec. 2017), pp. 1 - 13. DOI:https://doi.org/10.29019/enfoqueute.v8n5.175.

Blockchain technology is a type of DLT that relies on cryptographic algorithms to create a secure and transparent digital ledger[8]. Each block in the chain contains a record of recent transactions, and once a block is added to the chain it cannot be altered or deleted. This feature makes the blockchain highly resistant to hacking and manipulation, as altering one block would require the alteration of all subsequent blocks in the chain. Blockchain technology has been primarily associated with crypto currencies, but it has many other potential uses, ranging from supply chain management to voting systems. In supply chain management, blockchain can be used to track the movement of goods from the manufacturer to the final consumer. This can increase transparency, reduce fraud, and provide a more efficient process for all parties involved. In voting systems, blockchain can be used to create a secure and transparent system that ensures the accuracy and integrity of the voting process.

1.2 - Types of crypto assets

There are several types of crypto assets that have emerged in the market, each with their unique characteristics and principle[9]. Bitcoin (BTC) is the first and most well-known cryptocurrency, and it has paved the way for the development of other types of digital assets. Altcoins instead refer to any crypto currencies that are not Bitcoin, and examples of Altcoins include Ethereum (ETH), Ripple (XRP), Litecoin (LTC), and Bitcoin Cash (BCH). Stablecoins, on the other hand, are crypto currencies that are designed to maintain a stable value, typically by being pegged to a fiat currency or to other commodities. These assets are being used to facilitate transactions and payments within the blockchain ecosystem by attempting to minimize the volatility that is usually associated with crypto currencies. Utility tokens are another type of crypto assets, that are used to access a specific product or service within a blockchain-based platform, serving as a means of exchange for the products or services, and their value is often tied to the demand for the

[8] International Bank for Reconstruction and Development / the World Bank. Distributed Ledger Technology (DLT) and Blockchain. 2017. World Bank Publications, https://documents1.worldbank.org/curated/en/177911513714062215/pdf/122140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes.pdf.

[9] Hicks, Coryanne. “Different Types of Cryptocurrencies – Forbes Advisor.” Forbes, 15 March 2023, https://www.forbes.com/advisor/investing/cryptocurrency/different-types-of-cryptocurrencies/. Accessed 7 June 2023.

platform. Security tokens, unlike other crypto assets, represent ownership of a real-world asset, such as stocks, bonds, or real estate. These digital tokens are subject to securities regulations and are typically used for fundraising or investment purposes. Lastly, Non-Fungible Tokens (NFTs) are unique digital assets that represent ownership of a specific asset or piece of content, such as art, music, or video games. These tokens are used to verify ownership and authenticity of the asset or content, and they have gained considerable attention lately, with some NFTs being sold for substantial amounts of money.

Crypto assets have become increasingly popular not only as a means of payment, but also as a means of investment, with many individuals and institutions buying and selling them for speculative purposes. However, crypto assets have also faced criticism and investigation due to their association with illegal activities like fraud and money laundering. Regulating crypto assets has become a crucial concern for policymakers worldwide. While certain countries have accepted crypto assets and developed regulatory structures to oversee their use, others have exercised caution or hostility, even by banning them altogether. In the EU, the Markets in Crypto Assets Regulation (MiCAR) proposal plans to establish an extensive regulatory framework for crypto assets to promote innovation, safeguard investors, and ensure financial stability.

Chapter II - How are crypto assets currently regulated in the EU?

At the present moment, the primary regulation of financial markets' security in the European Union is provided by Directive (EU) 2014/65[10] on Markets in Financial Instruments Directive (MiFID II), serving as the core component of EU legislation on financial markets[11]. It specifically pertains to "financial instruments" (Annex I, Section C) and "transferable securities" (Article 4(44)). According to the Directive, the term "transferable securities" indicates "securities that are negotiable on the capital market, except for payment instruments, including: shares in companies and other securities that are equivalent to shares in companies, as well as bonds or other forms of securitized debt, or depositary receipts in respect of shares and such securities are also included; any other securities that give the right to acquire or sell transferable securities or that give rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures". If a crypto asset obtains the definition as a financial instrument under MiFID II depends on how every single Member States applies the concept of "transferable security". This means that a crypto asset could be considered a "transferable security" in one Member State but not in another, which is leading to fragmentation of the EU single market and subsequently regulation. Additionally, given the diverse range of crypto assets, many of which have hybrid and not defined features, can lead to completely different classification of "investment tokens" as either transferable securities or other financial instruments.

The European Parliament passed an initiative resolution on Digital Finance[12] on October 8, 2020, endorsing the Digital Finance Package (DFP) and subsequently the legislative proposal on Markets in Crypto-Assets (MiCA). The Parliament considered these measures essential for legal clarity and preparatory to the development of a new-and-improved regulatory environment for digital finance. They recognized digital finance as

[10] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU

[11] European Parliamentary Research Service. (2021). Regulation of Crypto-Assets in the European Union. Retrieved from https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696357/EPRS_BRI(2021)696357_EN.pdf

[12] European Parliament, et al. REPORT with recommendations to the Commission on Digital Finance: emerging risks in crypto-assets - regulatory and supervisory challenges in the area of financial services, institutions and markets. 2020. https://www.europarl.europa.eu/, https://www.europarl.europa.eu/doceo/document/A-9-2020-0161_EN.html

a significant factor in building the capital markets union and emphasized the need for measures to monitor and regulate it. The Parliament also called for action to create balance between promoting innovation, financial stability, while supporting consumers' and investors' protection.

In light of recent scandals, particular attention has been given to stablecoins: the European Council, together with the European Commission, issued a statement on stablecoins[13] where they acknowledged the economic benefits of technological innovation in finance, but they recognized the many challenges and risks that come with such an instrument, naming consumer protection, security, possibility of fraud and money laundering. The statement highlighted the need for adequate identification and address of legal, regulatory, and oversight challenges and risks before any stablecoin firm can begin its operation in the EU. The potentially large and systemic size of stablecoins created concerns for financial stability, making clear the requirement for legal clarity.

The European Commission proposed a regulatory framework accompanied by an impact assessment that differentiated between crypto assets covered by EU financial regulation and those that are not. The impact assessment[14] suggested two options: an opt-in regime for unregulated crypto-assets or full harmonization. The opt-in regime would enhance investor protection and market integrity but would not entirely remove market fragmentation. Full harmonization would reinforce legal clarity and uniform investor protection and market integrity across the EU, but the regulation of service providers would need to enhance financial stability and mitigate the risk of regulatory arbitrage.

[13] European Council. "Joint statement by the Council and the Commission on "stablecoins."" Consilium.europa.eu, 5 December 2019, https://www.consilium.europa.eu/en/press/press-releases/2019/12/05/joint-statement-by-the-council-and-the-commission-on-stablecoins/. Accessed 7 June 2023.

[14] European Commission. COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets and amending Directive (EU) 2019/1937. 2020. https://eur-lex.europa.eu/, https://eur-lex.europa.eu/content/help/data-reuse/reuse-contents-eurlex-details.html.

2.1 - Overview of current regulatory framework for crypto assets in Europe and in the world

Cryptocurrency regulation around the world is complex and varied. While some countries have embraced cryptocurrencies, others have taken a more cautious approach, and some have even banned them all together.

Currently in Europe, the European Union has introduced regulations to prevent money laundering and terrorist financing with the fifth Anti Money Laundering Directive (Directive 2018/843, abbreviated in AMLD5[15]), seeking to work against terrorism and crime financing, and defining what a virtual currency actually is. According to AMLD5, a virtual currency is "a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency, and does not possess a legal status of currency or money, but is accepted by natural or legal persons, as a means of exchange, and which can be transferred, stored and traded electronically". Germany has some of the strictest regulations in the EU, where crypto assets are actually considered financial instruments and require a MiFID-like authorization. Denmark and the Netherlands have taken a more hands-off approach, with no specific regulations for cryptocurrencies except for the local transposition of AMLD5. Spain, on the other hand, has taken a very direct approach: in addition to the local transposition of the AMLD5 directive, crypto exchanges and wallet providers must register by the Bank of Spain[16] if they intend to carry out their business activity in Spain, are established in Spanish soil, or whose headquarter, direction center, or management of the activity related to crypto assets is in Spain, adding also several requirements for the advertising of their services. This is coherent with the current framework of the EU regulation proposal, making the Spanish application of AMLD5 a precursor of Markets in Crypto Assets Regulation.

[15] European Parliament. Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU. https://eur-lex.europa.eu/, https://eur-lex.europa.eu/eli/dir/2018/843/oj.

[16] Gobierno De España. "A-2022-666 Circular 1/2022, de 10 de enero, de la Comisión Nacional del Mercado de Valores, relativa a la publicidad sobre criptoactivos presentados como objeto de inversión." BOE.es, 10 January 2023, https://www.boe.es/eli/es/cir/2022/01/10/1

In the United States, crypto currencies are considered commodities and are regulated by the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC). The CFTC regulates crypto currency derivatives, such as futures and options contracts, while the SEC regulates securities offerings, such as initial coin offerings (ICOs) and security tokens.

In Japan, cryptocurrencies are considered legal by the Payment Services Act[17], and crypto exchanges must be registered with the Financial Services Agency (FSA). The FSA has introduced regulations to protect investors, prevent money laundering, and ensure the security of cryptocurrency exchanges. As per their definition, crypto currencies can be used to pay "unspecified persons".

In China, crypto currencies are formally banned[18], as it wants to reduce financial crime and preserve financial stability, so the government suppressed all mining and trading activities. The ban includes ICOs, exchanges, and mining operations, and the government has taken steps to prevent access to overseas exchanges.

In other parts of the world, regulations vary widely. In Australia, cryptocurrencies are treated as property and subject to capital gains tax[19]. The Australian Securities and Investments Commission (ASIC) regulates ICOs and other cryptocurrency-related activities. In Canada, cryptocurrencies are regulated as commodities and are subject to anti-money laundering laws. The Canadian Securities Administrators (CSA) has issued guidance on ICOs and cryptocurrency exchanges[20].

In India, the government has proposed a ban on cryptocurrencies in the Cryptocurrency Bill, with penalties for mining, trading, and holding cryptocurrencies. The Reserve Bank

[17] Financial Services Agency, Government of Japan. "Payment Services Act - English." *Japanese Law Translation*, https://www.japaneselawtranslation.go.jp/en/laws/view/3965/en#je_toc.
[18] World Economic Forum. "What's behind China's cryptocurrency ban? | World Economic Forum." The World Economic Forum, 31 January 2022, https://www.weforum.org/agenda/2022/01/what-s-behind-china-s-cryptocurrency-ban/
[19] see Australian Securities and Investments Commission. Corporations Act 2001 and Australian Securities and Investments Commission Act 2001. Information Sheet 225. October 2021. https://asic.gov.au/regulatory-resources/digital-transformation/crypto-assets/.
[20] Canada Securities Administrators. "CSA provides update to crypto trading platforms operating in Canada." *Canadian Securities Administrators*, December 2022, https://www.securities-administrators.ca/news/csa-provides-update-to-crypto-trading-platforms-operating-in-canada/

of India (RBI) tried to prohibit banks from dealing with cryptocurrency exchanges, but as of today there is no certainty if crypto assets are formally banned or not.

In South Korea, exchanges must be registered with the Financial Services Commission (FSC), and the government has introduced regulations to prevent money laundering and protect investors[21]. The most part of the regulations are however composed by guidelines instead of formal laws, as South Korea wants to emphasize the importance of new business opportunities in the country.

Overall, the regulatory landscape for cryptocurrencies is complex and constantly evolving. Some countries have embraced cryptocurrencies and introduced regulations to protect investors and prevent illegal activities, while others remain cautious or outright hostile. The lack of global consensus on cryptocurrency regulation has created challenges for businesses and investors operating in the space.

As of today, an agreement on the text of the Markets in Crypto Assets regulation has been reached after several years of consultations and proposals. The agreement was reached on June 30th, 2022 and will be ratified in the very near future to come into full force. The Regulation provides companies with a grace period of 12 to 18 months to comply. Once it comes into force, the EU will become the first government institution to lay down a set of harmonized rules for crypto markets.

2.2 - Research questions and objectives

In recent years, the use of cryptocurrencies and digital assets has witnessed an impressive surge, leading to an urgent need for the development of regulatory frameworks to protect investors and market stability. However, despite the existence of these regulations, the crypto industry has repeatedly experienced failures, which have exposed possible issues in the existing and future regulatory frameworks. Such experiences can be traced to recent scandals, including but not limited to FTX, TERRA, Ripple, The Rock Trading, Silicon Valley Bank, Signature Bank, and many others. These scandals highlight the need for a thorough investigation of the regulatory gaps and loopholes to prevent similar issues in

[21] Overgaag, Alexandra. "An overview of cryptocurrency regulations in South Korea." Cointelegraph, 2022, https://cointelegraph.com/learn/crypto-regulations-in-south-korea

the future, especially as the European Union prepares to implement its regulatory framework for crypto assets (MiCAR).

Consequently, the objective of this thesis is to conduct a case analysis of recent scandals in the crypto markets to identify any potential regulatory gaps and loopholes that could aries from similar situations in the MiCAR regulation, taking them as an example to see if the proposal made by the commission would make it possible to avoid similar cases to happen in the EU. This thesis seeks to examine critically the problems that have arisen from these scandals to identify any regulatory gaps or loopholes that could contribute to the emergence of similar issues in the future.

It is essential to note that the crypto market's growth and popularity have made it a subject of intense interest. Given this fact, identifying, and addressing potential regulatory gaps and loopholes is crucial in safeguarding the interests of investors and ensuring the long-term stability of the financial system.

2.3 - Possible limitations

The research question presented here can face limitations that could affect the accuracy of the results. Firstly, obtaining accurate data on scandals in the crypto industry can prove to be a challenging task, and ensuring that the data is representative and reliable may require extensive resources. Secondly, potential biases in the selection of cases to analyze may impact the validity of the research. The data selected may not be entirely representative of the overall market, and this could lead to inaccurate conclusions being drawn. Thirdly, the regulatory frameworks that govern the crypto industry are rapidly evolving, and there is a possibility that they may change before the research is completed. This could impact the validity of the results, as the regulatory environment is a key factor that can influence the behavior of actors in the industry.

Finally, there may be limitations in the ability to predict future scenarios and how regulations will impact the crypto industry. While the research can provide insights into the current state of the industry, it may not be able to accurately predict how the market will evolve in the future. Therefore, the conclusions drawn from the research should be viewed in conjunction with other factors, such as expert opinions and market trends, to gain a more comprehensive understanding of the industry.

Chapter III – Critics and ideas in the literature

The advent and quick growth of crypto currencies posed significant challenges for regulatory authorities all around the world. The European Union, being one of the world's largest economic blocs, has been at the forefront of addressing the complexities associated with the regulation of crypto assets and their underlying markets. The accurate application of market regulations would play a crucial role in ensuring investor protection, market integrity, and the overall stability of the financial system. However, because of the innovative and decentralized nature of crypto currencies, traditional regulatory frameworks often struggle to keep the pace with the evolving environment of this emerging asset.

This literature review wants to provide a preliminary analysis of the existing academic research on the correct application of markets in crypto assets regulation within the EU context. By synthesizing and evaluating the relevant literature, this study seeks to shed light on the various approaches and regulatory measures that have been proposed or implemented to address the unique challenges posed by crypto assets.

3.1 - The Markets in Crypto-Assets regulation (MiCA) and the EU digital finance strategy - Dirk A. Zetzsche, Filippo Annunziata, Douglas W. Arner and Ross P. Buckley

The article analyzes the MiCAR proposal, which aims to provide a legal framework for issuers and service providers of crypto-assets in the EU market, and according to the authors, the proposal raises three main issues that need to be addressed. First, the proposed regulation fails to clearly differentiate between the various types of crypto assets, leaving the scope of the regulation uncertain. Additionally, the regulation lacks a systematic approach to EU law as it misses some elements for optimal harmonization, and it does not provide a framework for supervisory cooperation with regard to global stablecoins. The authors then lay down some suggestions to make the proposal more comprehensive and competitive.

In the article, the authors start by not only emphasizing the potential advantages of MiCAR but also drawing attention to concerns and criticisms. One significant concern is

the possibility that MiCAR could have a detrimental impact on innovation: the regulation might impose crucial barriers to entry for new participants in the market, thereby impeding healthy competition, which is usually a major concern for European regulators. Additionally, the regulation proposal could restrict the innovation capabilities of existing market participants. Another concern raised is that the scope of the regulation may not be comprehensive enough to effectively address all the risks associated with crypto-assets. This could result in certain innovative crypto-assets falling outside the regulatory framework, potentially exposing consumers to risks. To address this concern, experts suggest expanding the regulatory coverage to encompass a wider range of crypto-assets.

On the first and most important issue, the authors actually note that the draft of MiCAR acknowledges the issue of defining crypto-assets, granting the European Commission the authority to adopt delegated acts to specify technical standards and adjust the definitions based on market and technological changes, and they recall that similar powers are provided for the key definitions of financial instruments and transferable securities in MiFID[22]. Although the European Commission has expressed a commitment to improving these definitions, there are doubts about the effectiveness of a delegated act in addressing the complexities of over 8000 types of diverse crypto assets worldwide: delegated acts would require regulators to "predict" future developments in a highly innovative field and formulate abstract yet precise rules to prevent circumvention. Past experiences with delegated acts in EU financial law (like for the "green" taxonomy) suggest that technical definitions often remain vague due to restricted political influence among the member states and difficulties in addressing technical complexity. The improvement that the authors suggest involves a better legislative coordination between the regulation and the existing EU financial law, by first using executive powers instead of legislative ones and thus empowering ESMA and EBA to issue guidelines on the relevant definitions like crypto-assets and ARTs/EMTs, and second by recommending regulators to review prospectus to clearly determine the correct applicability of MiCAR, MiFID, or other laws. They also propose a change in the use of the legal opinion, saying that it should "merely function as a support document." While they doubt that the Commission will change its proposition of a default regulation for crypto-assets, they ask to consider alternative

[22] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU. (2014). Official Journal of the European Union, L 173/349-L 173/498.

approaches to the regulation of the crypto-assets that do not enter into the ARTs or EMTs categories, taking what ESMA suggested back in 2019.[23]

The ESMA document "Advice on Initial Coin Offerings and Crypto-Assets" mentions that there is no consistent agreement on how crypto assets are categorized in different EU countries, which then creates regulatory differences. The document suggests mapping existing EU regulations to determine if they apply to crypto assets. It encourages national regulators to assess whether a crypto asset qualifies as a financial instrument under the Markets in Financial Instruments Directive (MiFID) or as electronic money under the Electronic Money Directive (EMD). The document mentions that certain crypto assets, like security tokens, may fall under MiFID regulations if they meet certain criteria. This means they would have to follow specific rules to protect investors, including providing clear information and meeting authorization and compliance requirements. ESMA advises regulators and market participants to evaluate each crypto asset individually to determine its legal status and regulatory obligations. They should consider the specific characteristics and functions of each crypto asset. The document also emphasizes the importance of protecting investors who engage with crypto assets. It suggests providing clear and accurate information to investors, such as detailed explanations, risk warnings, and transparency requirements.

Furthermore, it is important to consider the potential challenges posed by the cross-jurisdictional nature of the regulatory framework proposed by MiCAR. Businesses operating across different jurisdictions may face difficulties in complying with varying sets of regulations. MiCAR only provides a legal framework for so-called “regional” stablecoins: it requires the legal entity behind significant ART or EMT issuers to be in the EU. Moreover, third-country authorities in the supervisory college have no voting rights on non-binding opinions, making valuable cooperation unlikely. To enable effective cooperation, alternatives should be explored, such as allowing EU authorities to accept leadership from major third-country authorities for stablecoins with minimal reliance on EU currencies and involvement of EU intermediaries.

Overall, the authors acknowledge that lawmakers have taken these concerns into account and have made several efforts to design a proposal that balances the need for innovation

[23] ESMA, Advice—Initial Coin Offerings and Crypto-Assets, 9 January 2019, ESMA50-157-1391

with the protection of consumers. However, as the crypto-assets market continues to evolve, it is crucial for regulators to remain responsive to new developments and emerging risks.

3.2 - Crypto-assets - Key Developments, Regulatory Concerns and Responses – EU Policy Department for Economic, Scientific and Quality of Life Policies

This paper has been written by the Policy Department for Economic, Scientific and Quality of Life Policies in 2020 following a request from the European Parliament's Committee on Economic and Monetary Affairs, and it again highlights some key concerns related to the matter of regulation of crypto-assets in the EU and proposes solutions to address these concerns, so it is not primarily incentrated on MiCAR.

As seen in the previous article, the authors of this paper also speak up about the lack of clarity on the taxonomy of crypto-assets and its confusion with financial instruments: again, they argue that the lack of tailored regulations can possibly contribute to regulatory arbitrage and legal uncertainty, then they emphasize the need for a more comprehensive and specific regulatory framework for crypto-assets within the EU, which is what has actually happened with MiCAR.

Cybersecurity is also identified as a major issue in the field of crypto-assets, particularly regarding the safeguarding of users' assets. According to the authors, an increasing number of crypto-asset users are opting to store their private keys, which grant access to their crypto-assets, with online storage providers or crypto-exchanges offering custody services. This trend aims to enhance user-friendliness in the crypto-world. However, in the event of a hack or breach of the storage provider or exchange, users' private keys can be stolen or rendered inaccessible, resulting in a loss of funds. Unfortunately, incidents of cyber-attacks targeting exchanges have been on the rise, leading to significant money losses for crypto-asset users. In some cases, thefts have exceeded values higher than $1 billion. Stolen crypto-assets are often funneled into illegal markets to finance criminal activities. Additionally, regulators are concerned about ransomware attacks, where criminals demand payment in cryptocurrencies like Bitcoin to unlock victims' computers and networks. Cryptocurrencies enable criminals to profit from ransomware attacks while maintaining their anonymity, making these attacks lucrative. In the absence of regulatory

measures or interventions, the frequency of ransomware attacks involving crypto-ransoms is unlikely to decrease in the near future.

The lack of explicit prohibitions in EU financial laws on holding or gaining exposure to crypto-assets creates potential problems as most crypto-assets exhibit high volatility and have not yet proven their resilience during financial stress.

Also, according to the authors, the current financial laws in the EU do not prohibit financial institutions, including credit institutions, investment firms, payment institutions, and e-money institutions, from holding or gaining exposure to crypto-assets or providing services related to them. These institutions are allowed to carry out regulated financial services listed in their respective annexes, as well as other permissible business activities. The authors then highlight that most crypto-assets exhibit high volatility, particularly traditional "non-backed" cryptocurrencies, and have not yet demonstrated resilience during financial stress, including many stablecoins currently in circulation. This means that financial institutions could face significant losses if they choose to acquire these assets or engage in activities involving them. Moreover, holding high-risk crypto-assets on their balance sheets could distort the financial situation of a financial institution. Even though only a few financial institutions have acquired crypto-assets thus far, their exposure to such assets is limited. However, this could change in the future, requiring supervisory authorities and regulators to exercise caution. The Basel Committee on Banking Supervision and the EBA have both emphasized the need for conservative prudential treatment of crypto-asset exposures, especially for high-risk assets, if banks decide to acquire them or offer related services. The EBA has also called for clarifications on the accounting treatment of crypto-assets to avoid uncertainties regarding their prudential treatment under the existing EU law. As a conservative approach, the authors suggest deducting crypto-assets from a financial institution's own funds, as they currently do not qualify as a credible contribution to own funds and are considered high-risk assets. The authors recommend that the EU should follow the ongoing work of the Basel Committee and the EBA, assess the need for further clarifications under the relevant EU rules (CRD/CRR), and ensure they are appropriately tailored to address the unique characteristics of crypto-assets.

In conclusion, the research paper highlights two key concerns in the regulation of crypto-assets in the EU: cybersecurity risks and exposure to volatility. The authors propose

solutions such as aligning EU actions with international standards, implementing risk disclosure requirements, introducing cybersecurity standards for custodial services, and monitoring relevant regulatory bodies. These measures aim to address the risks and challenges associated with crypto-assets and promote a secure and stable environment for their use in the EU.

3.3 - The regulation of crypto-assets in the EU – investment and payment tokens under the radar - Valeria Ferrari

In this article, the author explores the legal qualification of crypto-assets under EU law, focusing on investment tokens and payment tokens. The article highlights the shortcomings and drawbacks in the applicability and enforcement of existing EU legal frameworks regulating investment activities (MiFID) and payment services, and raises urgent questions that need to be tackled by further exploration. The author claims that, while the existing definitions of the various categories of crypto-assets are important, a case-by-case approach is should be attempted to evaluate precisely the risks and the legal requirements that concern them. The article also examines the struggle between technological innovation and strict legal compliance, and the need for policymakers to balance conflicting interests and prevent influential actors from taking advantage of legal loopholes and institutional failures.

A key point discussed in the article is the distinct categorization of tokens into payment, investment, and utility, which serves as a foundation for applying specific regulatory outlines. However, the author notes that this classification is not actually exhaustive, as many tokens exhibit hybrid characteristics and flexible purposes. Therefore, a case-by-case evaluation is essential when assessing the risks and legal provisions related to crypto-assets. While investment tokens and payment tokens fall within the scope of MiFID, the existing requirements and safeguards do not always align with the unique features and operations of blockchain businesses and startups. This misalignment raises interrogations about the definition and understanding of certain concepts, such as the custody or safekeeping of crypto-assets within distributed ledger technologies).

Enforcement issues also arise due to the decentralized nature and international scope of entities involved in crypto-asset transactions. The authors highlight the challenges in

applying existing regulations to entities operating in the blockchain industry, such as exchanges, custodian wallet providers, and investment fund managers. These intermediaries and financial service providers may not fit neatly into current legal definitions and may exploit regulatory loopholes or elude supervisory regimes.

Another significant concern is the blurring distinction between security, payment, and utility tokens. While some EU Member States have introduced tailored legal regimes to address this issue, the evolving nature of tokens and the lack of standardized definitions create legal uncertainty. The authors emphasize the need for a comprehensive and coherent legal framework that accommodates the unique characteristics of crypto-assets, as they play a vital role in the development of innovative solutions.

In addition to addressing the regulatory challenges, the article underscores the socioeconomic dynamics influenced by blockchain technologies. It highlights the importance of scrutinizing the interests and powers that drive the development of blockchain-based solutions, particularly in light of recent announcements, such as Facebook's plans to establish a privately controlled global currency. Balancing conflicting interests and preventing influential actors from exploiting legal loopholes and institutional failures is crucial for effective regulation in this space.

The authors also discuss the broader struggle between technological innovation and legal compliance in the context of DLTs. Various regulatory attempts worldwide, such as the "BitLicence" in New York and the ban in China, illustrate the role of regulation in shaping the development and adoption of blockchain technology. However, defining a suitable legal framework for emerging blockchain-based financial technologies is a complex task. On one hand, the principle of technological neutrality calls for equal treatment of similar businesses under the same rules. On the other hand, policymakers are driven by the potential social and economic benefits of DLTs, which may require alleviating burdensome legal duties for innovative businesses.

In conclusion, the article highlights the need for regulatory answers to address the legal qualification of blockchain-based crypto-assets under EU law. It identifies shortcomings in the current regulatory frameworks, including issues related to categorization, enforcement, and legal uncertainty. It emphasizes the importance of striking a balance between regulation and innovation while considering the socioeconomic dynamics and preventing misuse of blockchain technologies

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3.4 - Eu search for regulatory answers to crypto assets and their place in the financial markets' infrastructure -Agata Ferreira, Philipp Sandner

The article under review delves into the issue surrounding the taxonomy of crypto assets within the context of the MiCAR regulation. The author highlights the existence of several proposed definitions that attempt to capture the essence of crypto assets, with each definition offering its own perspective and nuances.

To begin with, the Policy Department for Economic, Scientific and Quality of Life Policies of the European Parliament provides a straightforward definition, characterizing crypto assets as digital assets recorded on a distributed ledger and secured by cryptography. Conversely, the Financial Stability Board (FSB) offers a more specific definition, describing crypto assets as a type of private asset that primarily relies on cryptography and distributed ledger technology for its perceived or inherent value. This definition is also adopted by the European Banking Authority (EBA) and further expanded upon by the International Organization of Securities Commissions (IOSCO), which emphasizes that a crypto asset can represent various forms such as currency, commodity, security, or derivative on a commodity.

Moreover, the European Securities and Markets Authority (ESMA) adopts a similar definition to that of the FSB, adding a distinguishing factor that a crypto asset is not issued by a central bank. This clarification aims to differentiate crypto assets from central bank digital currencies. The International Monetary Fund (IMF), acknowledging the lack of uniformity in the definitions, takes a broad approach by defining crypto assets as digital assets that employ cryptography for security and encompass coins or tokens on distributed ledgers and/or blockchains, including asset-backed tokens.

In contrast, the European Central Bank (ECB) takes a different perspective, focusing not on the technological aspect but on the legal and economic dimensions of crypto assets. According to the ECB, a crypto asset is any digital asset that does not represent a financial claim or liability against any natural or legal person and does not embody a proprietary right against any entity. The ECB emphasizes that the inherent value of a crypto asset lies in its scarcity and the trustworthy consensus-trust infrastructure that verifies ownership.

The distinction here is that the underlying technology, such as distributed ledger technology, does not exclusively differentiate crypto assets from traditional assets since traditional assets can also utilize DLT for storage. The fundamental economic characteristics of an asset remain intact as long as an underlying claim against an identifiable person or entity persists.

The article also explores the usage of broader terms to encompass crypto assets. The Financial Action Task Force, in its recently updated recommendations, employs the term "virtual asset," defining it as a digital representation of value that can be digitally traded, transferred, and utilized for payment or investment purposes. Additionally, the EU expert group on regulatory obstacles to financial innovation (ROFIEG) offers a simple yet encompassing definition, considering crypto assets as assets embodied, represented, or evidenced by unique pieces of digital code. Furthermore, the European Commission, for the purpose of the EU consultation on crypto assets, defines them as digital assets that may depend on cryptography and exist on a distributed ledger. This definition is intentionally broad to accommodate assets on distributed ledgers, regardless of their reliance on cryptography or whether they are private assets or issued by a central bank. The proposed definition remains agnostic to whether the asset represents any financial or proprietary claim or liability.

The variations and diversity of proposed definitions showcased in the article underline the lack of uniform understanding and consensus regarding the nature of crypto assets. Different definitions highlight different aspects, with some emphasizing cryptography, others focusing on distributed ledger technology, and some taking into account the economic dimension. However, a common thread among these definitions is the reference to an "asset" as a digital item or resource with economic value.

In comparison, Liechtenstein uses the term "token" and provides a high-level and abstract definition. According to Liechtenstein, a token is a piece of information on a trusted technology system that represents claims or rights against a person, property rights, or other absolute or relative rights. In this context, the token is neutral and serves as a container for the rights or claims it embodies.

The absence of a universally agreed classification for crypto assets has posed challenges for regulators and authorities within the framework of the MiCAR regulation. Various attempts have been made to develop a comprehensive evaluation and taxonomy of

blockchain tokens. The commonly adopted taxonomy distinguishes cryptocurrencies (or payment tokens), security tokens (or investment tokens), utility tokens, and hybrid tokens. Regulatory approaches tend to focus on the functional aspect of tokens rather than their technical specifications or other properties. This functional approach allows regulators to concentrate on the role that a particular token plays in the economy, irrespective of its complex technological design.

Payment tokens, exemplified by Bitcoin, are designed primarily as alternative decentralized payment methods for goods and services. Their value is derived solely from the worth attributed to them by users. Utility tokens, on the other hand, offer additional functions beyond being a medium of payment, such as granting access to specific services or products on a particular platform. The value of utility tokens stems from their utility in accessing these services. Security tokens, also known as investment, equity, or asset tokens, derive their value from external tradable assets. These tokens are designed as investment vehicles, with purchasers expecting future profits in the form of dividends, revenue shares, or price appreciation. Security tokens are subject to stringent regulatory requirements and compliance obligations.

The lack of a standardized classification framework for tokens can lead to uncertainties and misinterpretations regarding their legal and regulatory status and economic function. Given the growing diversity and volume of tokens, a holistic approach to classification is necessary, considering various dimensions including legal, regulatory, and functional aspects. The International Token Standardization Association is actively leading efforts to develop such a classification framework, taking into account multiple dimensions and functions of tokens. This comprehensive classification would provide policymakers and market participants with a clearer understanding and certainty regarding the classification and regulation of tokens in different sectors and societal contexts.

3.5 - Conclusions

In conclusion, the lack of a uniform classification and standardized taxonomy for crypto assets poses challenges for regulators, policymakers, and market participants. The diverse range of tokens, their functions, and the evolving nature of the blockchain industry require

a holistic approach to classification that considers multiple dimensions, including legal, regulatory, and functional aspects. The efforts led by organizations like the International Token Standardization Association are crucial in providing a comprehensive classification framework that can enhance understanding and certainty in the market.

Addressing the legal and regulatory status of tokens is essential to ensure investor protection, market integrity, and financial stability. The distinction between security tokens and other types of tokens is particularly significant, as security tokens are subject to rigorous compliance requirements and regulatory oversight. By providing clear guidelines and distinguishing criteria, regulators can help market participants navigate the complex landscape of tokenization and foster innovation while maintaining regulatory safeguards.

Furthermore, a standardized classification framework enables policymakers to make informed decisions regarding the appropriate regulatory approach for different types of tokens. It helps strike a balance between promoting financial innovation and ensuring adequate consumer protection, market efficiency, and systemic stability. Achieving regulatory clarity and certainty will not only benefit market participants but also facilitate the broader adoption and integration of blockchain technology into various sectors of the economy.

In summary, the development of a comprehensive and standardized classification framework for crypto assets is crucial for the effective regulation of the industry. By addressing the challenges posed by the taxonomy of tokens, regulators can enhance market transparency, investor confidence, and the overall stability of the blockchain ecosystem. The ongoing efforts to establish a unified classification framework will contribute to a more robust and well-regulated environment for the evolving world of crypto assets.

Chapter IV – The MiCAR proposal

On 20 April 2023, the European Parliament gave its approval to the regulation on Markets in Crypto-Assets Regulation (MiCAR)[24]. Although the final text still needs to be officially endorsed by the Council, this approval represents a significant step towards implementing MiCAR. The MiCAR will take effect 20 days after it is published in the EU Official Journal, which is expected to occur in June 2023. There will be an 18-month transitional period during which Member States, EU regulatory agencies, and national competent authorities can enact and publish legislative acts and guidelines. The rules concerning asset-referenced tokens (ARTs) and electronic money tokens (EMTs) will apply 12 months after MiCAR becomes effective. Existing crypto-asset service providers (CASPs) that are already authorized under national law when MiCAR is implemented will have an additional 18 months to obtain authorization in accordance with MiCAR.

On September 24, 2020, the European Commission released the Digital Finance Package[25], aiming to outline new rules to support the innovation and digitalization of finance by promoting cross-border services, ensuring responsible use of DLT and AI, consolidating and extending Open Finance, and mitigating risks to financial stability, consumer protection, market integrity, fair competition, and security. The new rules take a dual approach developed in two strategic procedures: the *Digital Finance Strategy*[26] and the *Retail Payments Strategy*[27]. The first of the two interventions looks at making financial services more digital, promoting responsible innovation and increase competition among different market participants in the Union. The strategy focuses to create a fair and equal environment for all competitors between providers of financial

[24] Pressler, Matthias. "MiCAR: Final steps towards the legal framework for crypto-assets." Schoenherr, 25 April 2023, https://www.schoenherr.eu/content/micar-final-steps-towards-the-legal-framework-for-crypto-assets/

[25] European Commission. (2020, 09 24). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS ON A DIGITAL FINANCE STRATEGY FOR THE EU (COM/2020/591 final). EUR-Lex. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0591

[26] Ivi

[27]European Commission. (2020, 9 24). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on a Retail Payments Strategy for the EU (COM/2020/592 final). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0592

services, whether they are traditional banks or fintech companies, according to the principle of "same activity, same risks, same rules"[28]: as the Financial Stability board remarks in framework proposal for International Regulation of Crypto-asset Activities[29] in October 2022, "where crypto-assets and intermediaries perform an equivalent economic function to one performed by instruments and intermediaries of the traditional financial sector, they should be subject to equivalent regulation". The Retail Payments Strategy instead points towards addressing potential risks created by unregulated services (hereby mentioning crypto assets), ensuring consistency in the various legislative interventions related to retail payments, and promoting strong oversight and supervision.

The Digital Finance Strategy outlined three proposals for new regulations and a new directive: first, the MiCAR regulation proposal offers first a precise reclassification of token definitions, including among the others also stablecoins and Central Bank Digital Currencies, introduces licensing regimes, and promotes different supervisory regimes for token and crypto asset issuers and service institutions. This is particularly significant for the developments of private initiatives and for those public initiatives that, at least in Europe, are known by names such as "Digital Euro"[30]. The regulation also includes proposals for addressing new challenges and risks associated with digital transformation, such as ensuring that financial institutions have strong and effective information and communication technology risk management systems in place to prevent and handle ICT-related incidents.

The concept for MiCAR was born as the EU's response to the policy debate prompted by the Libra proposal, due to concerns about its potential impact on financial stability, consumer protection, and privacy. Libra[31] was one of the first initiatives for a global stablecoin proposed by Facebook (now Meta) in June 2019.

[28] Financial Stability Board. (2022, 10 11). International Regulation of Crypto-asset Activities: A proposed framework – questions for consultation. https://www.fsb.org/wp-content/uploads/P111022-2.pdf
[29] Ivi
[30] Ibid, 1
[31]Loo, A. (2020, January 13). Libra Cryptocurrency - Overview, How It Works, Purpose. Corporate Finance Institute. Retrieved June 3, 2023, from https://corporatefinanceinstitute.com/resources/cryptocurrency/libra-cryptocurrency/

MiCAR will be adopted through Article 114 of the Treaty on the Functioning of the European Union[32], which relates to the achievement of the objectives of the internal market. As said before, MiCAR takes the form of a regulation and will apply directly in all EU Member States once adopted, without the need for transposition into national laws Since the goals of these laws cannot be achieved by Member States alone, the EU will provide a framework for a larger cross-border market for crypto-assets and providers to, explaining thus its form. This was conceived to facilitate harmonization across Europe, but contrasts with the EU approach to regulating financial services through a directive (MiFID II). As a result, crypto assets falling within MiFID II will be regulated under multiple national acts transposing MiFID II and under diverse definitions of financial instruments. Finally, the regulation will not apply to a number of entities, including the European Central Bank and Member State national central banks acting as monetary or other public authorities.

4.1 - What are the scopes and objectives of MiCAR?

MiCAR primarily wants to address the challenges associated with the growing use of crypto assets. The proposal is viewed by the European Commission as a "comprehensive effort to regulate crypto-assets within the European Union, aiming to establish a unified set of rules for transparency and disclosure, covering the issuance, public offering, and trading of crypto-assets".

This regulation proposal establishes uniform rules for various aspects of the crypto-asset industry, including transparency and disclosure requirements for the issuance and trading of crypto-assets, as well as the authorization and supervision of crypto-asset service providers and issuers of asset-referenced tokens and electronic money tokens. Additionally, the regulation sets out rules for the operations, organization, and corporate governance of issuers of asset-referenced tokens, issuers of electronic money tokens, and crypto-asset service providers, as well as consumer protection rules for the issuance,

[32]European Commission. (2020, 9 24). REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 (COM(2020) 593 final).. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0593&from=IT

trading, exchange, and custody of crypto-assets. Finally, the proposal includes measures to prevent market abuse and to ensure the integrity of crypto-asset markets.

The proposal plans to address the growing need for a comprehensive legal framework for crypto-assets and e-money tokens, which right now are falling outside existing EU financial services legislation as they are not considered financial instruments. Specifically, the proposal has four related objectives that aim to promote the development of crypto-assets and their wider use, while also ensuring appropriate levels of consumer and investor protection and market integrity. The first objective is to establish legal certainty, as in order for crypto-asset markets to develop healthily within the EU, there is a need to clearly define the regulatory treatment of all crypto-assets that are not covered by existing financial services legislation. By providing a sound legal framework, market participants will have greater clarity around the regulatory environment in which they operate. The second objective is to support innovation: to promote the development of crypto-assets and a wider use of distributed ledger technologies, it is necessary to put in place a safe and proportionate framework that supports innovation and fair competition, without compromising on the safety of participants. This will encourage market participants to develop new and innovative products and services, which will ultimately benefit consumers and the wider economy. The third objective is to provide appropriate levels of consumer and investor protection and market integrity. Crypto assets that are not covered by existing financial services legislation present many of the same risks as more familiar financial instruments, therefore it is imperative to ensure that consumers and investors are adequately protected, and that market integrity is maintained. The fourth objective is to ensure financial stability. Crypto assets are continuously evolving, and some have the potential to spread widely in the economy and therefore become potentially systemic. This proposal includes safeguards to address potential risks to financial stability and orderly monetary policy that could arise from these so-called 'stablecoins'. By ensuring financial stability, market participants will have greater confidence in the long-term viability of crypto-assets, which will ultimately benefit the wider economy.

4.1.1 - Risks Stemming from Absence of Regulation

The absence of regulations for services related to crypto-assets, such as issuing, trading platforms, exchange services, and custody, may result in the holders being exposed to risks in areas that are nowadays not covered by consumer protection laws. It may also lead to substantial risks in the secondary market of crypto-assets, including market manipulation. The lack of rules may cause consumers to lose confidence in the assets, impeding the development of a healthy market and missing opportunities for innovative digital services, alternative payment instruments, and new funding sources for EU companies. Companies that use crypto-assets for other purposes may also face reduced legal certainty on how those assets will be treated in different Member States, undermining their efforts to use crypto-assets for digital innovation. This lack of regulation may also lead to heavy regulatory fragmentation, distorting competition in the single market and making it more difficult for crypto-asset service providers to scale up their activities on a cross-border basis and giving rise to regulatory arbitrage.

4.2 - The structure of MiCAR

MiCAR has been divided into nine titles. Title I explains the key terms for the regulation, such as crypto-assets, asset-referenced tokens, and e-money tokens, while also providing an overview of the actors involved and their activities: it substantially defines who and what is subject to regulation. Titles II to IV cover the rules for the issuers of crypto-assets, with Title II focusing on utility tokens and other non-financial instruments. Title III deals with asset-referenced tokens (ARTs), including provisions for 'significant ARTs' (SARTs), while Title IV provides rules for e-money tokens (EMTs), with 'significant EMTs' (SEMTs) also being represented. Title V provides general authorization and operating requirements for crypto-assets services providers, like authorization and custody requirements. Title VI outlines rules to prevent market abuse, while Title VII states the supervisory competences of national competent authorities (NCAs) for ART and EMT issuers, the competences of the European Banking Authority (EBA) for the supervision of significant ARTs and significant EMTs, and the joint competence with NCAs. The remainder of MiCAR deals with legislative provisions in Titles VIII and IX.

4.2.1 - Which assets are covered in the proposal?

As discussed previously, in the first section of the regulation (Title I - Scopes and Definitions), EU regulators provide an overview of the assets covered by the proposal. Always remembering that crypto-assets that are classified as financial instruments, e-money, deposits, and structured deposits or securitized assets are not subjected to the regulation as they are subjected to MiFID II, MiCAR divides crypto-assets in three main categories:

- ARTs or 'asset-referenced token' defines a type of crypto-asset that aims to maintain a stable value by referencing the value of various fiat currencies that are legal tender, one or more commodities, one or more crypto-assets, or a combination of these assets. This type of token is designed to provide a stable "store of value" for users who might use the asset as a means of payment or investment.
- EMTs or 'electronic money token' (or 'e-money token'), defines a type of crypto-asset intended to be used mainly as a medium of exchange. This type of token is designed to maintain a stable value by referencing the value of a fiat currency that is legal tender. E-money tokens are particularly useful for users who want to make transactions that can be easy to use and widely accepted, therefore primarily being used as a means of payment.
- "utility token" defines a type of crypto-asset designed to provide digital access to a good or service that is available on DLT.. These tokens are only accepted by their issuer and can be used to access certain features or services that would otherwise be unavailable to users.

The difference between ARTs and EMTs is the arrangement of the underlying asset that references the price. ARTs use non-cash assets or a basket of currencies, while EMTs use a single currency. ARTs and EMTs can both each be classified as "significant", and the classification requirements are determined by European Banking Authority. In this case, issuers are subject to more extensive requirements that will be discussed later (Titles III and IV).

4.2.2 - Difference between ARTs and EMTs

Both ARTs and EMTs are referred to as "stablecoins". According to the Explanatory Memorandum of the Commission's proposal, some stablecoins, backed by a single fiat currency, could become a credible means of exchange and store of value when backed by a reserve of assets[33]. Following the scope of the thesis, it is worth noting that ARTs and EMTs also include algorithmic stablecoins, whose functioning will be discussed in detail further in the case analysis.

The difference between ARTs and EMTs lies in the arrangement of the underlying asset that references the price. ARTs use non-cash assets or a basket of currencies, while EMTs use a single currency. ARTs and EMTs can both each be classified as “significant”, and the classification requirements are determined by European Banking Authority. In this case, issuers are subject to more extensive requirements that will be discussed later (Titles III and IV).

4.2.3 - Which actors are covered in the proposal?

As the regulation proposal specifies in Art. 2, “This Regulation applies to persons that are engaged in the issuance of crypto-assets or provide services related to crypto-assets in the Union”. This includes ‘issuers of crypto-assets’, ‘crypto-asset service providers’, and according to this regulation, a 'crypto-asset services' refers to a set of services and activities related to any crypto-asset, which include the custody and administration of crypto-assets on behalf of third parties, the operation of a trading platform for crypto-

[33]European Commission. (2020, 9 24). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 (COM(2020) 593 final). Brussels. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0593&from=IT

See in this respect the consultative document of the Financial Stability Board (**‘FSB’**) of 14 April 2020: “Addressing the regulatory, supervisory and oversight challenges raised by “global stablecoin” arrangements”, available at: https://www.fsb.org/2020/04/addressing-the-regulatory-supervisory-and-oversight-challenges-raised-by-global-stablecoin-arrangements-consultative-document.

See also the Report of the G7 Working Group on Stablecoins of October 2019 “Investigating the impact of global stablecoins”, available at: https://www.bis.org/cpmi/publ/d187.pdf.

assets, the exchange of crypto-assets for fiat currency that is legal tender, the exchange of crypto-assets for other crypto-assets, the execution of orders for crypto-assets on behalf of third parties, placing of crypto-assets, the reception and transmission of orders for crypto-assets on behalf of third parties, and providing advice on crypto-assets.

However, this regulation does not apply to a series of actors, including the European Central Bank and national central banks acting in their capacity as monetary authority, insurance undertakings, liquidators or administrators acting in the course of an insolvency procedure, persons providing crypto-asset services exclusively for their parent companies, subsidiaries, or other subsidiaries of their parent companies, the European Investment Bank, the European Financial Stability Facility and the European Stability Mechanism, and public international organizations.

As far as the definitions go, an 'issuer of crypto-assets' means 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, while a 'crypto-asset service provider' means any person whose occupation or business is the provision of one or more crypto-asset services to third parties on a professional basis.

4.3 – Offering and issuance - crypto-assets other than Asset-Referenced Tokens or E-Money Tokens

Title II starts by listing in Article 4 the requirements for issuer of crypto-assets other than asset-referenced tokens or e-money tokens, to be allowed in the EU to offer crypto-assets to the public or seek admission of crypto-assets to trading on a trading platform for crypto-assets. The issuer must be a legal entity, has to draft a crypto-asset white paper in accordance with Article 5, notify that white paper in accordance with Article 7, publish the white paper in accordance with Article 8, and comply with the requirements laid down in Article 13.

There are as usual some exceptions to the rules, such as if the crypto-assets are offered for free, they are automatically created through mining as a reward for the maintenance of the DLT or the validation of transactions, they are unique and not fungible with other crypto-assets, they are offered to fewer than 150 natural or legal persons per Member

State acting on their own account, over a period of 12 months the total consideration of an offer to the public of crypto-assets in the EU does not exceed 1 million euros or the equivalent amount in another currency or in crypto-assets, or the offer to the public of the crypto-assets is solely addressed to 'qualified investors' and the crypto-assets can only be held by such qualified investors.

4.4 - Obligations – issuers of Asset-Referenced Tokens and E-Money Tokens

Rules become stricter when proceeding to the issuance of ARTs, as Article 15 in Chapter 1 of Title III starts with an unequivocal sentence: "No issuer of asset-referenced tokens shall, within the Union, offer such tokens to the public, or seek an admission of such assets to trading on a trading platform for crypto-assets, unless such issuers have been authorized to do so in accordance with Article 19 by the competent authority of their home Member State", laying the actual foundations for an integrated single market for crypto assets in the EU. Just like financial institutions and insurance providers, ARTs, EMTs and other crypto-assets issuers must be authorized to operate in the Union, providing important information to customers and supervisors. A harmonized set of requirements facilitates transparency and compliance efficiency: thanks to such passporting rules, issuers will operate with a streamlined regulatory framework, instead of navigating across many different national regimes.

The biggest issue with ARTs lies in consumer protection: Chapter 2 and Chapter 3 raise important provisions such as the obligations to publish a white paper, honesty requirements, ongoing information to holders of ARTs, governance arrangements, own funds requirement, reserve of assets with reference to composition and custody, rights of ARTs holders, and prohibition of interest given or other benefits for holding such crypto-assets. Chapter 5 Article 41 stresses additional obligations for Significant ARTs issuers, like the necessary requirements to be classified as significant, the option for voluntary classification, and specific additional obligations like appropriate remuneration policies, custody of crypto assets, and monitoring of liquidity needs.

In particular, regarding the own funds policy and custody of assets, the lawmakers provided that issuers must maintain their own funds. The minimum amount of own funds should be equal to the highest value among three options:

1. EUR 350,000;
2. 2% of the average reserve of assets;
3. a quarter of the fixed overheads of the preceding year.

If an issuer offers multiple asset-referenced tokens, the average reserve assets for each token are summed up for the calculation. The own funds must consist of Common Equity Tier 1 items and instruments as specified in Regulation (EU) No 575/2013. The competent authority of the home Member State can require issuers to hold up to 20% higher own funds if there is a higher degree of risk based on various assessments, including risk management processes, quality, and volatility of the reserve assets. Additional requirements may be imposed under Article 45 for issuers not considered significant to address identified risks, including liquidity risks. Issuers are also obligated to conduct regular stress testing, considering financial and non-financial stress scenarios. Based on the results, the competent authority may require an increased amount of own funds between 20% and 40% higher than the minimum requirement. The EBA, in collaboration with ESMA and the ECB, will develop regulatory technical standards specifying the procedures and timeline for adjusting own funds requirements, criteria for requiring higher funds, and minimum requirements for stress testing programs. Another important aspect is the establishment and maintenance of a reserve of assets by issuers, which must be segregated from the issuer's assets and other asset-referenced tokens' reserves to ensure creditors have no claim to the reserve in case of insolvency. Moreover, issuers offering multiple asset-referenced tokens must maintain segregated pools of reserves for each token, while different issuers offering the same token must maintain a single reserve. The management bodies of issuers are responsible for effective and prudent management of the reserve, ensuring it increases or decreases correspondingly with token issuance and redemption. The aggregate value of the reserve of assets should be at least equal to the aggregate value of claims against the issuer from token holders in circulation and determined using market prices.

Issuers must have a clear and detailed policy for the stabilization mechanism of tokens, covering various aspects such as asset composition, risk assessment, issuance and redemption procedures, investment policy, and redemption eligibility.

Independent audits of the reserve of assets must be conducted every six months to assess compliance with regulations. The audit results should be promptly notified to the competent authority and published, with exceptions allowed in certain circumstances to protect economic interests or the financial system. Valuation of the reserve assets should be done using mark-to-market valuation whenever possible.

In Title IV a similar recital goes for EMTs, with a minor obligation-heavy structure. The authorization requirements and the white paper requirements remain valid, but the articles do not mention for example the need for a designed corporate governance and own funds necessity.

Issuers of e-money tokens must be authorized as a credit or electronic money institution and notify their competent authority prior to offering the tokens or seeking trading admission. To safeguard the consumers' funds, issuers are required to deposit at least 30% of the funds received from token issuance into separate accounts in credit institutions. The remaining funds must be invested in secure, low-risk assets that qualify as highly liquid financial instruments with minimal market risk, credit risk, and concentration risk.

Interestingly, regulation prohibits issuers of EMT from granting interest related to the tokens. This means that EMT cannot generate any interest or any other benefit related to the length of time during which an EMT holder holds the token, defining that remuneration or any other benefit related to the length of time during which a holder of an EMT holds such a token as interest. This includes net compensation or discounts that have an effect equivalent to that of interest received by the holder of the EMT, directly from the issuer or from third parties, and directly associated with the EMT or from the remuneration or pricing of other products.

4.5 - Authorization and operating conditions for Crypto-Asset Service Providers (CASPs)

Title V shifts the focus on crypto-assets services providers, starting as usual with the focus on authorization, the application for authorization, and register of authorized service providers established by ESMA. However, credit institutions already authorized under Directive 2013/36/EU and investment firms offering comparable services under MiFID II may not need additional authorization for providing crypto-asset services.

Additionally, if a service provider intends to provide services in multiple Member States, it must submit supplementary information to the NCA of the Member States where authorization was initially granted. Further in Chapter 2 the regulators lay down obligations, such as the need for acting honestly, fairly, and professionally for the best interest of clients, prudential requirements in the form of prudential safeguards for capital as own funds or insurance policies, organizational requirements, and safekeeping of assets. The regulation imposes minimum regulatory capital requirements based on the type of services provided: for the acceptance and transmission of orders, advice on crypto-assets, execution of orders, and placement of crypto-assets, providers must comply with a minimum regulatory capital requirement of EUR 50,000; if the services involve custody and management of crypto-assets for third parties, the minimum requirement is EUR 125,000; ultimately, exchanging crypto-assets for legal tender currencies or other crypto-assets, as well as operating a trading platform for crypto-assets, requires a minimum capital of EUR 150,000.

In Chapter 3 the proposal lays down further rules regarding operations of provisions of specific crypto-assets services, such as custody and administration of crypto assets and execution of orders on behalf of third parties, the operation of a trading platform, exchange of crypto assets against fiat currencies, placing of crypto assets, and advice. In short, the regulator wants services providers to guarantee the rights of the customer, by ensuring appropriate custody policies, separation of assets, clear operating rules, and resiliency of systems. Crypto service providers holding clients' crypto-assets or funds must make arrangements to safeguard ownership rights and prevent the use of clients' assets for their own account without consent. They should have adequate arrangements to protect clients' funds and prevent their use for the provider's own account. Clients'

funds should be promptly placed with a central bank or a credit institution in separate, identifiable accounts. The regulation emphasizes the need for appropriate control and risk assessment mechanisms: service providers must implement robust systems and processes to identify, assess, and mitigate risks associated with their operations. This involves conducting thorough risk assessments, establishing internal controls, and monitoring activities to prevent market abuse and unauthorized access. To enhance transparency and accountability, the MiCA regulation mandates the introduction of documentation and record-keeping requirements. Service providers are expected to maintain accurate and up-to-date records of their operations, transactions, and client interactions. These records serve as crucial evidence for regulatory compliance, audits, and investigations. Another significant obligation is the implementation of a market abuse detection system. This system should enable the identification and prevention of any suspicious or manipulative activities in the crypto-asset market. By detecting and addressing market abuse, service providers contribute to the overall integrity and fairness of the market.

4.6 - Prevention of Market Abuse involving crypto assets

The following Titles up to the final go into the matters of prevention of market abuse in a similar fashion that what was prevented in MiFID2, such as dealing with insider information and dominant positions; the proposal text continues by appointing the supervisory powers to EBA, ESMA and other competent authorities, to the finish by listing transitional and final provisions.

Chapter V - Examination of recent issues in the crypto world

The world of cryptocurrency has been a rising ground of activity in recent years, with investors gathering to the market in masses. The decentralized nature of cryptocurrencies and blockchain technology promised to revolutionize the financial industry, and many saw them as an useful alternative to traditional banking systems. However, the crypto world has also been haunted by a number of high-profile scandals and issues, which have brought to light significant shortcomings in the industry's infrastructure and regulatory framework.

One of the most significant issues has been the rise of bankruptcy and fraud due to mismanagement of assets, lack of adequate corporate governance, and inadequate risk management. The crypto world operates in a largely unregulated environment, which has created opportunities for unscrupulous actors to take advantage of unsuspecting investors. Cryptocurrencies have also been a target of cyber-attacks, which have resulted in significant losses for investors and exchanges alike. These incidents have raised serious concerns about the security and stability of the crypto market and have put pressure on regulators to establish more robust frameworks to protect investors and ensure the integrity of the market.

Despite these challenges, the crypto world continues to grow and evolve. Many countries and companies are investing heavily in blockchain technology and cryptocurrencies, and there is a growing consensus that they have the potential to transform many aspects of our lives. However, in order for this potential to be fully realized, the industry must address the issues and scandals that have plagued it in recent years. This will require a concerted effort from all stakeholders, including regulators, exchanges, investors, and developers, to establish more transparent, secure, and accountable systems for managing cryptocurrencies and blockchain technology.

5.1 - FTX

5.1.1 - The history – first operations

The history of FTX, a cryptocurrency derivatives exchange, is one that has been vibrant with excitement and emotions since its beginning in May 2017[34]. Despite its relatively short existence, FTX has experienced a rollercoaster ride of highs and lows that for most companies would be hard to match. The company's founder, Sam Bankman-Fried (SBF), has been at the center of a big part of the scandal, having also founded the quantitative trading firm Alameda Research, which played a significant role in FTX's growth and ultimate downfall.

As FTX rose to success, fueled in part by Alameda's liquidity provisions, it quickly became one of the largest players in the market, boasting impressive trading volumes and a range of innovative products. But the company's success was not without its challenges, since while FTX was experiencing its growth, also the review surrounding its activities did. In particular, questions emerged about the relationship between FTX and Alameda[35], which was the exchange's primary liquidity provider. Some critics argued that this arrangement presented a conflict of interest, given that SBF was the CEO of both firms[36]. These fears were not entirely unfounded, as it later emerged that Alameda had engaged in wash trading on FTX[37], a practice that involves buying and selling the same asset to artificially inflate trading volumes.

Sam Bankman-Fried had a vision for the cryptocurrency industry that was admirable, but unfortunately his actions had disastrous consequences. As the founder of Alameda Research, he tried and succeeded to use his expertise in quantitative trading and liquidity provision to create a platform that would advance the industry. Under SBF's leadership, Alameda Research grew rapidly and gained a reputation as one of the most successful

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[34] Levine, Matt. "How Not To Play The Game." *Bloomberg*, 9 May 2023, https://www.bloomberg.com/features/2022-the-crypto-story-FTX-collapse-matt-levine/?srnd=crypto-regulation

[35] PYMNTS. "How the Entangled CEOs of FTX and Alameda Took the Public for a Ride." *Pymnts.com*, 18 November 2022, https://www.pymnts.com/news/2022/how-the-entangled-ceos-of-ftx-and-alameda-took-the-public-for-a-ride/.

[36] Yaffe, David. "How Sam Bankman-Fried's FTX Crypto Empire Collapsed." *The New York Times*, 14 November 2022, https://www.nytimes.com/2022/11/14/technology/ftx-sam-bankman-fried-crypto-bankruptcy.html

[37] see 33

trading firms in the industry[38]. However, his pursuit of profits led him to take risks that ultimately backfired: the incorrect management of the firm's assets and investments led to a series of losses that proved too much for the company to bear, ultimately leading to FTX's bankruptcy. Despite his good intentions, SBF's actions had serious consequences for both his own firm and the industry at large. The collapse of FTX sent shockwaves throughout the cryptocurrency world, and many investors were left confused from the losses they had incurred[39]. SBF's mishaps highlighted the need for greater oversight and regulation in the industry.

While running Alameda, SBF soon became dissatisfied with the performance of popular exchanges and recognized a chance to develop a better platform. He came up with the idea for FTX, an innovative exchange that would revolutionize the industry. To fund this venture, he used the profits generated from Alameda Research and recruited Gary Wang, an engineer whom he worked with at Google. Together, Sam and Gary began working on the FTX platform in 2018, and they quickly made progress towards their goal of creating a world-class exchange. With Sam's leadership and Gary's technical expertise, FTX became one of the most successful and respected exchanges in the industry.

FTX was founded in Antigua and Barbuda, with its headquarters later established in the Bahamas due to the country's favorable regulations for crypto assets. As the platform gained popularity and expanded its reach beyond the Bahamas, it soon became a global exchange[40]. According to FTX's official website, the exchange was designed by traders for traders, with an emphasis on user experience and trading efficiency. This approach proved successful, as the exchange's daily trading volumes grew rapidly, reaching over $15 billion in assets at one point, equivalent to approximately 10% of the total global trading volume of cryptocurrencies[41]. The exchange’s success can be attributed to several factors, including its intuitive and user-friendly interface, low trading fees, and efficient trading tools. These features made it easy for users to navigate the platform and execute trades with minimal friction, ultimately contributing to the exchange's rapid growth. Additionally, FTX made a concerted effort to comply with regulatory requirements,

[38] WhyteRabbit. “Alameda Research Breakdown.” *Whyterabbit.medium.com*, 9 May 2023, https://whyterabbit.medium.com/alameda-research-breakdown-dda48c535d18
[39] see 33
[40] see 33
[41] see 33

including the licensing of a US branch by the Department of Treasury and the Commodity Futures Trading Commission (CFTC) to serve US residents[42].

5.1.2 - Why did FTX become so popular?

Despite the competition, FTX stood out as a unique and leading player in the cryptocurrency space before its collapse. One of the key strengths of FTX was its extensive range of products, which included futures, options, leveraged tokens, and spot trading, among others[43]. Each product was designed to provide users with a unique trading experience and cater to their specific needs. By offering a wide range of products, FTX ensured that users could find something they liked on the platform, regardless of their experience level. In addition to its product offerings, FTX also offered various indices that tracked the performance of specific sectors within the cryptocurrency market. For example, the DeFi Index and the NFT Index allowed users to invest in specific sectors they believed would perform well and diversify their portfolios accordingly. This not only helped users achieve their investment goals but also provided them with a sense of security and confidence. Another unique aspect of FTX was its leveraged tokens. These tokens tracked the performance of various cryptocurrencies and allowed users to invest in them with leverage. This meant that users could magnify their gains or losses, depending on their risk appetite and investment strategy. By providing these leveraged tokens, FTX gave users an opportunity to take advantage of market movements and potentially earn higher returns.

Overall, FTX's diverse range of cryptocurrency products and services, combined with its unique features and offerings, made it a leading player in the cryptocurrency space before its collapse. Its focus on community building, discounted trading fees, and unique product offerings made it a popular choice among both beginner and experienced traders.

[42] see 33
[43] Lim, Michelle. "How FTX crypto exchange won over 1 million investors and grew 25-fold." *Forkast News*, 13 May 2021, https://forkast.news/video-audio/ftx-crypto-exchange-innovation-regulation/

5.1.3 – FTT

FTX, like other crypto assets exchanges, launched a proprietary token, FTT, in 2019[44]. FTT was considered as the spine of the exchange, providing users with various benefits such as low trading fees, discounts, and many other perks. One of the most significant benefits of FTT was its *staking* feature, which allows users to validate transactions, earn additional rebates, and potentially win a free non-fungible token by spinning a virtual wheel. Staking has become a popular practice among cryptocurrency users as it allows them to earn cryptocurrency simply by holding it. This is possible because every transaction on the blockchain requires verification, and the rewards-type system helps users who have cryptocurrency to verify transactions and support the network essentially earn crypto.

FTT's staking feature has become a significant incentive for FTX users, as it provides an additional way to earn money in addition to the profits coming from trading[45]. By staking FTT, users can earn additional rebates on their trading fees, up to 60% in some cases. The staking feature also allows users to earn a chance to win a free non-fungible token by spinning "the swag wheel". The non-fungible token is a unique digital asset that can represent anything, including mu

The practice of staking is made possible by the structure of the blockchain. As every transaction on the blockchain requires verification, users who have cryptocurrency can verify transactions and support the network. In return, they receive rewards in the form of cryptocurrency. This system helps to ensure the security and integrity of the blockchain network while providing an incentive for users to participate in the network. Overall, FTT's staking feature became an essential aspect of the FTX platform, providing users with an additional way to earn money and participate in the blockchain network. As cryptocurrencies continue to gain popularity, staking is likely to become an increasingly important feature for users looking to invest in the space. The valuation of the token peaked at 80$ and it is estimated that today there is a circulation of about 250 million[46].

[44] CoinMarketCap. "FTX Token (FTT) prezzo, grafici, capitalizzazione di mercato e altre metriche." *CoinMarketCap*, https://coinmarketcap.com/it/currencies/ftx-token/
[45] Syah, Henry. "How to Get High Returns on Staking FTT Token?" *BrokerXplorer*, 9 May 2023, http://brokerxplorer.com/article/how-to-get-high-returns-on-staking-ftt-token-2736.
[46] see 33

FTX actually had two exchange tokens, FTT and SRM. FTX and Alameda collaborated to develop a decentralized finance exchange protocol called Serum, and issued SRM tokens for that protocol, keeping most of the tokens for themselves[47]. Alameda ended up with sizable amounts of FTT and SRM tokens, which it received for free. These tokens had a market value of billions of dollars based on recent trading prices. The combined market value of Alameda's FTT and SRM tokens far exceeded the total market value of all FTT and SRM tokens held by anyone other than Alameda. The market value was based on just a small portion of tokens that traded freely. Additionally, Alameda was one of the primary traders of these tokens, often buying them from those selling, which helped to keep the prices up; this information will assist us in comprehending one of the principal reasons for the company's failure. Its association with FTX was fruitful during favorable conditions, but proved to be challenging in difficult scenarios.

5.1.4 - Business model – how did it make money?

One of the key factors that set FTX apart from other exchanges was its ability to generate income from various sources. The platform charged trading fees for every transaction that users made, which created a consistent stream of revenue for the company. Additionally, FTX offered loans to some users, which was a unique feature that other exchanges did not provide. This service enabled the company to earn interest on these loans, which further contributed to its revenue stream.

Another source of revenue for FTX was interchange fees for transactions made using its debit card. This allowed users to spend their balance offline, and for every transaction that occurred through this card, the platform charged an interchange fee. The company was also able to generate revenue through non-fungible tokens (NFTs), which had gained significant attention due to their marketability. FTX charged a fee to both the buyer and the seller when users bought and exchanged NFTs, usually at 5%.

Finally, FTX had been active in the investments market, which generated passive income and the potential for capital gains. The company had significant investments in other crypto and blockchain startups, which allowed it to diversify its income stream and

[47] see 33

protect itself from market volatility. However, the company did not disclose the earnings it generated from these investments.

All these strengths made FTX a formidable exchange in comparison to others before its collapse. Its ability to generate income from various sources, including trading fees, loans, interchange fees, NFTs, and investments, made it an apparent financially stable and robust platform.

5.1.5 – Downfall timeline

On November 2, 2022, a document claiming to be Alameda Research's balance sheet was diffused in a Coindesk.com article[48], revealing that the hedge fund had $14.6 billion in assets, some of which were merged with FTX, despite the two entities supposedly being separate. In fact, $5.8 billion of the $14.6 billion was in FTX's own token, FTT. It was discovered that FTT was sold to Alameda Research at a very low price early on (in the ICO), and when FTX artificially inflated the value of FTT[49]Alameda was able to use FTT as collateral on FTX to borrow other assets from FTX's customer deposits. However, Alameda held most of the FTT supply, but the FTT token had a low circulating liquidity, which meant that Alameda would not be able to sell all of its FTT quickly and efficiently as there wouldn't be enough liquidity or buyers. This would not usually be a problem as Alameda controlled most of the supply. However, Changpeng Zhao, the CEO of Binance, announced that he was selling all of Binance's FTT holdings, worth over $500 million[50]. The CEO of Alameda offered to purchase all of Binance's FTT at $22, which increased suspicions that the value of FTT was heavily used as collateral to borrow other assets, and that a further price drop could result in their loans being liquidated[51]. Panic ensued

[48] Allison, Ian. "Divisions in Sam Bankman-Fried's Crypto Empire Blur on His Trading Titan Alameda's Balance Sheet." *CoinDesk*, 2 November 2022, https://www.coindesk.com/business/2022/11/02/divisions-in-sam-bankman-frieds-crypto-empire-blur-on-his-trading-titan-alamedas-balance-sheet/

[49] Wigglesworth, Robin. "The Alameda-FTX death spiral." *Financial Times*, 18 November 2022, https://www.ft.com/content/7a55d057-357d-4bf6-92c4-4fc4ef7f72db

[50] Kharif, Olga. "Binance To Sell $529 Million of Bankman-Fried's FTT Token." *Bloomberg.com*, 6 November 2022, https://www.bloomberg.com/news/articles/2022-11-06/binance-to-sell-529-million-of-ftt-token-amids-revelations

[51] Coghlan, Jesse. "Binance CEO not interested in Alameda's offer to buy up its FTT holdings." *Cointelegraph*, 8 November 2022, https://cointelegraph.com/news/binance-ceo-not-interested-in-alameda-s-offer-to-buy-up-its-ftt-holdings

when CZ declined the offer, causing FTT's price to break below the $22 level, which accelerated the bank run on FTX[52]. This ultimately led to remaining users being unable to withdraw their assets from FTX, as they had been loaned to Alameda, which is now insolvent since Alameda had also borrowed from other creditors. FTX now owes billions, and although it was reported on November 9 that Binance planned to acquire FTX, the latest news reported on November 10 revealed that CZ from Binance has ultimately decided to walk away from the potential buyout[53]. FTX user funds are likely lost, but details are still being finalized.

5.1.6 - Ties with Alameda

The collapse of FTX was a significant setback not only for the company but also for its nearly one million customers and investors. The company's intricate and compromised relationship with its sister trading firm, Alameda Research, was a contributing factor to its downfall. Allegedly, SBF used Alameda to trade on token listings before they were publicly available, and granted the trading firm special privileges to FTX's exchange. The two companies had an operationally "intimate" relationship, which was subject to little, if any, financial oversight, allowing SBF and Alameda co-CEOs Sam Trabucco and Caroline Ellison to lose over $20 billion in profits and deposits in less than a week. Even worse, FTX utilized customer funds to bail out Alameda because of their partnership[54], as Alameda itself suffered heavy losses due to trading strategies dating back to April 2021[55]. The partnership gave Alameda an advantage over other market makers on FTX, who were thought to be earning a large profit, just less than Alameda.

On a first glance, the failure of FTX was not due to its trading, but rather to the challenging realities of running a large business without appropriate controls.

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[52] see 36

[53] Thomas, David. "Binance Walks Away From FTX Buyout, Citing Mishandled Funds and US Agency Investigations." *BeInCrypto*, 9 November 2022, https://beincrypto.com/binance-walks-away-from-ftx-buyout-citing-mishandled-funds-and-us-agency-investigations/.

[54] Tortorelli, Paige, and Kate Rooney. "Sam Bankman-Fried's Alameda quietly used FTX customer funds for trading, say sources." *CNBC*, 13 November 2022, https://www.cnbc.com/2022/11/13/sam-bankman-frieds-alameda-quietly-used-ftx-customer-funds-without-raising-alarm-bells-say-sources.html

[55] see 34

5.2 - TERRA

Terraform Labs (abbreviated in TFL), a blockchain technology company, founded TERRA in 2019 with the goal of providing fast and secure blockchain transactions, in the form of an open-source, decentralized finance network that used blockchain technology and proprietary tokens[56]. Terraform Labs was first born in 2018 by Daniel Shin and Do Kwon, and the company was headquartered in Seoul, South Korea. Daniel Shin, one of the co-founders of Terraform Labs, previously founded many other firms[57]. Do Kwon, the other co-founder, had experience in software engineering and had worked for several tech companies in the United States[58].

The Terra network used algorithmic stablecoins, to facilitate transactions. The network used a unique algorithmic stability mechanism to maintain the peg between the stablecoins and their respective fiat currencies. This mechanism was designed to provide stability and prevent the price fluctuations that are often associated with other cryptocurrencies.

In 2022, Terra experienced a collapse that wiped out almost an estimated half-a-trillion dollars from the cryptocurrency markets[59]. Terra achieved a high of almost $120 a token in March 2022, but in May 2022 it experienced the cryptocurrency equivalent of a bank run[60], and both the TERRA stablecoin and LUNA token were almost dead. The UST/LUNA algorithmic stablecoin system was supposed to work by keeping the UST stable by pegging it to Luna and offering above-market interest rates through Anchor Protocol.

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[56] Golden. “Terraform Labs - Wiki.” Golden, https://golden.com/wiki/Terraform_Labs-8AXGGDR

[57] Pitchbook. “Daniel Shin Profile.” PitchBook, https://pitchbook.com/profiles/person/92863-36P

[58] Rociola, Arcangelo, et al. “Storia di Do Kwon, l'informatico dietro il crac da 40 miliardi di Terra-Luna arrestato in Montenegro.” La Repubblica, 25 March 2023, https://www.repubblica.it/tecnologia/2023/03/26/news/do_kwon_terra_luna_arresto_storia-393561514/

[59] Loo, Andrew. “Terra - Overview and How Did Terra Collapse.” Corporate Finance Institute, 13 October 2022, https://corporatefinanceinstitute.com/resources/cryptocurrency/what-happened-to-terra/

[60] see 58

5.2.1 - What is TERRA USD?

TerraUSD (UST) is a stablecoin that was created by TLF, and as mentioned before, the creators of the network believed that stablecoins were an essential part of achieving their goal of providing fast and secure blockchain transactions.

TERRA USD (abbreviated in UST) was launched in April 2019 as one of several stablecoins created by the Terra network[61]. It was pegged to the value of the US dollar, meaning that each UST token was backed by an equivalent number of US dollars held in reserve, thus ensureing that the value of UST remained stable and close to $1 USD[62]. One of the key features of UST was its use of algorithmic stability mechanisms, which used complex mathematical formulas and economic incentives to maintain a stable price. This allowed the Terra network to offer users a stable currency that could be used for transactions and other financial activities, without the price volatility that was often associated with other cryptocurrencies. In addition to its stability, UST gained popularity among cryptocurrency traders and investors due to its fast transaction speeds and low fees. It was widely used on the Terra network as a means of payment and had also been integrated into several major South Korean e-commerce platforms[63].

5.2.2 - What is LUNA?

LUNA – a native token of Terra – had the 8th largest market capitalization among cryptocurrencies with nearly 40 billion USD in April 2022[64]. The role of LUNA was to

[61] Kwon, Do. "Announcing TerraUSD (UST)— the Interchain Stablecoin | by Do Kwon | Terra." *Medium*, 21 September 2020, https://medium.com/terra-money/announcing-terrausd-ust-the-interchain-stablecoin-53eab0f8f0ac.
[62] Kereiakes, Evan, et al. *Terra Money: Stability and Adoption*. April 2019, https://assets.website-files.com/611153e7af981472d8da199c/618b02d13e938ae1f8ad1e45_Terra_White_paper.pdf
[63] Sandor, Krisztian. "What Is LUNA and UST? A Guide to the Terra Ecosystem." *CoinDesk*, 21 March 2022, https://www.coindesk.com/learn/what-is-luna-and-ust-a-guide-to-the-terra-ecosystem/
[64] Seungju Lee, Jaewook Lee, Yunyoung Lee, Dissecting the Terra-LUNA crash: Evidence from the spillover effect and information flow, Finance Research Letters, Volume 53, 2023, 103590, ISSN 1544-6123, https://doi.org/10.1016/j.frl.2022.103590

maintain the value of UST[65]. Unlike other well-known stablecoins, such as USDC and USDT, whose stability is secured with reserves of assets, a dollar peg of UST solely relied on the use of LUNA. According to the Terra whitepaper, LUNA would absorb the short-term volatility of UST value by providing an arbitrage opportunity to LUNA holders. Within the Terra ecosystem, anyone could swap UST with LUNA at the target exchange rate, regardless of their current values, thus providing an incentive to market participants to anchor a dollar peg of UST.

5.2.3 - What are algorithmic stablecoins?

Algorithmic stablecoins are a type of crypto currency that is designed with the goal of maintaining a stable value by using a combination of algorithms and smart contracts[66]. Unlike other cryptocurrencies that can experience high levels of volatility, algorithmic stablecoins aim to provide a stable and predictable value that is tied to a specific asset or basket of assets. Algorithmic stablecoins work by adjusting the supply of the stablecoin to maintain its peg to the asset or basket of assets it is tied to. If the demand for the stablecoin increases, the algorithm creates more coins to meet the demand and maintain the peg. Conversely, if demand decreases, the algorithm reduces the supply of coins to maintain the peg. The basic principle behind this is to ensure that the stablecoin stays pegged to its underlying asset or basket of assets.

Algorithmic stablecoins have gained popularity in recent years due to their potential to provide a stable and predictable value that can be used for transactions and as a store of value. However, there are several risks associated with these cryptocurrencies. One of the most significant risks is algorithmic failure, as these systems are complex and rely on various algorithms and smart contracts to maintain stability[67]. Additionally, algorithmic stablecoins are not immune to market risks, and changes in demand or market conditions can result in significant price fluctuations. Collateral risk is also a concern, as many

[65] see 61

[66] Cointelegraph. "A beginner's guide on algorithmic stablecoins." *Cointelegraph*, https://cointelegraph.com/learn/a-beginner-s-guide-on-algorithmic-stablecoins

[67] Bullmann, Dirk and Klemm, Jonas and Pinna, Andrea, In Search for Stability in Crypto-Assets: Are Stablecoins the Solution? (August, 2019). Available at SSRN: https://ssrn.com/abstract=3444847 or http://dx.doi.org/10.2139/ssrn.3444847

algorithmic stablecoins are backed by collateral that may be subject to price fluctuations. Regulatory and governance risks are also important considerations, as the regulatory environment for cryptocurrency is constantly evolving, and governance issues can lead to disagreements among stakeholders and potentially impact the stability of the stablecoin. Despite these risks, algorithmic stablecoins continue to be an attractive option for many investors, and thorough due diligence is essential before investing in these cryptocurrencies.

An algorithmic stablecoin protocol achieves price stability by reducing the number of coins circulating when the market price goes down and increasing the number of coins circulating when it goes up[68], exactly like how a Central Bank may act to defend the peg of their domestic currency in foreign exchange markets by buying or selling foreign assets. In times of excess demand and if the stablecoin might be expected to increase in price over the peg, the protocol works by releasing more tokens to existing holders to bring prices down. In times of excess supply, the protocol will contract the number of coins that holders have to bring up the price of each of the remaining tokens. However, the value of stablecoins only remains stable if there is not much fluctuation of buying and selling. As discussed later, major dumps can have dramatic consequences and destabilize the peg.

5.2.4 - What is the Anchor Protocol?

Anchor Protocol, a Terra-based application subsequently built by Terraform Labs, was launched in 2020 in order to integrate three primary financial primitives on the Cosmos SDK-based Terra blockchain: payments via UST, savings via Anchor, and investing via Mirror Protocol[69]. Its launch was the realization of TFL's vision for a more integrated financial ecosystem.

[68] see 61

[69] Dale, Brady. "Anchor Launch Puts UST in the Stablecoin Race Against DAI." CoinDesk, 17 March 2021, https://www.coindesk.com/tech/2021/03/17/anchor-launch-puts-ust-in-the-stablecoin-race-against-dai/

Anchor was the driving force behind TerraUSD's popularity. By offering up to 20% interest rates for UST deposits, it attracted many users, thus leading to explosive growth for UST[70]. As Terra grew larger, its main developer Do Kwon launched the Luna Foundation Guard (LFG) to accumulate reserves to back UST in another way[71]. According to Kwon, having a third-party asset to meet "short-term" demand for UST would be valuable for Terra's algorithmic stablecoin system. Initially, the forex reserve only contained Bitcoin, and LFG planned to buy up to $10 billion worth of Bitcoin. In April, about $100 million of Avalanche, another cryptocurrency, was added to the reserve. Despite these efforts, Terra's many critics continued to be unimpressed: while the harshest were speculating about it being a new and improved Ponzi scheme, the majority of them questioned the vulnerability of the system, as a loss in faith and demand of UST could crash the whole protocol[72].

The main aim of Anchor Protocol was to increase demand for Terra's native stablecoin, UST, by offering a 20% yield to lenders. This would incentivize more users to enter the Terra ecosystem, thereby increasing its overall adoption. Not only did Anchor Protocol help to grow the Terra ecosystem, but it also allowed traditional finance participants to integrate with DeFi. This was a significant step in bridging the gap between traditional finance and DeFi, which could potentially attract more institutional investors to the space. Another key feature of Anchor Protocol was having its own proprietary API. This allowed fintech platforms, exchanges, and B2B businesses to integrate Anchor Protocol and offer interest-bearing savings accounts to their users. This would have helped to increase the overall adoption of Anchor and Terra's native stablecoin, UST.

To give a more technical definition, Anchor was a savings protocol that operated by accepting Terra deposits[73]. This was a great way to make deposits quickly and easily, with the bonus of being able to make instant withdrawals. To generate yield, Anchor lent out deposits to borrowers who put down liquid-staked Proof of Stake assets from major

[70] Everstake. “Anchor Protocol: A Savings Protocol Offering Up To 20% APY.” *Everstake*, 2020, https://everstake.medium.com/anchor-protocol-for-beginners-how-to-get-started-5b19f54ced6d
[71] Shen, Muyao. “Why Did Terra's (UST) Algorithmic Stablecoin and Luna Crypto Coin Fail?” *Bloomberg.com*, 20 May 2022, https://www.bloomberg.com/graphics/2022-crypto-luna-terra-stablecoin-explainer/
[72] see 70
[73] Platias, Nicholas, et al. *Anchor: Gold Standard for Passive Income on the Blockchain*. 2020. *Anchor Protocol*, https://www.anchorprotocol.com/docs/anchor-v1.1.pdf

blockchains as collateral (“bonded” Assets). For the authors of the white paper, this was a smart way of making sure that the protocol was able to lend out funds while ensuring that there was collateral to back up the loans. After all, it was important to make sure that the protocol didn't lend out too much money and get into trouble. Anchor stabilized the deposit interest rate by passing on a variable fraction of the bAsset yield to the depositor. This was a way to ensure that depositors were rewarded for their trust in the protocol. By taking on some of the risk, depositors were able to earn a low-volatility interest rate that was still higher than what they might find elsewhere. Anchor also guaranteed the principal of depositors by liquidating borrowers' collateral via liquidation contracts and third-party arbitrageurs. In this way the ecosystem was making sure that depositors were protected in the event that borrowers were unable to repay their loans. By using liquidation contracts and third-party arbitrageurs, Anchor could – in theory – be able to ensure that depositors always received their principal back. The savings accounts offer users a way to earn passive income on their UST holdings, while the low-interest loans provide access to affordable credit without the need for traditional financial intermediaries. This is particularly important for individuals who may not have access to traditional banking services, or who want to avoid the high fees and interest rates associated with traditional lending. In addition to Anchor Protocol, TFL also developed the Mirror Protocol and Chai wallets. These applications were again built to expand the use cases for Terra-based stablecoins like UST. Chai, for example, had already achieved some adoption in Asia by serving as a payments app that used Terra's KRW stablecoin (the tocken pegged to the Korean Won). By expanding the use cases for Terra-based stablecoins, TFL hoped to create a more robust and diverse financial ecosystem that could compete with traditional finance.

5.2.5 - What happened to TERRA USD?

In April 2022, SwissBorg warned about the possibility of a "bank run" or "death spiral" by UST holders resulting from a decrease in LUNA's price, who could be fearing that the

UST peg is at risk and subsequently decide to redeem their UST positions[74]. According to the warning, if UST holders panicked and sold their positions, UST would be burned, and LUNA would be minted and sold, leading to a "death spiral." Unfortunately, this prediction came true in May 2022, when the "death spiral" occurred.

It appears that the initial decline in demand for UST was a result of Anchor's yield reduction from 20% to 18% on May 2[75]. Not long after that, there was a large withdrawal of UST from the decentralized exchange, Curve Finance[76]. Kwon declared that TFL withdrew $150 million in UST from Curve to prepare for a new liquidity pool that would be soon launched on the exchange. However, around the same time, an unknown user exchanged about $84 million worth of UST for another crypto currency, always through Curve. Additionally, the Luna Foundation Guard, which was the official administrator of Terra's Bitcoin reserves, held a portfolio that included Bitcoin and a small amount of Avalanche (AVAX) tokens. Unfortunately, due to the downturn in the cryptocurrency markets, the value of the protocol's assets decreased significantly. These significant movements, occurring after the interest rate cut, caused more UST depositors to withdraw their stablecoins from Anchor. These transactions resulted in a flood of more transactions, causing UST to lose the 1$ peg, creating the infamous “death spiral”, as an alarming increase of withdrawals were ordered, transforming it into the crypto version of a bank run.

We now need to remember that one of the primary methods of exiting UST was through LUNA, but LUNA was already declining in value due to investor confidence loss and a general downturn in the market. As a result, the situation only worsened. The UST-LUNA exchange mechanism caused massive UST withdrawals, leading to a significant expansion in LUNA supply, driving its value down even further. According to other theories, the collapse was caused by a "coordinated attack" by market actors, who wanted to destabilize the UST peg and profit from the situation[77]. The collapse of Terra was

[74] Matteo, Bonato. TerraLuna & UST - Risk assessment. 2020. Swissborg.com, Swissborg, https://hubs.ly/Q017Ww2S0
[75] Twitter.com - https://twitter.com/anchor_protocol/status/1507730612102254599?lang=de
[76] see 70
[77] Urbas, Nate. “The Story of Terra (LUNA) – How TerraUSD (UST) Led to a $200 Billion Wipe « CryptoLinks.” *CryptoLinks*, 6 June 2022, https://cryptolinks.com/news/how-terrausd-ust-luna-led-to-a-200-billion-wipe.

caused by two main events: private market actors short selling BTC and the "liquidity pool attack" on Curve-3 pool, which caused the first UST de-pegging. As Terra reserves included a large amount of BTC, attackers could have forced LFG to sell BTC on the market, which would decrease its price, and increase the attackers' profit. Between May 5 and May 13, the value of LUNA and UST decreased from $87 and $1, to less than $0.00005 and $0.2 respectively. In a statement, Luna Foundation Guard declared that its BTC reserves depleted almost entirely, going from about 80,000 BTC to about 300. The remaining assets, which included about 40,000 BNB and 2 million AVAX, would apparently be used to compensate investors. While some social media rumors suggested the existence of a "coordinated attack" using BTC to destabilize UST peg[78], these claims are based on contradictory information and might not be true. Despite this, the collapse of Terra was a result of multiple factors, including short-selling, liquidity pool attacks, and panic selling by UST holders. The collapse of Terra and LUNA sent shockwaves throughout the entire cryptocurrency market, causing the loss of over 40 billion dollars in market value, highlighting the potential risks of algorithmic stablecoins.

[78] Akolkar, Bhushan. “The Attacker of UST Stablecoin Made Rich Profits, Here's How.” *Coingape*, 11 May 2022, https://coingape.com/heres-how-the-attacker-possibly-made-over-800-million-in-a-coordinated-attack-on-ust/

5.3 - The Rock Trading

The Rock Trading (abbreviated in TRT) has been one of the longest-running cryptocurrency exchange platforms in Europe. It was founded in 2011 by Andrea Medri and Davide Barbieri, following the first Bitcoin waves, and since then, it consistently stood out for its reliability, security, and technological advancements. It was part of a conglomerate of companies all held by Digital Rock Holding S.p.A.

5.3.1 - The company structure

Digital Rock Holding S.p.A. has been the first cryptocurrency ecosystem in Italy and in Europe, covering the entire value chain of services necessary to operate in this market. The group comprises the following companies, all of which are incorporated under Italian law[79]:

- "The Rock Trading S.r.l.": Founded in 2010 and becoming an Italian entity in 2017, it is now the world's longest-running trading platform that enables the buying and selling of Bitcoin and other cryptocurrencies using fiat currency (euro). "The Rock Trading S.r.l." is wholly owned by the Holding and serves as the flagship company of the group.
- "tinkl.it S.r.l.": The first Bitcoin payment processor in Italy, allowing merchants/professionals to accept cryptocurrency payments while receiving the equivalent in euro through bank transfer. "tinkl.it S.r.l." is 95% owned by the Holding.
- "OneDime S.r.l.": This company aims to cover all the IT needs of the subsidiaries. It specializes in software solutions development, adhering to established methodologies and using programming languages that prioritize security and quality standards. It also manages the infrastructure architecture and security of the services/products offered and internal resources. "OneDime S.r.l." is wholly owned by the Holding.

[79] Redazione Breaking Crowd. “Digital Rock Holding - Opstart - approfondimento.” *Breaking Crowd Magazine*, 6 July 2020, https://www.breakingcrowd.it/approfondimenti/digital-rock-holding-opstart-approfondimento/

- "CheckSig S.r.l.": The entity internally developed a Bitcoin custody service with insurance coverage, completing the bouquet of offerings provided by Digital Rock Holding. This service addresses a significant need for institutional investors and high-net-worth individuals. "CheckSig S.r.l." is 1% owned by the Holding.
- "Cryptovalues S.c.a.r.l.": A European consortium committed to promoting the diffusion of blockchain and cryptocurrency-related culture. The consortium actively engages in dialogue with institutional bodies, regulators, academics, and entrepreneurs to contribute to the definition of regulatory frameworks that stimulate the industry and foster its development. "Cryptovalues S.c.a.r.l." is 66% owned by the Holding.

As pioneers in the industry in Italy and in Europe, The Rock Trading held several significant achievements. The company was designed to be user-friendly, providing an intuitive interface that allowed users to easily trade a wide range of cryptocurrencies, including Bitcoin, Ethereum, Litecoin, Ripple, and many others. The Rock Trading also offered various wallet services, such as cryptocurrency storage and digital currency purchases. One notable feature of the company was its partnership with Banca Sella, which enabled direct deposits and withdrawals to a bank account. This collaboration made the process of depositing and withdrawing funds much simpler and faster for users.

5.3.2 - The timeline of the downfall

According to a report by Nicola Borzi[80], it is important to look back at official documents to understand what happened. In 2017, the company transferred its Maltese cryptocurrency exchange to a new Italian entity called TRT. This transfer was valued at €7 million, but the actual revenue generated by TRT fell far short of the expectations. In 2020, they were projected to earn €18.5 million from client portfolios, but they only made €1.028 million.

[80] Borzi, Nicola, and Marco Palombi. "The Rock Trading, le connection con gli altri crac del mondo cripto." Il Fatto Quotidiano, 27 February 2023, https://www.ilfattoquotidiano.it/in-edicola/articoli/2023/02/27/the-rock-trading/7079181/.

The company also reported a loss of €147.000 in 2020, even though it expected a net profit of €7.1 million from their operations. This loss was even more surprising considering they made €1.3 million from exchanging their own cryptocurrencies. These discrepancies raised significant doubts about TRT's valuation and goodwill, which were estimated at €6.75 million based on their client list. Even in 2020, a year when the cryptocurrency market performed well, TRT's income statement showed a loss of around €150.000. In 2021, despite the Bitcoin boom, their reported profit of €1.28 million did not come from their usual activities. Instead, it was derived from gains of €2.39 million made from the increase in value of their own cryptocurrencies. To make matters worse, OneDime S.r.l., a society of the group Digital Rock Holding S.p.A., experienced a theft of 311.06 Ethereum, worth around €904.000, in September 2021. To cover the loss and protect their clients' interests, the company used its own cryptocurrency reserves[81].

These events have damaged The Rock Trading's reputation and raised concerns about their management and financial controls. Despite its initial promise and range of services, the company faced significant challenges, including the termination of its partnership with Banca Sella and the financial impact caused by the cyber attack on OneDime. These events ultimately affected the company's ability to sustain its operations. What is even worse is that, according to Corriere della Sera, a recorded board meeting from February 16th revealed a troubling incident at The Rock Trading. Cofounder Andrea Medri admitted that the company used clients' funds for other purposes without proper collateral[82]. The platform mixed user assets with company assets, and cryptocurrencies entrusted by users are now missing.

Since February 21st of 2023, the TRT platform has not been operational. On the homepage of the platform, the following message was highlighted: "The Rock Trading announces that it has become necessary to interrupt the operation of its platform starting from today's date due to liquidity management difficulties. The company is conducting internal investigations to identify the causes of the problem and evaluating the adoption

[81] Petrucciani, Gabriele, et al. "Rock Trading, perché l'exchange di crypto e Bitcoin si è bloccato? L'analisi del bilancio e i dubbi." *Corriere della Sera*, 13 March 2023, https://www.corriere.it/economia/finanza/23_marzo_13/rock-trading-investimenti-crypto-hacker-ipotesi-blocco-l-analisi-bilancio-ab64a8a6-bf6a-11ed-a204-070182f2d425.shtml

[82] see 80

of all appropriate or necessary initiatives to protect its clients and other stakeholders. Further updates on the measures taken will be provided promptly."[83] It is evident that the discontinuation of the platform's operations resulted in significant challenges for its users, who faced the inability to access their funds or retrieve their invested capital. The company, on its part, recognized the issues faced and expressed its commitment to investigating the situation and taking necessary steps to safeguard the interests of its clients and stakeholders.

The platform is nowadays under hard regulatory scrutiny[84]. Italian authorities are examining its compliance practices to ensure adherence to financial regulations, customer protection standards, and anti-money laundering measures. Failure to comply with these regulations may result in further legal consequences, fines, and potential management trials. Moreover, clients of The Rock Trading are at risk of financial loss. The mismanagement of client assets and potential financial irregularities have left them in a vulnerable position. It may be challenging for affected clients to recover their funds and seek legal remedies for their losses.

[83] Guidi, Giulia. "The Rock Trading: cosa sta succedendo al primo exchange italiano - Business24 La TV del Lavoro." Business24 TV, 21 February 2023, https://business24tv.it/2023/02/21/therocktrading-cosa-sta-succedendo-al-primo-exchange-italiano

[84] Patella, Alessandro. "Cosa sappiamo sul buco da 15 milioni di The Rock Trading." *Wired Italia*, 23 March 2023, https://www.wired.it/article/the-rock-trading-fallimento-15-milioni/

Chapter VI - Identification of issues related to the scandals and their criticalities

Now that the general timeline of all the cases that were previously presented has been cleared, the perimeter of the principal issues can be drawn in 4 principal categories: misguided governance and possible conflicts of interests, lack of sufficient reserves and the lack of separation between clients' funds and the companies' funds.

In order to answer our research question, we will now pretend that the three crypto companies were established under EU jurisdiction, and MiCAR had already come into force. We want to assess the breach and consequences that the companies would have faced, given the premises.

For example, for FTX one important issue has been the mishandling of the company's financial affairs and the absence of appropriate reserves of assets. As per the legislation we have examined, companies that provide crypto services operating in the crypto assets markets are required to maintain adequate capital reserves in the highest class defined by Annex IV MiCAR. FTX's failure to comply with these regulations indicates a potential violation, which could entail legal repercussions such as fines or penalties, or ultimately the halt of the business. Moreover, given the possible status as "significant", it would have been subjected to even stricter rules.

Furthermore, FTX's disregard for the segregation of clients' funds further amplified its troubles. The articles reviewed emphasizes the importance of segregating client funds from a company's own assets. FTX's alleged failure to properly segregate clients' funds and their utilization of those funds to bail out other entities, like their sister trading firm Alameda, would constitute a violation of these regulations.

In FTX's case, the company's intricate relationship with Alameda Research, which was subject to minimal financial oversight, played a significant role in their downfall. Allegedly, FTX granted Alameda special privileges on its exchange, allowing them to trade on token listings before they were publicly available. This arrangement gave Alameda an advantage over other market makers on FTX, potentially breaching regulations regarding fair market practices and competition (art. 92 par. 1 on prevention and detection of market abuse, or at. 76 par. 5 on operation of a trading platform for

crypto-assets). These allegations underscore the need for strict oversight and transparency within the cryptocurrency industry. In the case of Alameda and FTX, there appeared to be a potential conflict of interest between these entities. The nature of their relationship, as described in the information provided, suggested that Alameda had a close and operational relationship with FTX. This relationship, if not properly managed, could have given rise to conflicts of interest. If FTX and Alameda were EU companies regularly authorized by MiCAR, to comply with Article 72 (prevention of conflicts of interests), Alameda and FTX should have implemented and maintained effective policies and procedures to identify, prevent, manage, and disclose any conflicts of interest that may have arisen between them. These conflicts of interest should have been transparently disclosed to their clients and prospective clients on their websites in a prominent manner, using an electronic format. The disclosure should have included sufficient detail to enable clients to make informed decisions about the services provided by Alameda and FTX, taking into account the specific conflicts of interest. Furthermore, the providers should have regularly assessed their policies on conflicts of interest and conducted annual reviews to address any deficiencies. Failure to comply with these obligations could have had legal consequences or resulted in regulatory actions. It was essential for crypto-asset service providers like Alameda and FTX to adhere to these requirements to ensure transparency, fairness, and the protection of their clients' interests.

A similar demise was the downfall of TRT, with the aggravating factor of a poor handling of cybersecurity between the companies of the conglomerate, which ultimately led to severe losses that were, again, covered with users' money, again breaching the need for a separate reserve of assets. The events also highlighted a need for stricter valuation of the reserve of assets in the balance sheets, and proper prudent investing of them: if assets are linked to volatile counterparts, the risk of seeing billions swiped out in a matter of minus is extremely high.

On the possible conflict of interest, in the case of TRT and OneDime S.r.l., similar problems arose. OneDime S.r.l. encountered a theft in September 2021 in the omnibus account, and in order to cover it, the administrators of the company decided to use the cryptocurrency holdings held by TRT. This action was taken to prevent any potential reputational damage to the company. Throughout 2022, the company continued to cover the shortfall by utilizing its own cryptocurrency reserves However, this action of utilizing

the company's cryptocurrency reserves to cover the loss raises concerns and potential conflicts of interest.

Art. 66 par. 7 of MiCAR establishes obligations for crypto-asset service providers, emphasizing the importance of maintaining continuity and regularity in the performance of their crypto-asset services. This provision aims to address the increasing risks posed by cyber threats and the potential for abrupt losses of funds within the crypto industry. In light of the rising number of crypto hacks and the need for appropriate controls, the literature analyzed by the EU Policy Department for Economic, Scientific and Quality of Life Policies recognized the significance of regulatory measures. These measures were crucial to mitigate risks and protect clients' funds from theft by hackers or inappropriate usage by company management.

TRT, like many other companies, experienced abrupt losses of funds due to cyber attacks. These incidents severely undermined TRT's operability and put clients' funds at serious risk. However, had TRT implemented appropriate systems in compliance with the regulation, the course of events might have unfolded differently. Firstly, TRT would have employed resilient and secure ICT systems, implementing robust controls and measures to safeguard their ICT infrastructure. This proactive approach would have significantly reduced the vulnerability of their systems to cyber threats. Secondly, TRT would have established a comprehensive business continuity policy, including ICT business continuity plans and ICT response and recovery plans. These plans would have provided a framework for effectively preserving essential data and functions during interruptions to their ICT systems. In the event of a cyber attack, TRT's appropriate systems would have facilitated a prompt response. They would have been able to identify and resolve the underlying issue swiftly, minimizing the impact of the attack. By recovering essential data and functions in a timely manner, TRT could have resumed their crypto-asset services more quickly, limiting the disruption experienced by clients.

If TRT had implemented appropriate systems in compliance with this article, the company could have better protected itself and its clients, minimizing the potential for abrupt losses of funds and creating a more secure operating environment within the crypto industry.

Here we subsequently touch the hot topic that can be the commingling of the companies' and clients' funds. This practice, now prohibited by MiCAR, led to the impossibility of

recovery of clients' funds from platforms, for FTX, TRT and TERRA. As the first two could qualify as crypto services providers, the requirements of Article 70 par. 1 and 3 (safekeeping of clients' crypto-assets and funds) could have been applicable. Article 70, paragraphs 1 and 3 of MiCAR play a crucial role in regulating the safekeeping of clients' crypto-assets and funds within the crypto-asset service provider industry. These provisions are designed to protect clients' ownership rights, prevent the use of clients' funds for the service providers' own benefit, and ensure the proper handling and separation of clients' funds.

In the events described earlier, the commingling of companies' and clients' funds, which is now prohibited by MiCAR, had significant implications for TRT and FTX. However, had TRT and FTX implemented appropriate systems in compliance with Article 70, the course of events might have unfolded differently.

Article 70, paragraph 1 states that crypto-asset service providers must make adequate arrangements to safeguard the ownership rights of clients and prevent the use of clients' crypto-assets for their own account. If TRT and FTX were established in the EU and MiCAR was already in force, and they had adhered to this requirement, they would have established robust safeguards and mechanisms to ensure that clients' crypto-assets were protected and not misused: TRT used the funds to clear the funds missing from the theft, while FTX used the funds to save Alameda from the losses it incurred. Furthermore, Article 70, paragraph 3 specifies that crypto-asset service providers should place clients' funds (other than e-money tokens) with a credit institution or central bank by the end of the business day following their receipt. It also emphasizes the importance of holding these funds in a separate and identifiable account, distinct from the service providers' accounts. If TRT and FTX had followed these obligations, they would have ensured clear segregation of clients' funds, eliminating thus the risk of commingling and enhancing the protection of clients' assets. By implementing appropriate systems and controls in compliance with Article 70, TRT and FTX could have maintained proper separation between clients' funds and their own funds. This would have safeguarded clients' ownership rights and prevented situations where clients' funds become inaccessible due to the platforms' financial difficulties or insolvency. The existence of adequate systems would have also instilled greater trust among clients, fostering a more secure and transparent environment within the crypto-asset service provider industry.

TERRA has a complicated issue, which was highlighted in all the literature reviewed previously: as it was pegged to only one currency, it would be classified as an EMT under MiCAR, but the lighter requirements may undermine the good intentions posed by the regulation, even if it would be classified as significant. The taxonomy of the assets would in this case prove to be dangerous for the safekeeping of stability. From a regulatory perspective, the collapse of TERRA highlights the challenges associated with algorithmic stablecoins, which are designed to maintain a stable value through automated mechanisms. The events surrounding TERRA demonstrate the potential risks and vulnerabilities associated with such algorithmic systems, including the potential for liquidity pool attacks and panic selling by holders of the stablecoin. These risks call for severe and appropriate legislation and oversight to ensure the resilience and stability of algorithmic stablecoins and safeguard investor interests, especially following the "same risks, same rules" approach mentioned earlier.

Furthermore, the depletion of TERRA's Bitcoin reserves and the subsequent decline in the value of these assets emphasize the importance of proper asset management and risk diversification, as outlined in the art. 54 (investment of funds received in exchange for e-money tokens). It is crucial for cryptocurrency projects to adhere to regulations regarding reserve management, asset valuation, and risk assessment to mitigate potential losses and protect the interests of investors. The collapse of TERRA and the significant loss of market value it entailed serve as a cautionary tale: it highlights the need for robust regulations, effective risk management practices, and transparent governance structures to ensure the stability, resilience, and trustworthiness of digital assets and the platforms on which they operate.

The case study highlighted the challenges faced by companies operating in the cryptocurrency space and the dire consequences of inadequate management and non-compliance with applicable legislation. It wants to serve as a reminder of the significance of sound financial practices, regulatory adherence, and ethical conduct in ensuring the stability and trustworthiness of financial institutions.

Conclusions

In conclusion, the analysis of the cases presented in this thesis shed light on the principal issues that have plagued the crypto industry, namely, misguided governance and conflicts of interest, insufficient reserves, and the lack of separation between clients' funds and the companies' funds. By considering these issues within the framework of the Markets in Crypto Assets Regulation (MiCAR) in the European Union, we can assess the potential breaches and consequences that the analyzed companies would have faced had they been established under EU jurisdiction and subject to MiCAR.

The case of FTX exemplifies the consequences of inadequate financial affairs management and the absence of appropriate reserves. FTX's failure to comply with MiCAR regulations regarding capital reserves, as well as the alleged failure to segregate clients' funds, indicates potential violations that could have resulted in legal repercussions. These repercussions may have included fines, penalties, or even the suspension of business operations. Additionally, the special privileges granted to Alameda Research raised concerns about fair market practices and competition, emphasizing the need for strict oversight and transparency within the cryptocurrency industry. Similarly, the downfall of TRT highlights the importance of robust cybersecurity measures and the need for appropriate controls to protect clients' funds. Compliance with MiCAR's provisions on resilient and secure information and communication technology systems, as well as the establishment of comprehensive business continuity policies, could have mitigated the risk of cyber-attacks and minimized the impact on clients' assets. By proactively implementing these measures, TRT could have responded promptly to cyber threats, identified and resolved underlying issues swiftly, and resumed their crypto-asset services more quickly. The commingling of companies' and clients' funds, which is now prohibited by MiCAR, had significant implications for both TRT and FTX. Proper implementation of MiCAR, which emphasizes the safeguarding of clients' ownership rights and the separation of funds, could have protected clients' assets and enhanced transparency and trust within the crypto industry. Adhering to these obligations would have ensured that clients' crypto-assets were not misused by the service providers and would have facilitated clear segregation of funds, eliminating the risk of commingling. These measures would have enhanced the protection of clients' assets and eliminated situations where clients' funds become

inaccessible due to the platforms' financial difficulties or insolvency. The case of TERRA highlights the challenges associated with algorithmic stablecoins and the need for appropriate legislation and oversight. The collapse of TERRA demonstrated the potential risks and vulnerabilities associated with such algorithmic systems, including liquidity pool attacks and panic selling by stablecoin holders. These risks call for severe and appropriate legislation and oversight to ensure the resilience and stability of algorithmic stablecoins and to safeguard investor interests. The depletion of TERRA's reserves and the subsequent decline in the value of these assets underscored the importance of proper asset management, asset valuation, and risk assessment, as outlined in MiCAR. Compliance with these regulations is crucial for cryptocurrency projects to mitigate potential losses and protect the interests of investors.

Overall, the case studies presented in this thesis serve as reminders of the significance of sound financial practices, regulatory adherence, and ethical conduct in maintaining the stability and trustworthiness of the crypto industry. The implementation of MiCAR in the European Union represents a crucial step towards addressing these issues and creating a more secure and trustworthy environment for crypto assets within the EU. By identifying the deficiencies and shortcomings in the existing regulatory framework, this thesis provides valuable insights into how MiCAR can contribute to a safer and more robust crypto industry in the European Union. It emphasizes the need for strict adherence to regulations, the establishment of appropriate governance structures, and the integration of comprehensive risk management practices within the crypto industry to protect investors, promote fair market practices, and ensure the long-term sustainability of the sector.

As the crypto industry continues to evolve and gain prominence, it is essential for regulators, policymakers, and industry participants to collaborate and develop comprehensive frameworks that address the unique challenges posed by crypto assets. By continuously assessing and refining regulations, staying vigilant against emerging risks, and fostering an environment of transparency and accountability, stakeholders can contribute to the responsible growth of the crypto industry and ensure that it remains a valuable and trustworthy part of the global financial ecosystem.

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