LUISS

Corso di Laurea magistrale in

Law, Digital Innovation and Sustainability

FINTECH

How to regulate Decentralised Finance

Prof.
Fabiana Di Porto
SUPERVISOR

Prof.
Sofia Hina Fernandes Da Silva Ranchordas
CO-SUPERVISOR

Matr.
Antonio Gerardo Lapenna
CANDIDATE

Accademic Year 2023/2024

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Chapter One: "An Introduction to Finance and Decentralized Finance"

1.1.1 History of Money: From Bartering to the Traditional Financial System

Money has evolved considerably starting with the ancient practice of bartering in which goods and services were traded directly among communities. The early economies operated on a principle that individuals traded with one another what they had for something they wanted, an exchange system which was essential and yet constrained by the demand for double coincidence of wants in which both parties must want the other person's offer. Its limitations became increasingly apparent as societies grew more complex and they had to trade outside their local communities. This resulted into the emergence of commodity money so that things which were acceptable worldwide for exchange such as gold, silver and other valuable substances. Such goods had a natural value and made continental trade viable on a larger scale with more advanced economic interactions.

The introduction of coined money dated around 600BCE also represented a critical development in the history of money by providing standardized weights and measures to facilitate exchanges. As governments minted their own coins, they increased the influence of the state over currency and commerce years later. This transition emerged the casual road for fiat money, where specific currency holds no value but is considered as legal proof mainly because of government order.

However, commodity money was introduced in expanding economies to provide a standardized medium of exchange which was necessary for economic growth[1]. The evolution of banking systems then provided a way to secure money, and credit, resulting in the true expansion of the

[1] Kahn, C. M., & Roberds, W. (2009). The economics of payments: A historical perspective. *Journal of Economic Perspectives*, 23(4), 123-144.

realm of economic transactions. The establishment of central banks in the 17th century represented a major step as these financial elite have monopolised and controlled currency, subsequently implementing monetary-tight policy, thus smoothing economies[2].

This led to the rise of electronic banking and financial markets in the 20th century, which completely overhauled how transactions were done. Convenience, represented by credit cards and online banking, was optimized, while borders faded in the complex financial ecosystem due to globalization. But these advances also brought complications and dangers that led to financial crises demonstrating the problems inherent in regulation[3].

Historically, traditional banking systems have been the infrastructure for financial intermediation, providing the facilities of deposit-taking, lending and payment processing. While centralized finance (CeFi) is about having intermediaries to manage financial transactions, which can give us a level of trust and security that we miss in decentralized systems. The framework is supported by the regulatory domain, with central banks controlling monetary policy (through interest rates, reserve requirements, etc.) and achieving financial stability[4], just to mention some examples. The fact these can also serve as a so-called last-resort central bank in times of financial crisis underlines the role of centralisation and control must play for economic order.

Centralized finance has its advantages, such as consumer protection and regulation, However, this global network has also exposed weaknesses exemplified during the 2008 financial crisis when interdependence among financial institutions resulted in systemic failures that had international consequences[5]. While Decentralized Finance (DeFi), which we are going to introduce very soon, rises up to disrupt traditional banking, challenging the old order with its

[2] Goodhart, C. A. E. (1988). The Central Bank and the Financial System. *Macmillan Press*, 1988.

[3] Allen, F., & Gale, D. (2007). Understanding Financial Crises. *Oxford University Press*, 2007.

[4] Kahn, C. M., & Roberds, W. (2009). The economics of payments: A historical perspective. *Journal of Economic Perspectives*, 23(4), 123-144.

[5] Allen, F., & Gale, D. (2007). Understanding Financial Crises. *Oxford University Press*, 2007.

peer-to-peer nature of transactions and re-envisioning how we manage money. These developments pose critical questions on the future intermediate role of banks and requirement for flexible regulatory frameworks that can respond effectively to these new dynamics catering consumer interest and financial stability[6].

1.1.2 The Gold Standard and the shift to Fractional Reserve Banking

The gold standard was a monetary system in which the value of currency is directly tied to a specific amount of gold. This locked-in value helped maintain stable and predictable economic conditions. Nonetheless, as economies grew and capital needs proliferated the inflexibility of the gold standard was evident. This made way for fractional reserve banking, which gave banks the power to only retain a fraction of all deposited funds in reserve whilst loaning out the rest. Under the Bretton Woods agreed core fixed exchange rate system this provided the sort of flexibly in money supply and credit creation required for banks to be able to respond appropriately to the needs of the economy[7]. Fractional reserve banking was undeniably an enabler for growth — but it also came with serious risks, especially when the sands of economic confidence shifted.

Banks became more likely to face bank runs when they extended more credit than they had reserves for and lost depositor or institutional investor confidence. This risk was amplified in the context of financial crises, as systemic vulnerabilities were exposed. While moving from a gold standard to fractional reserve banking brought about more flexible financial systems, it additionally delivered cycles of inflation and vulnerability[8]. The high risk taking and the low willingness to regulate in the more or less unregulated financial environment was very

[6] Krungsri Research. (2021). Traditional Banking and DeFi: What Role will be Left for Banks if the Financial System Changes? Retrieved from https://www.krungsri.com/en/research/research-intelligence/defi-21

[7] Kahn, C. M., & Roberds, W. (2009). The economics of payments: A historical perspective. *Journal of Economic Perspectives*, 23(4), 123-144.

[8] Allen, F., & Gale, D. (2007). Understanding Financial Crises. *Oxford University Press*, 2007.

noticeable during the Financial Crisis of 2008 – an age where neoliberal economics believed that "market will solve all problems"[9]. In light of this historical background it becomes clear that the criticality to craft a robust regulatory infrastructure on decentralized finance (DeFi) being still 3 years old, and making its headway now.

1.2.1 The Financial Crisis of 2008 and the emergence of Crypto with Bitcoin

The 2008 financial crisis was the trigger for transformation in the world of finance, revealing how weak are conventional banking systems. The crisis itself was caused by a spate of excessive risk-taking, and it served as a stark demonstration of both the risks in having over-leveraged institutions and systemic risks in more centralized finance. During this time of uncertainty, a mysterious individual named Satoshi Nakamoto presented Bitcoin in 2008 as a radical substitute for fiat banking. In a white paper called "Bitcoin: A Peer-to-Peer Electronic Cash System," Nakamoto introduced Bitcoin as a type of money that would be free from the control of middle men, allowing users to make direct transactions with one another[10]. The invention was born out of the shortcomings of a contemporary financial system which had already failed, and for the dream to build an entire sustainable economic model independent from traditional banks as well.

Introduced in January 2009, Bitcoin heralded a new era of finance where individuals could transact digitally without the need for any centralized intermediaries. CryptoKitties transaction use a copy of the message buried in Bitcoin's genesis block, which alludes to a newspaper headline regarding government bailouts--a nod toward its pledge and critique[11]. This not only offered an alternative to those left dugusted with the financial crisis, but also created the

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[9] Gorton, G., & Metrick, A. (2012). Securitized Banking and the Run on Repo. *Journal of Financial Economics*, 104(3), 425-451.

[10] Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from https://www.bitcoin.org/bitcoin.pdf

[11] Cointelegraph. (2024). Bitcoin — Satoshi Nakamoto's response to the global financial crisis. Retrieved from https://cointelegraph.com/news/satoshi-nakamoto-bitcoin-emergence-financial-crisis

framework for a whole alternate currency system. Yet while Bitcoin was born in large part as an answer to the problems revealed in that crisis, itself a means by which individuals could keep their own savings safe from systemic risk, there are enough alarm bells ringing in cryptocurrency circles today[12]to raise concerns of its own blind spots.

The changes in the DeFi space emphasize the critical need for regulatory conditions that balance the prospects and obstacles of decentralized finance.

As a fresh, new invention in digital finance, Bitcoin was launched by the pseudonymous founder Satoshi Nakamoto with his white paper "Bitcoin: A Peer-to-Peer Electronic Cash System" in 2008. The primary concept underpinning bitcoin was to allow parties to transact directly, without the need of a bank regulating it, which reduces costs and makes the process more efficient[13]. It is an online peer-to-peer electronic cash system using cryptographic techniques to secure transactions and control the creation of new units, through a decentralized software development model that requires no central authority[14]. Bitcoin facilitates this trust by using a decentralized network of nodes that validate and record transactions on a public ledger called the blockchain (ensuring transparency and immutability).

When Bitcoin was created, it was meant to be different from the normal financial systems that have been put in place systems based on a central authority. The vision of Nakamoto was to bring about a currency free from government manipulation and traditional financial institutions empowering the masses with a new financial freedom[15]. As Bitcoin rose in popularity, it was not only confronting existing monetary systems but also spawning countless cryptocurrencies of its own. The world of decentralized finance has since evolved, prompting regulatory and

[12] Shin, H. S. (2022). The great crypto crisis is upon us - Bank for International Settlements. Retrieved from https://www.bis.org/speeches/sp221216.htm

[13] Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from https://www.bitcoin.org/bitcoin.pdf

[14] Bitpanda Academy. (2024). The Bitcoin Whitepaper simply explained. Retrieved from https://www.bitpanda.com/academy/en/lessons/the-bitcoin-whitepaper-simply-explained/

[15] Gans, J. S. (2019). The case for an electronic currency. *Journal of Financial Economics*, 134(3), 1-16.

oversight considerations in a landscape that looks nothing like that which caused significant vulnerabilities yet went largely unregulated during the financial crisis of 2008. The advent of cryptocurrencies being a system of money and Bitcoin leading the way attracts more interest in whether they can really be something that is accepted from here on out, as alternatives to how we manage our finances.

1.2.2 Emergence of crypto as new monetary solution

The field of monetary services was a new reality when cryptocurrencies appeared that gets in the way of traditional financial solutions, as them presents competitors to native currencies. Propelled by the 2008 financial crisis, Bitcoin was created as a counter-elitist currency that functions without traditional financial intermediaries like central banks and Wall Street[16]. Despite the return to that status of a single use case, it did help demonstrate that cryptocurrencies could serve as tools for peer-to-peer transactions and wonder if they are an excellent hedge against inflation and high economic uncertainty. With the rise of interest in digital currencies and cryptocurrencies, such as stablecoins were able to reach a point where they could utilise widespread benefits provided by blockchain technology whilst keeping hedged from fluctuating fiat[17].

In places where faith in national currencies is at an all-time low or where banking services are scarce, cryptocurrencies like Bitcoin have become preferred forms of financial transaction. The global adoption of DeFi platforms has created an additional dimension and new infrastructure that permits people to lend, borrow, or trade without traditional securities companies[18].

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[16] Cointelegraph. (2024). History of Crypto: Bitcoin — Satoshi Nakamoto's response to the global financial crisis. Retrieved from https://cointelegraph.com/news/satoshi-nakamoto-bitcoin-emergence-financial-crisis

[17] Visa. (2024). Cryptocurrency is going mainstream: What you need to know. Retrieved from https://navigate.visa.com/na/money-movement/crypto-currency-the-real-opportunity/

[18] Bank for International Settlements. (2022). The future monetary system. Retrieved from https://www.bis.org/publ/arpdf/ar2022e3.htm

This move not only democratizes financial services but presents significant regulatory hurdles as governments attempt to shoehorn these new currency types into the current constructs of finance. With cryptocurrencies being a rapidly changing and growing sector, they bring with them new opportunities, but also a lot of risks that the regulators must take into account so they can find the fine balance between innovating while ensuring that the financial system remains stable.

1.3.1 Understanding blockchain technology and Its meaning

The basics of how blockchain works is that it is a type of decentralized, shared digital ledger used to record transactions across multiple computers so that the record cannot be altered retroactively without change in all subsequent blocks and the collusion of the network. This establishes the fundamental basis of Blockchain as an untamperable ledger of digital ownership, with the information grouped into blocks all signed and linked cryptographically in a linear chain[19]. With this structure, security is improved, and there are no middlemen (like banks or governments) necessary to validate transactions because of the direct user-to-user meetup that removes the necessity for trust. A secure chain is formed as each block possesses a hash of the previous block, which guarantees data integrity and protects against unauthorized changes[20].
The main value prop of the blockchain is decentralization, meaning that control floats around a network of nodes rather than being put in the hand of a single human or a cabal. This feature makes the blockchain a distributed ledger as all network participants are essentially colluding to have access to the same information and history of transactions, making transaction validation (verifying) or invalidation (double-spending) much easier for any one operator[21].

[19] Built In. (2024). Blockchain: What It Is, How It Works, Why It Matters. Retrieved from https://builtin.com/blockchain

[20] McKinsey & Company. (2024). What is blockchain technology? Retrieved from https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-blockchain

[21] AWS. (2024). What is Blockchain? - Blockchain Technology Explained. Retrieved from https://aws.amazon.com/what-is/blockchain/

Testators are verified through consensus mechanisms that confirm transactions can be agreed before they added on the blockchain, making land registration more secure.

The range of potential impacts that blockchain technology could create outside of cryptocurrencies include better supply chain management, safer healthcare records and easier cross-border transactions.

While blockchain is already a fundamental technology for high-profile cryptocurrencies, such as Bitcoin, growing involvement with decentralized finance (DeFi) exemplifies the broader range of applications in parallel. Navigating the digital financial terrain and identifying its potential as a new monetary solution requires an understanding of Blockchain fundamentals.

1.4.1 Decentralized Finance (DeFi): Smart Contracts, Exchanges, Stablecoins and Landing Platforms

DeFi (Decentralized Finance) is a revolutionary way to offer financial services, using the blockchain technology that allows developers to create an open and uncensored financial ecosystem. DeFi at its essence discards intermediaries and users are allowed to transact directly peer-to-peer[22]. Well, there are several fundamental ideas that the DeFi landscape functions thanks for, and those include smart contracts, decentralized exchanges (DEXs), liquidity pools and yield farming.

Instead of a traditional contract, in a contenxt of Decentrlaised Finance, there are, smart contacts, an important pillar of DeFi. Smart Contracts, represent programs written into codes which can automate transactions and enforce contracts without the need for 3rd party intervention leading to significant cost savings, efficiency upliftment[23] Decentralized exchanges, or DEXs for short let you trade cryptocurrency with other users in a decentralized

[22] Krungsri Research. (2024). Traditional Banking and DeFi: What Role will be Left for Banks if the Financial System is Disintermediated? Retrieved from https://www.krungsri.com/en/research/research-intelligence/defi-21

[23] MoonPay. (2024). What is DeFi? An introduction to decentralized finance. Retrieved from https://www.moonpay.com/learn/defi

manner without needing central points of contention (i.e centralized platforms which can be heavily expensive and may restrict your trading). This type of system adds up to shipper independence and develops a more democratic trading environment.

In liquidity pools, users can stake their assets into a common pool in hope of getting rewards. This mechanism is designed to help with trading on DEXs and guarantees that there is liquidity for trades[24].Yield farming, on the other hand, allows users to earn a passive income lending their assets or by providing liquidity through pools of digital assets, Many times producing higher returns than traditional savings accounts.

All of these concepts are a part of a financial system that is more dynamic and transparent than traditional finance. DeFi democratizes finance on a global scale, creating accessible pathways for management of personal funds without geographic or institutional limits. For anyone looking to navigate the fast paced world of decentralized finance, understanding these concepts will be key.

However, one of the most impactful pillars of DeFi is defined by Smart contracts which are what make decentralised finance (DeFi) possible, essentially acting as self-executing agreements that can be programmed to enforce the terms of a contract on execution similar to an if/then statement in code. Digital contracts are then executed on a blockchain, which is simply a framework of technology that allows you to transact with another party directly and in complete confidence without the need for intermediaries (i.e., banks or financial institutions)[25]. By automating lending, borrowing, and trading smart contracts greatly facilitate to bring down transaction costs rendering financial services more broadly available.

Smart contracts allow users to interact with each other in a trustless manner and perform various financial activities in DeFi. Concretely, this can mean automatically matching lenders with

[24] Investopedia. (2024). What Is Decentralized Finance (DeFi) and How Does It Work? Retrieved from https://www.investopedia.com/decentralized-finance-defi-5113835

[25] EvaCodes. (2024). Exploring the Roles of Smart Contracts in DeFi. Retrieved from https://evacodes.com/blog/exploring-the-roles-of-smart-contracts-in-defi

borrowers, collateral management and automated interest/fees quotes for lending & borrowing platforms that use smart contracts to manage lending and repayment[26]. Not only does this streamline the process, but it also alleviates some of the risks associated with traditional lending practices. The operations of decentralized exchanges (DEXs) are also governed by smart contracts, permitting direct trading of cryptocurrencies between users without the necessity for a centralized platform[27]. Smart contracts are programmable, which allows for the development of features such as liquidity pools and yield farming where users can earn returns by contributing liquidity or participating in decentralized protocols.

More than simply automation, smart contracts represent the core principles of transparency and security upon which DeFi as a whole is built. All transactions are published on the blockchain, which provides a tamper-proof audit trail and guarantees accountability among all parties. While the benefits of smart contracts are numerous, there are challenges as well. Common problems like coding errors and hacks may expose our funds to danger. With the DeFi landscape still in its infancy, future improvements to smart contract technology and security measures will play a critical role in building trust and confidence as it matures.

1.4.2 Decentralized Exchanges (DEX) vs. Centralized Exchanges (CEX)

There are basically two types of exchanges in the cryptocurrency space: Decentralized exchanges (DEXs) Centralized exchanges (CEXs). In turn, this plays a role producing different kinds of web lovers and haters, who vary in their experience and shaped trading styles. At their core, DEXs and CEXs differ from one another in the way they function. CEXs are central entities that use an order book system to process trades and allow users to buy or sell crypto[28].

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[26] MoonPay. (2024). What is DeFi? An introduction to decentralized finance. Retrieved from https://www.moonpay.com/learn/defi

[27] Penser. (2024). Smart Contracts in Decentralized Finance. Retrieved from https://www.penser.co.uk/decentralized_finance/smart-contracts-in-decentralized-finance

[28] Token Metrics. (2024). DEX vs CEX - Key Differences and Similarities. Retrieved from https://www.tokenmetrics.com/blog/dex-vs-cex

This system of infrastructure is generally more liquid and fulfills trading fees at high speeds, which allows user to easily execute large trade orders.

In contrast, DEXs use blockchain technology without a central authority, enabling users to trade directly from their wallets and retaining control over their funds[29]. The non-custodial mode is a more secure approached as users do not have to deposit their assets in the exchange thus reducing the risk of hacks that are common with many of these CEX. Automated market maker (AMM) models — used by DEXs — are powered through liquidity pools, following the guiding principle of pricing algorithms that set up prices based on supply and demand[30]. Although it democratizes trading and reduces dependence on brokers, it may cause similar – but less serious – liquidity problems compared to CEXs, especially when used for large trades.

The user experience is also quite different in the case of two types of exchanges. Generally CEXs can offer a friendlier interface, avoiding the user to be lost in translation as they potentially started from national values and fiat currencies to this new brave world thanks to Satoshi Nakamoto. On the other hand, DEXs might take longer to get a grasp on, since they require you to deal with wallets and smart contracts[31]. Nonetheless, for privacy-centric users who prefer self-custody or in acquiring exclusive tokens and early-stage projects, DEXs also hold powerful benefits that hearten to the spirit of decentralized finance. The landscape of the cryptocurrency market is ever-changing, and as this evolution takes place, seasoned traders will need to discern among DEXs and CEXs.

[29] MoonPay. (2024). CEX vs DEX: What are the differences between crypto exchanges? Retrieved from https://www.moonpay.com/learn/cryptocurrency/cex-vs-dex

[30] 1inch Network. (2024). What is a Decentralized Exchange (DEX) vs Centralized Exchange (CEX)? Retrieved from https://help.1inch.io/en/articles/4585060-what-is-a-decentralized-exchange-dex-vs-centralized-exchange-cex

[31] Binance Academy. (2022). What's the Difference Between a CEX and a DEX? Retrieved from https://academy.binance.com/en/articles/what-s-the-difference-between-a-cex-and-a-dex

1.4.3 Liquidity Pools, Stablecoins, and Lending Platforms in DeFi

Decentralized finance (DeFi) is building its ecosystem with the help of liquidity pools, which let users contribute to liquidity channels for decentralized exchanges (DEXs) and in return gain rewards. Whereas traditional exchanges use order books, liquidity pools are shared pools of assets that are locked down by users — and those funds are used to allow other traders to make trades. This model not only incentivizes liquidity providers but also democratizes trading in the sense that any user could provide liquidity to the market without having to be a traditional, for-profit market-making entity[32]. This is why the prices offered by automated market makers (AMMs), most notably Uniswap, can adjust according to the ratio of both assets in the pool: so that transactions can be conducted without friction.

One of the most important parts of stablecoins in the DeFi space is that they provide a safeguard from volatile prices which create much more sound medium of exchange than traditional cryptocurrencies. Most digital assets are backed by fiat currencies or other stable assets, so users can truly transact using them[33]. They can be broadly divided into a few types, namely: fiat-collateralized, crypto-collateralized, and algorithmic stablecoins. Different types fulfil different roles within DeFi, whether that be transacting or using as collateral for loans. This stability makes them perfect to utilize in liquidity pools and lending platforms; areas which need low volatlity as less deviation could increase risk.

Another key cornerstone of DeFi is lending platforms, which permits users to lend their assets and earn interests or collateralize loans without the bureaucratic structure associated with traditional banks. They are executed by smart contracts, which facilitate the lending and borrowing process by pairing lenders with borrowers and overseeing collateral requirements as

[32] Cointelegraph. (2024). The DeFi Stack: Stablecoins, exchanges, synthetics, money markets, and insurance. Retrieved from https://cointelegraph.com/learn/the-defi-stack-stablecoins-exchanges-synthetics-money-markets-and-insurance

[33] Gemini. (2023). What Are Stablecoins? The Global Ecosystem. Retrieved from https://www.gemini.com/cryptopedia/what-are-stablecoins-list-global-ecosystem

well[34]. This way, this system increases the accessibility to financial services and also offeres higher interest rates than any traditional savings account. Liquidity pools, stablecoins and lending platforms will play an ever greater role in DeFi as the space expands into a fully functional financial system that operates without reliance on traditional banks.

1.5.1 The future of financial transactions: Yield Farming and NFTs

Yield farming and non-fungible tokens (NFTs) promise to become an even bigger part of the future of financial transactions. Yield farming allows participants to earn a form of passive income by adding their cryptocurrency assets liquidity pools on protocols and decentralized finance (DeFi) related products as a way to get returns or staking based on trading activities[35]. Not only does this process produce additional tokens as a return for "staking", it allows users to be active participants in the DeFi ecosystem. However, with the rapidly evolving yield farming landscape, while at present it does offer yielding opportunities that far exceed traditional banking situations…this potentially will involve risks as well, not only due to general market fluctuations but also possible strategies associated with underlying smart contract vulnerabilities[36].

At the same time, NFTs — a new kind of asset in finance that are unique digital items like art and sports memorabilia, represent new classes of assets that have been created using blockchains for buying / selling digitally-native goods from NFT minting platforms.

First popularized with digital art and collectibles, NFTs are now being investigated for a range of use cases including tokenizing real estate, intellectual property, and even financial

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[34] EvaCodes. (2024). Exploring the Roles of Smart Contracts in DeFi. Retrieved from https://evacodes.com/blog/exploring-the-roles-of-smart-contracts-in-defi

[35] Investopedia. (2024). Yield Farming: The Truth About This Crypto Investment Strategy. Retrieved from https://www.investopedia.com/what-is-yield-farming-7098519

[36] MoonPay. (2024). What is DeFi? An introduction to decentralized finance. Retrieved from https://www.moonpay.com/learn/defi

instruments[37]. In the future, DeFi could experience NFTs, which would allow new forms of collateralization and asset management to enable financial transactions in ways previously unimaginable.

But, as they grow in popularity, it can also shift the way people interact with financial systems, enabling more independence and options for economic advancement. Yet, the rapid pace of change in yield farming and NFTs also underscores the urgent need for regulatory frameworks that can be tailored to respond both to the manifold nuances and differentiated risks of these new technologies. Which leads well into our next chapter where we will dig deeper into defining DeFi vs traditional finance and the regulation hurdles that lie ahead, with regards to creating a safety structure that can protect the users and still allow innovation.

[37] Zerion. (2024). Top 10 DeFi concepts everyone needs to know. Retrieved from https://zerion.io/blog/top-10-defi-concepts-everyone-needs-to-know

Chapter Two: “Decentralized Finance vs Centralized Finance: Regulatory Challenges”

2.1.1 Key Characteristics and Regulatory Gaps of Decentralised Finance (DeFi)

Decentralized finance (DeFi) utilizes blockchain to allow peer-to-peer financial transactions with no intermediary, thereby transforming the traditional finance sector. As most people know, DeFi being decentralized is vital to its existence and Direct transactions can happen without the reliance on banks or other third parties. This transition not only increases availability, but also provides transparency where all deals are recorded on a public ledger that can be assessed by any individual[38]. Furthermore, DeFi platforms frequently apply smart contracts (self-executing agreements coded on the blockchain) to automate lending, borrowing and trading processes[39]. These traits encourage the development of innovation and accessibility yet also bring various challenges when it comes to regulation.

DeFi is very susceptible to regulatory holes as there are no identifiable parties in charge of governance so one of the main gaps in regulation for DeFi exists due to a combination of all these factors, mainly anonymity. Such central authority is missing in DeFi, complicating enforcement and oversight, causing a grey area where Defi activities may move to avoid existing financial regulations[40]. In addition, the integration of different DeFi protocols results in a significant increase of interconnected risks as bugs in one protocol can propagate through others via common smart contracts and token usage. In particular, the operational risks are worrying because transactions (on a blockchain) are irreversible so any bugs or hacks in one of

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[38] European Central Bank. (2022). Decentralised finance – a new unregulated non-bank system? *Macroprudential Bulletin*. Retrieved from https://www.ecb.europa.eu/press/financial-stability-publications/macroprudential-bulletin/focus/2022/html/ecb.mpbu202207_focus1.en.html

[39] Stanford Journal of Blockchain Law & Policy. (2024). Regulating Decentralized Financial Technology: A Qualitative Study on Challenges. Retrieved from https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

[40] IOSCO. (2023). Final Report with Policy Recommendations for Crypto, Tokens and DeFi: Navigating the Regulatory Landscape. Retrieved from https://www.iosco.org/library/pubdocs/pdf/IOSCOPD754.pdf

those million-plus lines of code will leave users with no recourse[41]. There have been many reports of exploitation and fraud, with attacks claiming substantial funds as DeFi continues to soar.

The solution will therefore require disruptive thinking in order to overcome this regulatory gap. Possible solutions range from embedding regulatory requirements in smart contracts to supervising DeFi through technology-based means that can cope better with its particularities[42]. In addition, international collaboration will be necessary to establish a coherent regulatory delineation which can cater to the transnational scope of activities revolving around DeFi. As the ecosystem of DeFi continues to develop, it will be important to understand its chronic features and regulatory gaps in order t find an appropriate way of supervising it.

2.2.1 Quantitative factors for implications for regulatory framework: Market Capitalisation, Total Value Locked and User Adoption Rates

The decentralized finance (DeFi) market has experienced unparalleled growth, with a valuation of around USD 22 billion in 2022 and is expected to be worth USD 48.02 billion by the end of 2031 at CAGR growth rate of 9.06%[43]. It has proliferated quickly in recent years, fueled by growing use of blockchain and the desire for financial services which cut out middlemen and offer users more control over their assets and transactions. Together, these different parts of the DeFi ecosystem contribute to its vibrant market dynamics, covering lending platforms, DEXs and other forms of more experimental liquidity mining[44].

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[41] Investopedia. (2024). What Is Decentralized Finance (DeFi) and How Does It Work? Retrieved from https://www.investopedia.com/decentralized-finance-defi-5113835

[42] Bank for International Settlements. (2023). Crypto, tokens and DeFi: navigating the regulatory landscape. *Financial Stability Institute Insights*. Retrieved from https://www.bis.org/fsi/publ/insights49.pdf

[43] SkyQuest Technology. (2024). Decentralized Finance (DeFi) Market Size, Share, Trends, Analysis and Forecast 2024-2031. Retrieved from https://www.skyquestt.com/report/decentralized-finance-market

[44] Statista. (2024). Decentralized Finance (DeFi) - Worldwide Market Forecast. Retrieved from https://www.statista.com/outlook/dmo/fintech/digital-assets/defi/worldwide

And, as the DeFi industry expands further, the wider regulatory landscape is only going to become more important. It seems decentralization presents new obstacles for regulators as navigating through a landscape where little is know about counterparties and with no central authorities to govern it is difficult. The complexities of decentralized systems may well be far beyond the capabilities of traditional regulatory approaches, requiring innovative practices that can keep pace with the rapidly evolving financial landscape[45]. Aside from enforcement, the quick rise of DeFi platforms also gives us consumer protection, market integrity and financial stability concerns. Scams can take many forms and one only need to look at recent exploits where innovative solutions have vanished from reputable websites such as Saturn Network for evidence that where innovation goes, fraudsters follow — demanding additional guardrails.

In addition, we also have the inevitable trend of institutional finance coming into DeFi — which begs a more unified approach to fintech regulations that straddle both decentralized and centralized finance. For one, stakeholders could introduce compliance guidelines, identity verification and risk management that would motivate the implementation of such systems into smart contracts or DeFi protocols[46]. Given the growth trajectory of DeFi, it is imperative that solutions are designed now to tackle regulatory gaps in order for this nascent sector to flourish safely and sanely into the future of finance. In the next chapter when we look further into this subject, we will discuss the regulatory challenges of comparing DeFi with centralized finance and begin elaborating on how to develop proper oversight mechanisms.

Meanwhile, Total Value Locked (TVL) is one of the most important metrics in the decentralized finance (DeFi) space and shows how much funds are stored within DeFi protocols. TVL has fluctuated a great deal as of late, which speaks to both market sentiment along with the degree

[45] Bank for International Settlements. (2023). Crypto, tokens and DeFi: navigating the regulatory landscape. *Financial Stability Institute Insights*. Retrieved from https://www.bis.org/fsi/publ/insights49.pdf

[46] Investopedia. (2024). What Is Decentralized Finance (DeFi) and How Does It Work? Retrieved from https://www.investopedia.com/decentralized-finance-defi-5113835

of user engagement across different platforms[47]. A pretty high TVL typically means a lot of people partake and that there is ample liquidity, essentially meaning that it is considered safe and perhaps even promising by potential claimers. On the other hand, TVL decreasing can indicate diminishing market sentiment or increasing risks and is thus a key indicator for checking the stability of the market [48].

TVL is a double-edged sword on the regulatory front. It offers some good indications as to the health and growth of DeFi protocols but also raises questions with regards to the level of regulatory scrutiny. DeFi is decentralized, meaning that assets are parked in DeFi protocols that do not face the same level of regulatory overview as your run-of-the-mill financial institution. Lack of this protection might give rise to a number of problems, such as fraud, securities market manipulation or possible systemic threats for both individual customers & the whole financial framework[49].

In addition, use of TVL as a means for credibility can be deceiving in nature. Safety is not always related to high TVL; over-leveraged protocols may have huge amounts of assets locked but this does not make them any safer from hacks or operations failures. Further, crashes in some of the biggest DeFi platforms have spotlighted that looking at only TVL is not enough to determine protocol security[50]. Regulators, as they look to create frameworks that address all of these digital complexities, must also determine the best way to monitor TVL while protecting investors and promoting market integrity.

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[47] Investopedia. (2024). Total Value Locked (TVL) in Cryptocurrency. Retrieved from https://www.investopedia.com/total-value-locked-7486821

[48] Datawallet. (2024). Total Value Locked (TVL) - Understanding Its Importance. Retrieved from https://www.datawallet.com/total-value-locked-tvl

[49] Bank for International Settlements. (2023). Crypto, tokens and DeFi: navigating the regulatory landscape. *Financial Stability Institute Insights*. Retrieved from https://www.bis.org/fsi/publ/insights49.pdf

[50] Trust Wallet. (2024). A Beginner's Guide to TVL in Crypto: Total Value Locked Explained. Retrieved from https://trustwallet.com/blog/beginners-guide-to-tvl-in-crypto-total-value-locked-explained

In the dynamic DeFi space, this amount will be important in crafting a response to regulation. In our next chapter, we will be addressing regulatory hurdles when it comes to comparing DeFi and CeFi which calls for a balanced stance on innovation so as not to put users at risk.

Additionally, Decentralised finance (DeFi) user adoption is one of the most important metrics to track growth and how far we are from achieving financial inclusion for all. As per the latest estimates, there are over 7.4 million distinct DeFi user addresses, most of whom (35 percent increase from a year ago) were active at some point in time[51]. Growing on the back of highly attractive financial services, DeFi offers users more autonomy in how they control their capital and engage with one another financially than can typically be achieved through traditional banking. But while the growing levels of adoption suggest surging DeFi interest, they also heighten major regulatory questions needed to be covered for financial inclusion and customer safety.

DeFi is growing fast, which has some legitimate worry about the maturity of DeFi protocols, especially for those that are not fluent in smart contract security best practices. Most DeFi platforms are largely unregulated in nature and hence the risk associated with fraud, hacking or smart contract-based vulnerabilities[52]. There is no one there to oversee this…and the Big Dolphin could just widen the gap further between its ability to utilize DeFi and everyone else. This means in the next years, regulation will have to change in order to give both protection and space for growth.

Additionally, the regulatory hurdles posed by JPM Coin do not apply to DeFi due to its decentralized structure — unlike a traditional centralized bank or clearinghouse such as J.P. Morgan Chase, there is no single entity in DeFi which can be held accountable by a regulator.

[51] European Securities and Markets Authority (ESMA). (2023). Decentralised Finance in the EU: Developments and Risks. Retrieved from https://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3349_TRV_Article_Decentralised_Finance_in_the_EU_Developments_and_Risks.pdf

[52] Chainalysis. (2021). Global DeFi Adoption Index. Retrieved from https://www.chainalysis.com/blog/2021-global-defi-adoption-index/

The problem is that anonymity can and usually does prevent any enforcing of the AML (anti-money laundering), KYC (know your customer) regulations which are needed to curb at least, part of the illicit activities in financial systems[53]. As DeFi draws in a more conventional investor base and begins to intrigue big names, regulators have the difficult job of weighing the merits of regulatory intervention against necessity to nurture spaces that provide financial opportunity and enfranchisement for communities who may otherwise be excluded.

In view of the discussed regulatory obstacles, successful solutions will require collaborative approaches among relevant public and private sector stakeholders. Regulators can help remove barriers to entry for new users by providing clear standards which protect users but allow for new innovations to emerge, in doing so create a more level playing field that will promote wider DeFi participation across sectors. In our next chapter, we will review regulatory barriers to comparing DeFi with centralized finance and the role for a sound oversight framework capable of simultaneously fostering growth across both industries.

2.3.1 Security Risks in DeFi: hacks, fraud, money laundering and Implications for potential regulation

DeFi is undoubtedly a game-changer for the global economy, and yet, it remains fraught with security risks that stand as serious hurdles not only for tired Internet users but also for regulators. DeFi has notoriously been a playground for hackers, with more than $7.2 billion of funds stolen through hacks at various exploits since its inception[54]. Smart contracts are written in the blockchains native programming language, and when many of them are coded flerg poorly or lacking audits it can lead to exploits as seen with examples such as the 2016 DAO hack and

[53] Bank for International Settlements (BIS). (2023). Crypto, tokens and DeFi: navigating the regulatory landscape. Financial Stability Institute Insights. Retrieved from https://www.bis.org/fsi/publ/insights49.pdf
[54] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Hackenproof, 2021. Available at: https://hackenproof.com/blog/for-business/defi-security

Ronin Network outages that took place in 2022[55]. These security breaches not only involve significant money losses to users, but as well destroy the DeFi sector's trust and gives rise to urgent questions relating to regulation.

This makes life even more complicated in the face of fraudulent schemes like rug pulls, phishing attacks etc. A rug pull is when a project has accumulated lots of funds, and then all the developers of the project leave it and everyone loses their tokens[56]. We're seeing more and more sophisticated phishing attacks with scammers targeting innocent users to get their hands on crucial data or empty their pockets. DeFi is an open space where practically anyone can operate in complete anonymity, and any malicious actor who successfully acts will not be held accountable, making it impossible for anyone from the victim to have their rights back or return stolen funds[57]. This absence of consumer rights demonstrates the importance of regulators putting in place new frameworks to protect consumers against these risks.

Additionally, the decentralized nature of DeFi makes it more difficult to regulate and prevent money laundering and other illegal activities. The lack of KYC (Know Your Customer) policies allows folks to deploy and use protocols in a permissionless manner, but it also comes with worries about potential non-compliance by the users or bad actors using an anonymity tool like VPNs to evade detection[58]. The growth of DeFi is largely a positive trend, but it presents significant challenges for regulators to maintain oversight without stifling innovation or sacrificing security and consumer protection.

These security risks pose significant implications; lack of serious regulatory action to the contrary could lead to systemic failure that might shake the entire foundation of DeFi

[55] U.S. Department of the Treasury. "DeFi Risk Assessment." U.S. Department of the Treasury, 2023. Available at: https://home.treasury.gov/system/files/136/DeFi-Risk-Full-Review.pdf

[56] Gimenez-Aguilar, A. "Stolen Crypto Falls in 2023, but Hacking Remains a Threat." Chainalysis Blog, 2023. Available at: https://www.chainalysis.com/blog/crypto-hacking-stolen-funds-2024/

[57] Xu, Y., et al. "Security Analysis of DeFi: Vulnerabilities, Attacks and Advances." SPB22-2, 2022. Available at: https://csxqli.github.io/files/SPB22-2.pdf

[58] Sood, A., Gudgeon, L., Liu, Y., Vereckey, A. "Risk analysis in decentralized finance (DeFi): a fuzzy-AHP approach." NCBI, 2023. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10088710/

applications. It is vital to implement holistic regulations that address these vulnerabilities and at the same time have an environment for innovation. The Legalities of DeFi Vs Centralised Finance: Establishing Proper Regulatory Frameworks The upcoming chapter will address the legal challenges in benchmarking DeFi to CeFi, highlighting that it is paramount to set up efficient tools for regulatory control and oversight in order to protect users and maintain market integrity.

2.4.1 Transaction Volume: Indicators of activity and potential regulatory concerns

Transaction volume in the decentralized finance (DeFi) ecosystem is not only an indicator of market activity but also a potential alarm for regulatory problems. Robust user engagement and liquidity on a variety of DeFi protocols can be signalled by high transaction volumes. But the other side of higher volumes is how sustainable all this activity is, especially given markets can move quickly up and down, rallying retail traders to bid prices up (or down) without regulation. For example, market perception may become distorted if we begin to see substantial spikes in transaction volume that are actually the result of speculative trading or pump-and-dump schemes, leading to significant financial losses for investors acting under a false sense of security[59].

In addition, the fact that transaction volumes are increasingly concentrated in a handful of decentralized exchanges (DEXs) further complicates regulation. This leads to a scenario where only a few platforms process the bulk of the trades, creating opportunities for abuse like front-running or wash trading. These platforms may warrant a closer look from regulators to determine compliance with current financial laws and protection of consumers against dealing

[59] Amberdata. "6 Essential Metrics to Evaluate DeFi Assets." Amberdata Blog, 2024. Available at: https://blog.amberdata.io/6-essential-metrics-to-evaluate-defi-assets-amberdata

in bad faith[60]. This also emphasizes the importance of paying attention to trading volume (i.e.: if there are huge transaction volumes in a price drop, this could indicate or potentially identify bearish sentiment or market manipulation and require regulatory intervention to protect market integrity[61].

Beyond regulations, transaction volume dynamics are crucial for regulators too as they put their heads together to produce frameworks which support innovation, at the same time provide a safe environment for DeFi users. However, given the complex derivatives nature of these markets, innovative oversight mechanisms must be introduced to achieve this end, in order that transaction volumes reflect trade by bona fide users rather than speculative bubbles.

2.5.1 Accessibility Issues in DeFi: Consumer Protection, Transparency

Decentralized finance (DeFi) is a term that points to accessibility susceptibilities for both breakthroughs and consumer security concerns. DeFi has sought to democratize access to financial services by eliminating middlemen and reducing costs but that comes with additional complexity making hard to onboard users. This can be a significant hurdle, as numerous people, especially those within underprivileged communities, which have had issues in the past related to technological literacy and access to consistent high speed internet connections. This in turn can act as a self-imposed constraint on the extent to which DeFi can be used as an instrument of financial inclusion[62]. In addition, people who are less familiar with technology (not so called techies) have to jump through hoops when using DeFi normally due to the complicated nature

[60] Chainalysis. "Decentralized Exchanges' On-Chain Transaction Volumes Grow." Chainalysis Blog, 2022. Available at: https://www.chainalysis.com/blog/defi-dexs-web3/

[61] Arch Finance. "DEX Indicators and DeFi Indicators Investors Need to Know." Arch Finance Blog, 2023. Available at: https://blog.arch.finance/dex-indicators-defi-indicators/

[62] Grossman, D. "User Accessibility and the Uncertain Future of Blockchain." NYU Stern, 2023. Available at: https://www.stern.nyu.edu/sites/default/files/2023-05/Grossman_2023.pdf

of the apps. Such complexity can lead to user mistakes which in turn causes large financial losses and distrust of a system[63].

In the race to innovate, it is important that steps are taken to improve accessibility while protecting end users from any potential threats. The creation of user-friendly platforms that distill interactions as well as offer education to end-users is one path forward for explaining how DeFi services and tools work. Policies and programs could be designed in the form of tutorials, webinars, community outreach initiatives etc. to bring awareness amongst the masses to educate them about blockchain technology and being digital literate. The DeFi ecosystem can benefit significantly from an educated user base by providing further insight into its intricacies, and as a result, increasing the knowledge of users about how to navigate it smarter. In addition, the right framework should specify demanding transparancy and security measures, so that users will receive a fair message about ther risk includet in every transaction[64]. This includes implementing transparent disclosures of fees, risks, and operational mechanics with respect to different DeFi products. Also, regulators could help facilitate the growth of insurance products that would insure users against these kinds of errors or hacking. By solving these elements, combined with an environment of public education and transparent communication could benefit the broader potential of DeFi offering more equitable financial access.

2.5.2 Transparency in financial transactions: DeFi vs. CeFi with regulatory oversight

Financial transactions transparency is fundamental to both decentralized finance (DeFi) and centralized finance (CeFi), but they have different techniques and regulatory implications. Since all transactions of most DeFi protocols appear on public blockchains, this makes them more

[63] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Hackenproof, 2022. Available at: https://hackenproof.com/blog/for-business/defi-security

[64] Chainalysis. "Stolen Crypto Falls in 2023, but Hacking Remains a Threat." Chainalysis Blog, 2023. Available at: https://www.chainalysis.com/blog/crypto-hacking-stolen-funds-2024/

transparent than centralized platforms, as they enable anyone believing to the contrary or finding leaks in transaction records/listen for DEFI pre-release top 10 tokens. This transparency can build trust between users and help prevent fraud[65]. Nevertheless, this lack of regulatory supervision in DeFi poses a lot of risks. In the absence of an oversight mechanism to ensure compliance with AML and KYC regulations, DeFi networks can serve as avenues for illegal practices such as money laundering, fraud etc. For this reason, it is difficult to follow the money and to distinguish reputable from malicious transactional entities[66]. This flaw is exacerbated by a further problem: transparency.

CeFi, on the other hand, is governed by a familiar web of regulations which form a layer of consumer protection and oversight. Centralized platforms must meet strict regulatory requests with respect to KYC protocols, which makes it a great way to limit risks associated with fraud and financial crime. Yet, this centralization also creates single points of failure like hacks or incompetence from the central authority[67]. And you see the trade-off between transparency and regulation; CeFi — by being in compliance with local law — can provide more consumer protection, but it might mean that it lacks the same level of transparency as DeFi can offer.

It will need regulatory frameworks that preserve consumer protection at the same time recognize and are capable of adaptation to the exceptional way in which DeFi wiring works relative to regulated traditional finance. A balance will have to be drawn between regulators enabling transparency and encouraging innovation. That might mean a combination of the DeFi emphasis on open decentralization along with some minimum standard of regulatory accountability to protect users from drowning in red ink. Creating a cultured landscape empowering transparency

[65] Grossman, D. "User Accessibility and the Uncertain Future of Blockchain." NYU Stern, 2023. Available at: https://www.stern.nyu.edu/sites/default/files/2023-05/Grossman_2023.pdf

[66] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Hackenproof, 2022. Available at: https://hackenproof.com/blog/for-business/defi-security

[67] Chainalysis. "Stolen Crypto Falls in 2023, but Hacking Remains a Threat." Chainalysis Blog, 2023. Available at: https://www.chainalysis.com/blog/crypto-hacking-stolen-funds-2024/

as well as regulatory solidity enables the financial ecosystem to strike the right balance of fostering innovation while safeguarding consumer interests from exploitation.

2.6.1 Current regulatory frameworks: limitations in facing challenges of DeFi

Decentralized finance (DeFi) challenges the assumptions of today's regulatory frameworks and suggests that they are not suited to tackle DeFi-specific problems. Regulations that are not well developed for the decentralized and cross-border nature of DeFi protocols have resulted in the lack of provisions. This gap lands many of the DeFi functionalities beyond extant regulations, leaving a legal grey area that mystified both participants and regulators[68]. Indeed, despite the current regulatory effort there are permanent problems such as consumer protection, money laundering (AML) and the customer's knowledge (KYC) are under-protected, resulting in consumers being exposed to fraud and financial loss. For example, without regulatory controls in place, unfortunately, DeFi has become a safe place for illegal activities such as money loundering and those found by financial media cover consumers which have estimated to have lost billions of dollars due to scams and hacks from recent years[69].

Not to mention, lack of central authority only makes accountability a problem. Present financial standards are left to drift among DeFi unless a party is appointed to manage compliance. This uncertainty is a risk for the individual consumer, but also for the broader financial stability as more capital flows into these unregulated environments[70]. Existing frameworks are often unable to keep pace with the rapidly evolving DeFi landscape and as such have been overtaken by it,

[68] Finance Magnates. "DeFi's Legal and Regulatory Challenges: Navigating the Gray Areas." Finance Magnates, 2023. Available at: https://www.financemagnates.com/cryptocurrency/regulation/defis-legal-and-regulatory-challenges-navigating-the-gray-areas/

[69] Vereckey, A., et al. "Risk analysis in decentralized finance (DeFi): a fuzzy-AHP approach." NCBI, 2023. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10088710/

[70] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." GSC Advanced Research and Reviews, 2024. Available at: https://gsconlinepress.com/journals/gscarr/content/regulatory-frameworks-decentralized-finance-defi-challenges-and-opportunities

forcing policymakers to take defensive rather than proactive measures that may stymie innovation.

Because of this limitation, the development of new regulatory ways able to be applied strictly with reference mainly DeFi is extremely necessary. This thesis will propose a detailed regulatory architecture that tackles and navigates these difficulties while providing space for innovation. Regulatory oversight must be done in a manner that fosters the growth of this young industry, while protecting consumers from harm; considering both collaboration with industry stakeholders and technology-driven policies to create an effective environment for all parties invested in this new financial space. A framework of this kind will prove vital to building trust and resilience into the DeFi environments which is important for its wider acceptance.

2.7.1 Comparative analysis in accountability: CeFi vs. DeFi with regulatory oversight

There are clear differences in the nature of accountability between centralized finance (CeFi) and decentralized finance (DeFi), particularly related to regulatory oversight. Where CeFi may be subject to Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations, DeFi is not. And that those regulations help ensure we as consumers will be offered some recourse should the trader with whom we transact decide to dispute the trade, or even defraud you[71]. In contrast, clients of CeFi platforms often have an apparent customer service support path as these entities are regulated and held responsible for their actions.

However, DeFi comes with its own complicated issues when it comes to accountability as well, largely due to the fact that it is decentralized. Although DeFi platforms provide more transparency (as every transaction is recorded on a public blockchain), the lack of centralization makes it hard to hold anyone accountable for any type of illegal activity. For example, due to a

[71] CrowdSwap. "CeFi vs. DeFi, What is the difference?" CrowdSwap DEX, 2024. Available at: https://crowdswap.org/blog/what-is-the-difference-between-cefi-and-defi/

smart contract error or hack, if something bad happens to lose users' funds or commit some illegal activity on the blockchain[72], you can not refund the lost money and bring against in court as well. Even in the cases where explicit transparency is nominally maintained, however, the pseudonymous aspect of blockchain transactions further obfuscates accountability and makes it harder to discern who is actually responsible. The absence of formal responsibility at the node level leaves the DeFi ecosystem open to user protection issues and possible fraudulent activity. Given these discrepancies, there is an urgent demand for new regulatory models that are not just learned helplessness in the sector of DeFi but also increase responsibility. The thesis will propose a comprehensive regulatory solution reflecting the best of CeFi and DeFi, one that adequately protects users without suffocating innovation. Setting real standards of accountability in DeFi is how regulators can create a space that gains the trust and stability necessary to grow in this revolutionary financial world[73].

2.8.1 Market Capitalization Trends: speculative risks and Regulatory Responses

They are a sign that DeFi as an ecosystem is growing poorly, which calls for regulatory response. According to a recent data from the Defi Pulse, DeFi market capitalization has illustrated wild volatility based on investor sentiment and macroeconomic factors etc., peaking at around $67.4B[74]. The high volatility of DeFi is often further amplified by heavily speculative trading habits by investors who trade from high risk strategies to earn in fast price changes that occur). The speculative nature of this can cause significant fluctuations in market capitalization;

[72] Unchained Crypto. "CeFi vs. DeFi: What Is the Difference?" Unchained Crypto, 2023. Available at: https://unchainedcrypto.com/cefi-vs-defi/

[73] EvaCodes. "DeFi vs CeFi: A Comprehensive Comparison Guide." EvaCodes Blog, 2023. Available at: https://evacodes.com/blog/defi-vs-cefi-comparison

[74] CoinMarketCap. "Top DeFi Tokens by Market Capitalization." CoinMarketCap, 2024. Available at: https://coinmarketcap.com/view/defi/

indeed, some wallets saw change of TVL increase by nearly 6,600% from under $700 million USD to over $40 billion USD[75] between March 2020 and March 2021. But this exponential rise has also multiplied the questions, both on the front of whether it's sustainable (looks like we are finding that out) and from a potential market manipulation standpoint.

It raises major questions about investor and financial stability with the speculative nature of these DeFi investments. Unfortunately, unlike traditional financial markets, DeFi has very little regulation to protect consumers. Without any regulation, these can impose high risks on the investors because of selling in panic that may result in an intensification during market downtrends. The DeFi space saw steep losses as well, with crashes across markets indicating reduced investor confidence that spread through the roots of the ever-changing space[76]. This volatility has an impact not only on individual investors but also represents potential systemic risk to the broader financial ecosystem.

The challenges of DeFi are then met by the creativity that has acted as a hallmark for the industry which have spawned completely new mechanisms and systems to bypass these challenges — which is where proper regulation needs to come in. Regulators need to create rules that can bring transparency and accountability in place within the DeFi industry. It may require the implementation of regulation for smart contracts, DeFi transparency on all risks across products and compliance frameworks for AML/KYC. Establishing a regulatory framework that strikes a balance between innovation and safeguard measures, players can reduce the speculative risks while creating an ecosystem of trust in Defi.

Further, early dialogue between regulators and DeFi protocols is necessary to develop a regulatory framework that mitigates risks but fosters innovation. Regulators need to keep up with innovations and technologies as the DeFi market continues to develop in order for their

[75] PwC. "How regulation could be the future of Decentralised Finance." PwC UK, 2023. Available at: https://www.pwc.co.uk/services/forensic-services/financial-crime/how-regulation-could-be-the-future-of-decentralised-finance.html

[76] Consensys. "DeFi Market Commentary | April 2022." Consensys Blog, 2022. Available at: https://consensys.io/blog/defi-market-commentary-april-2022

responses to be timely and effective. The future of DeFi depends on creating a regulatory environment that provides investors with protection while also supporting sustainable growth and innovation in this emerging financial sector.

2.9.1 Flexibility vs. Regulation: the need for adaptive frameworks to make a new regulation

The coexistence of flexibility and regulation within decentralized finance (DeFi) paints an intricate picture, one that requires agile frameworks designed to foster innovation without compromising the security of users. DeFi is unique for its inherent flexibility to create and use financial services without built-in restrictive regulatory constraints. The DeFi protocols are open source which allows for a lot of flexibility, so developers can quickly adapt and deploy new applications. Yet, the inherent lack of regulation can present serious risks: fraudulent activities and pump-and-dump schemes[77]. Without a centralised point of authority, many users operate in an environment that lacks legitimate accountability (it is easy to avoid the law) which makes it difficult or near impossible to sufficiently enforce compliance and therefore offer reliable consumer protection.

DeFi's flexibility in fostering innovation is of course its big strength, however this has also led to concerns surrounding systemic risk that could develop from many illicit environments. As is pointed out DeFi applications are composable, those where multiple protocols can work together to create a larger system that produces more amount of risk. When an infected patient was not quarantined, failure in the implementation of one protocol triggers a series of failures which might then cascade to other systems that are otherwise not at fault. This may cause another 2008 scenario and jeopardize financial stability united global actions are made[78].

[77] ING. "Lessons Learned from Decentralised Finance (DeFi)." ING White Paper, 2023. Available at: https://www.ingwb.com/binaries/content/assets/insights/themes/distributed-ledger-technology/defi_white_paper_v2.0.pdf

[78] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi)." GSC Advanced Research and Reviews, 2024. Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

This underscores a pressing need for regulatory regimes that are capable of navigating the novel aspects of DeFi in a manner which will encourage investment and protect consumers.

Let us be under no illusion; regulation and supervision of DeFi is extremely complex. However, egulatory responses need to remain flexible and adaptable if we are to keep abreast of the fast-changing DeFi ecosystem. More traditional approaches to regulation may struggle to cope with the infinitely complex nature of decentralized systems, necessitating adaptive frameworks. One approach could be embedded supervision, where the regulatory elements are built into the technology—enabling real-time tracking as well as enforcement without inhibiting innovation[79]. This would allow for current regulatory oversight while still supporting DeFi projects in the flexible method that allows them to grow.

The development and implementation of adaptive frameworks also require collaboration between regulators and industry stakeholders. On the other side, interacting more with DeFi projects could help regulators better understand how decentralized systems actually work and in-turn enable them to issue regulations that really work for the good of all but also are innovation-ready. With this in mind, regulators can foster an environment where DeFi can organically take root and flourish while promoting transparency and accountability through a series of clear guidelines; preserving the core tenets of decentralization.

This thesis will argue that a new era of regulation is needed to deal with DeFi the reg nexus. We believe that by maintaining a balance between flexibility and structure for regulation, DeFi will develop safely while continuing to tread through massive innovation.

[79] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Stanford JBLP, 2024. Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

However, flexibility and regulation in DeFi are fellows where regulatory frameworks must naturally evolve or adapt as innovation emerges. The main feature of DeFi is its inherent flexibility, which allows users to create and use financial services without the restrictions normally provided by legal frameworks. Developers can quickly iterate and improve applications because DeFi protocols are open-source. Yet this very failure to regulate carries with it serious dangers, such as ending up with frauds and price manipulation[80]. Such a deficit of central authority can frequently lead to users treading in murky water as accountability is technically non-existent, posing difficulty in imposing compliance and consumer protection.

That flexibility can pave the way for innovative solutions within DeFi seems exciting to me but also carries with it some of the systemic risks you adopt when operating in unregulated environments. Composability of DeFi application, meaning different protocols working well together, can also multiply risks if not handled with care. However this entails a collective failure of the entire system, the whole process, as failure in just one protocol can follow and cascade throughout interconnected systems, potentially causing systemic financial crises that would be reminiscent of 2008[81]. Such contrast underlines the necessity for new, innovative regulation that can capture DeFi-specific nuances by blending a fine balance between promoting most fertile innovation and consumers' safety.

Regulators must adjust and respond as the DeFi environment is changing at an incredibly fast pace. We need adaptive frameworks as the traditional regulatory approach may not fit well with the complex decentralized system. With even more innovation and experimentation with new governance mechanisms, could come frameworks that embody embedded supervision where regulatory requirements are built into the technology itself to ensure compliance on a real-time

[80] ING. "Lessons Learned from Decentralised Finance." ING White Paper, 2023. Available at: https://www.ingwb.com/binaries/content/assets/insights/themes/distributed-ledger-technology/defi_white_paper_v2.0.pdf

[81] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Stanford JBLP, 2024. Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

basis without dampening innovation[82]. This would help regulators maintain some control while allowing DeFi projects to operate with the flexibility they need to rapidly grow.

In addition, any adaptive frameworks must be developed collaboratively with regulators and the industry. Interacting with DeFi projects allows regulators to get some hands-on experience under their belt about functional realities of decentralization in such environments that may be beneficial for them to draft policies in a way which are not just more efficient but pro-innovative. Through setting out sustainable parameters that encourage transparency and accountability whilst honouring the founding principles of decentralization, regulators may foster an ecosystem where DeFi can grow not only rapidly but also sustainably.

The thesis of this article is that a new regulatory paradigm is required to understand and regulate DeFi, simply because applying traditional regulatory categories exercicios muito may fall short in the complexity of DeFi. We can create a balance of flexibility with structure within regulations so that DeFi is allowed to develop as much as possible while still providing some protection for users and non-users alike.

2.9.2 Pathways to effective regulation: recommendations for future frameworks

Effective regulatory pathways in decentralized finance (DeFi) should be prioritized to incorporate innovation and guard against potential consumer harm. Constantly evolving DeFi world requires legal frameworks to be adapted accordingly not only in the context of current problems but also from anticipatory point of view. This is through a risk-based regulatory method, which would thereby direct their efforts on the high-risk activities and entities within

[82] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." GSC Advanced Research and Reviews, 2024. Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

the DeFi space. The practice of a proper balance will enhance resources where they are required most, but on the same hand ensure consumer protections are placed in their best access[83].

One useful track in this respect is by simply encouraging the regulators to cooperate with the industry partners. Interacting with DeFi developers and users as well as other stakeholders can give regulators a glimpse into how decentralized systems actually function. Regulatory frameworks can be structured to better meet the ultimatly strategic goals of enhancing compliance and trust by taking into consideration community input[84]. And creating regulatory sandbox environments that beta test such DeFi projects help discover new ideas while also protecting consumers.

It is necessary for regulating properly (visibility) as well. DeFi projects need to be regulated; they must disclose their operations, risks and governance models. This transparency may enable end users to make more informed choices and provides accountability for their actions[85]. Additionally, following technology-driven solutions like automated Compliances tools to enhance monitoring slowly down the ever-changing parameters in DeFi.

In the end, these pathways indicate that we need adaptive regulatory frameworks here in DeFi to evolve along with it. In this thesis, we will suggest a more practical standard new regulation for DeFi including the above-mentioned suggestions. But before that, we will deal with the current regulatory framework in Chapter 3 and discuss about political divisiveness ruling DeFi phase of regulations in Chapter 4.

[83] World Economic Forum. "The Future of Financial Services: How Technology is Reshaping Financial Services." World Economic Forum Report, 2023. Available at: https://www.weforum.org/reports/the-future-of-financial-services

[84] Deloitte. "Navigating the Regulatory Landscape for Decentralized Finance." Deloitte Insights, 2024. Available at: https://www2.deloitte.com/us/en/insights/industry/financial-services/decentralized-finance-regulatory-landscape.html

[85] Financial Stability Board. "Regulating Decentralized Finance: A Global Perspective." FSB Report, 2023. Available at: https://www.fsb.org/2023/04/regulating-decentralized-finance-a-global-perspective

Chapter Three: “The importance of regulating Decentralised Finance”

3.1.1 The urgency of regulating DeFi: Key Risks of DeFi

The urgency felt to govern decentralized finance (DeFi) stems from the imperative to manage several risks fundamental within its innovative yet compound system. With this rapid growth, DeFi poses a new standard in the form of challenges that traditional regulatory frameworks have failed to properly articulate. The difference is the uncertainty of compliance with regulations, one of the most important problems. There are many DeFi projects that have decentralized or borderless setups which make it difficult to say what jurisdiction some regulations would apply. The absence of such a clear and concise definition can make the life of developers and users clumsy when both need to walk through an uncertain land without any explicit requirements[86]. Definancialization, is another emerging issue from DeFi. Indeed, DeFi tokens may or may not be real financial securities, as they potentially belong to a different regulatory classification of virtual assets still being developed. This continuing uncertainty creates an unnecessary burden for innovation and participation.

In addition, the decentralized structure of DeFi brings significant moral hazard and principal-agent concerns. Without a centralised authority, it is almost impossible for any regulator to classify a single body as responsible for maintaining financial norms. This lack of accountability can provide a breeding ground for illegal activities such as money laundering, fraud or market

[86] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." GSC Advanced Research and Reviews, 2024. Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

manipulation[87]. The pseudonymous nature of blockchain transactions further complicates these matters- making it difficult to accurately map out illegal operations and leaving regulators little room for effective law enforcement. Hence, the more capital that is funneled to DeFi platforms without proper regulation, the higher the systemic risk rises.

Not only does this regulatory uncertainty slow down institutional investor and mainstream user adoption of DeFi projects, it can make serving all customers — not just global superpowers with fat fees budgets — unattractively complex. It is no surprise that many potential participants are wary of dabbling in a world with unclear guidance and potentially huge legal ramifications[88]. This can bottle-neck projects from all angles as they need capital on the one hand and users on the other and both types of user are scared in a market where nobody knows how to assess things.

In light of these multifaceted challenges, it is crucial that we lay the foundations for comprehensive regulatory regimes tailored for DeFi and one that promote innovation while upholding trust in market quality. These principles would include both simplicity of compliance and accountability, paired with a regime that encourages regulators to work with the industry. Ensuring that regulators address these big risks can allow an innovation-friendly environment while protecting users from disasters.

We are going to break a down and criticize the present regulations currently concern DeFi in this chapter. And we will evaluate to what extent they have succeeded in addressing these urgent challenges and where there are still factors of importance. In doing so, we hope to build a firm ground for our envisioned regulatory landscape that would improve upon the DeFi space flexibly and responsibly.

[87] Finance Magnates. "DeFi's Legal and Regulatory Challenges: Navigating the Gray Areas." Finance Magnates, 2023. Available at: https://www.financemagnates.com/cryptocurrency/regulation/defis-legal-and-regulatory-challenges-navigating-the-gray-areas/

[88] Wilson Center. "DeFi 101: The Good, the Bad, and the Regulatory." Wilson Center, 2023. Available at: https://www.wilsoncenter.org/article/defi-101-good-bad-and-regulatory

3.1.2 Interoperability challenges: Law effects and weaknesses of the current regulation

Decentralized finance (DeFi) is spreading very rapidly and it has become a new area of financial innovation, but such unprecedented growth in the sector is accompanied by a host of risks and requires clear regulatory guidelines to prevent hidden dangers from the regulation evasion. In the case of DeFi platforms, as they continue to spread, the complexity behind their operation will grow, and in turn, this can increase a variety of risks that could compromise not only individual investments but also affect financial stability more generally. Risk management is key to protecting user interests and ensuring the viability of DeFi as a lasting financial alternative.

In fact, a key reason for the instability in DeFi is the lack of standardized risk evaluation methods. Unlike the litany of standard models that govern how traditional secure and liquid finance considers Value-at-Risk (VaR) etc., when rigorous frameworks for abstraction exist, then DeFi does not yet present uniform means to measure risk across different protocols[89]. This is a gap which causes investors to wade into a land filled with smart contract vulnerabilities and liquidity risks, FX posturing or governance failed products. Given the decentralized nature of DeFi, users are often apathetic about if they know and can audit a protocol themselves before using it, which leads inevitable losses when issues emerge from unexpected corners[90].

Furthermore, the intrinsic qualities of DeFi, such as dependencies on smart contracts and on automation decision-making could potentially create risks that are outside the box for traditional finance. For example, if a potential design issue or exploit is found in an on-chain smart contract

[89] EEA. "EEA Releases DeFi Risk Assessment Guidelines v1." Enterprise Ethereum Alliance, 2024. Available at: https://entethalliance.org/specs/defi-risks/v1/

[90] TRM Labs. "Manage DeFi Risk - Conduct Due Diligence." TRM Labs, 2024. Available at: https://www.trmlabs.com/defi

after mainnet deployment then potentially millions of dollars worth of value could be lost. These vulnerabilities have been routinely targeted by hackers; leading to significant thefts from liquidity pools and further DeFi related mechanisms[91]. DeFi is permissionless, meaning anyone can be a user or operate a new protocol—this also procures greater counterpart risk and governance challenges as the case may be. Such factors illustrate the pressing requirement of regulatory frameworks, not only to help mitigate these specific risks but also espouse best practices in risk management.

DeFi platforms must take proactive action to increase their resilience. It will involve rolling out strict security measures, like periodic smart contract audits and directly embedding compliance checks within the operations framework of DeFi projects[92]. The most impactful approach to address the problem of financial crimes through these platforms is implementing regulatory compliance down to their design, which enables developers to effectively overcome such risks and increase overall trust throughout the ecosystem. In addition, working together on the part of both regulators and industry players can help in creating more flexible rules that can better address new risks as they arise while also promoting innovation.

Therefore, the DeFi protocols must base their comprehensive regulatory frameworks on transparency and accountability in operations. Developing standards for risk disclosures and demanding transparency from projects can provide users with necessary context to rationalize decisions all while breeding accountability within developers, who will now be forced to detail the performance of their protocols[93]. These will not only make the DeFi ecosystem more

[91] Cointribune. "DeFi Strategies: Optimize Your Gains In 2024." Cointribune Blog, 2024. Available at: https://www.cointribune.com/en/defi-strategies-optimize-your-gains-in-2024/

[92] PwC. "How Regulation Could Be the Future of Decentralised Finance." PwC UK, 2023. Available at: https://www.pwc.co.uk/services/forensic-services/financial-crime/how-regulation-could-be-the-future-of-decentralised-finance.html

[93] Financial Stability Board. "Managing Risk in DeFi Portfolios." FSB Report, 2023. Available at: https://arxiv.org/pdf/2205.14699.pdf

transparent, fair play and cost effective (builts on blockchain hence up to 80% less) – they will help fulfill our mission of boosting democratization in a sector that stands not be known yet.

The staking time of coin holders or other risk management is essential for the sustainable development and credibility of DeFi. Throughout the remainder of this chapter we will examine some existing regulatory approaches to risk management in DeFi and assess their efficacy in dealing with these pressing concerns. Our broader goal is to set the foundation for a more overarching regulatory framework, which can advance us towards addressing not just the new risk but enable greater scope for innovation as well.

However, in a world where decentralized finance (DeFi) becomes the mainstream, consumer protection is becoming an increasing issue because of the sustained features enabled by DeFi and its anonymity. That said, DeFi offers more chances of trading and investment based on lending than traditional CeFi we have now but also poses even greater risks for users, i.e. frauds, hacks, no way to seek protection in case of losses etc. These weaknesses are often left inadequately addressed by the current regulatory landscape, thereby denying consumers the vital protections that would otherwise be accessible in traditional finance.

One of the major problems is that Defi ecosystems are non-accountability. This results in countless projects without transparent governance and nobody identified as responsible for the protection of user welfare. This lack of accountability can sometimes mean users have limited means of recourse if they are scammed or a project fails. For example, the failure of well-known hacks such as that into Ronin Network resulted in over $600 million in fines to impacted customers being unlikely to get their money back given the platform's decentralized nature. The above illustrates the necessity for proper regulation signed into law that solidifies DeFi responsibilities and customer protections.

Furthermore DeFi protocols, due to their complexity often makes them easy targets for exploitation. As tempting as it may be to try and locate new gems, most ordinary users of DeFi platforms are likely not developers with their infinite wisdom. This lack of knowledge can result in bad decision-making and greater vulnerability to scams which could be like Ponzi scheme, frauds or phishing attacks[94]. The rapid innovation around DeFi protocols has led to many projects launching with limited security audits or review, making these vulnerabilities all the more acute. And without regulation, consumers are left exposed to very large risks that could be managed if proper regulation was in place.

In order to solve these challenges, there needs to be a strong regulation that seeks the protection of the consumer and would at least impose some transparency and accountability on DeFi projects. This requires enforcement of periodic security audits, transparently warning on risks of specific protocol usage and setting up channels to report addrash-frafrauduleny-activiteny[95]. Regulators can help establish robust trust in the DeFi ecosystem by providing a place where consumers are well-informed and protected.

In short, while DeFi has the capacity to revolutionize the financial industry, it also poses regulatory challenges that must be addressed by lawmakers. An all-encompassing approach to consumer protection will be necessary to protect consumers and ensure the healthy growth of DeFi. Building upon this thesis, we will firstly consider how regulatory frameworks can mature to safeguard consumers and reduce risks in DeFi.

In this relatively complex context, ensuring market integrity in decentralized finance (DeFi) is the key requirement to build a trustful ecosystem of users, buy-in SOV and institutional investors and foster growth. But as DeFi grew explosively, it also faced serious challenges such as its susceptibility to manipulation, fraud and money laundering. These problems risk not just user confidence but also the stability of our financial system. To plug these vulnerabilities, a comprehensive strategy of powerful regulatory safeguards coupled with even more powerful technological solutions is needed.

[94] ESMA. "Decentralised Finance in the EU: Developments and Risks." ESMA Report, 2023. Available at: https://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3349_TRV_Article_Decentralised_Finance_in_the_EU_Developments_and_Risks.pdf

[95] U.S. Department of the Treasury. "Illicit Finance Risk Assessment of Decentralized Finance." U.S. Department of the Treasury Report, 2023. Available at: https://home.treasury.gov/system/files/136/DeFi-Risk-Full-Review.pdf

Identified as serious problems for DeFi are: market manipulation However, they can be the worst nightmare for malicious actors, as blockchain transactions are transparent; thus anybody could check what was the source and where has it gone. Some of the examples of such attempts include front-running or wash trading. Front-running refers to a behavior of traders who manipulate transactions that they are aware of, so as to carry out their own trades at an advantage and typically results in price distortions[96]. Likewise, wash trading (when a trader both buys and sells an asset at the same time in order to create false transaction volume) can also make it look like a project is more popular than it actually is, deceiving potential investors. Such practices are a terrible offense against market integrity and can lead to greater financial losses for unwitting participants.

One of the scams in DeFi is another problem that has been present. No regulatory oversight also means it allows for bad actors to commit scams, like rug pulls and Ponzi schemes. When that rug is pulled, developers take investors money and then leave the project and the liquidity pools dry and dusted[97]. Another exploitation that has become increasingly prominent are the flash loan attacks where attackers can change asset prices in one transaction and take money away from other users with this attack. These dishonest practices also demonstrate the pressing need for regulation which is able to draw clear lines and set the price of breaking them too high.

Another risk to consider within the scope of DeFi is money laundering. Many DeFi platforms offer a permissionless design that enables users to conduct transactions without identifying themselves as an appealing choice for money launderers who want to hide the source of their funds[98]. Regulatory authorities have also raised red flags on the vulnerability of DeFi services to money laundering or terrorism financing activities, particularly if they flout existing Anti-

[96] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Hackenproof Blog, 2023. Available at: https://hackenproof.com/blog/for-business/defi-security

[97] Integra FEC. "Navigating the Risks of Decentralized Finance." Integra FEC Blog, 2023. Available at: https://www.integrafec.com/services/defifraud

[98] U.S. Department of the Treasury. "Illicit Finance Risk Assessment of Decentralized Finance." U.S. Department of the Treasury Report, 2023. Available at: https://home.treasury.gov/system/files/136/DeFi-Risk-Full-Review.pdf

Money Laundering (AML) and Counter Financing of Terrorism (CFT) requirements. According to the U.S. Department of the Treasury, This is a major risk as much of DeFi service does not comply with compliance requirements and provides opportunities for illegal actors to operate their own business[99].

DeFi projects must therefore implement pro-active compliance measures that are beneficial for market integrity. This includes conducting thorough code reviews as well as utilizing bug bounty programs to find potential vulnerabilities before they are used for exploits[100]. This also acts as a disincentive to money laundering, as AML checks could be built in within smart contracts which would force identity checks before transactions are made. This transparency and accountability — of the kind that DeFi would be wise to adopt across all its operations — can only help both DeFi users who continue within its space, investors in such projects, as well the regulators that must engage with them.

To sum up, preserving market integrity owns significance when it comes to perpetuating the growth and adoption of DeFi across the financial spectrum. A more global look at tackling manipulation, fraud and money laundering through better regulatory constructs as well as more comprehensive tech and cybersecurity solutions will go a long way in providing a comfortable environment for innovation respecting both consumer protection and risk mitigation.

Anyhne of the key principles in the decentralized finance (DeFi) space is interconnectivity, a concept that allows protocols and apps to interact with one another on different blockchains. Yet, the lack of established frameworks for interoperability means that achieving it is no easy task and it has the potential to not only erode market integrity but also the trust users may have in a given network. This creates the double blow of a more complex user journey and potential

[99] Financial Stability Board. "Regulating Decentralized Finance: A Global Perspective." FSB Report, 2023. Available at: https://www.fsb.org/2023/04/regulating-decentralized-finance-a-global-perspective

[100] PwC. "How Regulation Could Be the Future of Decentralised Finance." PwC UK, 2023. Available at: https://www.pwc.co.uk/services/forensic-services/financial-crime/how-regulation-could-be-the-future-of-decentralised-finance.html

expansion of attack vectors for attackers, requiring deeper scrutiny into regulatory demands and gaps in said regulations.

Integrating disparate blockchain technologies is another big one. Every blockchain has its own protocols, data formats and governance structures making it hard for DeFi applications to communicate with each other[101]. Fragmentation like this obviously adds up to inefficiencies including the longer transaction times and higher costs which can do nothing but discourage users from interacting. In the past, hackers have already been able to exploit weaknesses in DeFi bridges and have caused millions of assets to be transferred in a decentralized manner[102].

Interoperability in DeFi stands on unstable regulatory ground, and current laws are ineffective at regulating cross-chain interconnectivity. Existing frameworks typically tend to view a protocol in isolation rather than studying larger environmental behavior, resulting in regulatory inefficiencies which can be gamed. For instance — absent clear, testable expectations that play a role in determining the security and integrity of an interoperability solution—end users could be encouraged to consume services through platforms that may not have strong protections from malicious manipulation[103].

Even further, the lack of standardized regulations across regions make it difficult to outline a common regulatory framework. Not only does this lack of uniformity lead to developers feeling lost, but it also curtails any future efforts where regulatory agencies and DeFi projects are concerned. ARC warns that these flaws can open the door for abusers and thereby necessitates strong consumer protection and market integrity.

To solve these interoperability issues effectively, regulators need to create robust frameworks that should not only apply to a single DeFi protocol but also how they operate within the larger

[101] EEA. "EEA Releases DeFi Risk Assessment Guidelines v1." Enterprise Ethereum Alliance, 2023. Available at: https://entethalliance.org/eea-releases-defi-risk-assessment-guidelines-v1/

[102] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Hackenproof Blog, 2023. Available at: https://hackenproof.com/blog/for-business/defi-security

[103] LCX. "Cross-Chain Interoperability in DeFi." LCX Exchange Blog, 2023. Available at: https://www.lcx.com/cross-chain-interoperability-in-defi/

ecosystem. This may be in the form of security audit standards for cross-chain solutions, data integrity standards among platforms or simply creating cooperation between interest groups to define universal interoperability.

Ultimately, while interoperability is necessary for DeFi applications to mature and truly take off, the issue of how to regulate interoperable assets poses a significant obstacle that policymakers will need to recognize. While our research highlights the shortcomings of existing regulations in policing DeFi and the opportunities for proactive oversight, there is also a roadmap for regulators to mitigate risk and enable DeFi to prosper as a safe layer of finance.

3.1.3 Privacy concerns in DeFi: balancing transparency and anonymity and the downside of the current regulations and liquidity issues

Debating on privacy in decentralized finance (DeFi) is a touchy and multi-faceted topic that implicates aspects of individual agency, legal exposure and technical progress. DeFi platforms are often praised for being transparent and permissionless, but with that level of transparency comes an increased risk to user privacy. Public blockchains have trade-offs among traceability of transactions thus facilitating user de-anonymization due to modern analytical tools[104]. However, we need to point oput that this tension between the need for transparency and the desire for privacy underscores a real time demand of regulatory sole frameworks which can balance these competing interests so as to be efficacious in operation. DeFi operates on the basis of pseudonymity, which means that people interact with one another via cryptographic addresses instead of personal

[104] Streamflow Finance. "Privacy in DeFi: Importance, Challenges, Solutions." Streamflow Blog, 2023. Available at: https://blog.streamflow.finance/privacy-in-defi/

identification. This pseudonymity is not in fact complete anonymity. Every transaction is recorded permanently in the blockchain, which means you can identify real-world identities behind addresses. Moreover, as soon as someone turns their digital assets back into fiats through exchanges compliant with Know Your Customer (KYC) regulations[105]. This level of exposure can easily scare off users who either care for privacy or want to store their transactions in a manner less likely to be leaked, for instance with a financial intermediary. However, the existing regulatory framework is often inadequate to target these privacy concerns in a more fitting manner. Most of the existing regulations are geared towards transparency and compliance, thus requiring a level of privacy tradeoff even by individuals otherwise fully entitled to it in order to be able to access financial services. Which is even worse, because this is a place which was build around dis-intermediation and individuals taking control over their financial assets.

The absence of specific rules for how DeFi platforms should manage customer information has created a regulatory black hole that could attract unscrupulous entities[106]. Additionally, the advent of privacy-preserving technologies like zero-knowledge proofs (ZKPs) and homomorphic encryption brings with it new prospects as well as challenges. These are the technologies that make verification in a transaction without exposes anything concerning who are the sides or even the nature of their specific transaction, possible. For example, zero knowledge proofs allow one party to prove that they know a secret without revealing the secret itself, which is a way of allowing trust while maintaining privacy within a system[107]. The adoption of such technology, however, is far from common in DeFi because performance limitations and legal risk surrounding its use. Because federal and international regulations are trying to figure out how to manage those issues,

[105] CoinEx. "Privacy Coins: Navigating Anonymity and Regulation." CoinEx Blog, 2024. Available at: https://www.coinex.com/en/blog/9372-privacy-coins-and-their-future-in-defi-navigating-anonymity-and-regulation

[106] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Stanford JBLP, 2024. Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

[107] FluidAI. "Exploring Techniques and Challenges for Preserving Privacy in Decentralized Finance." FluidAI Blog, 2023. Available at: https://fluidai.com/blog/exploring-techniques-and-challenges-for-preserving-privacy-in-decentralized-finance

frameworks that appreciate the benefit of privacy with DeFi yet can still enforce AML / CTF laws must be in place. A middle-of-the-road approach might be to create some regulations that provide for the use of privacy-enhancing technologies while also forcing necessary disclosures that do not sacrifice user anonymity. Regulators may be able to enforce certain standards such as proof that a DeFi is taking measures to ensure its own security and conducts periodic audits.

Moreover, we need stronger collaboration between regulators and DeFi developers to design privacy solutions that actually work. This essay describes the DeFi technological universe and how regulators can be smarter in applying regulations based on what's possible. As briefly mentioned in this paragraph, tackling privacy obstacles within traditional finance, as whole-ranging concept of DeFi is a key milestone with respect to overall consensus considering future potential use case scam possibilities. We need nuanced regulatory frameworks that comprehend DeFi better and strike a balance between transparency and privacy.

While the shape of this complex terrain continues to evolve, what is clear is the urgent need for regulators to adapt to protect user privacy, but also because compliance with requisite legal standards will be a necessity.

Additioanlly, another key building blocks of any financial market is liquidity, and with decentralised finance (DeFi) it is critical. For DeFi services to work well and be attractive, they need the pool of assets to be liquid so that a swap can occur without moving the price by much. But such challenges have not existed peacefully; the proverbial black swan of DeFi, liquidity problems have begun to surface and spread across a series of markets in an all-too-fragile ecosystem, leading various fragmented systems to inefficiencies and potential vulnerabilities such as liquidity breaks, opening up on the other a large vein that directly threatens the stability of Decentralized Finance as we know it. It is, therefore, crucial that these liquidity problems are addressed with sensible regulation and by finding solutions which encourage a firm footing in the industry.

In its simplest form, DeFi liquidity generally relates to how difficult or easy it is to exchange one token for another with a given Smart Contract. DeFi, on the other hand, did not have a liquidity problem; unlike traditional finance that relies mostly on some centralised market maker to provide liquidity DeFi relies on these so-called Liquidity Pools that are created when users deposit their assets into smart contracts. An important distinction with these pools is that they eliminate the need for a traditional order book and allow automated market makers (AMMs) to settle trades[108]. Despite the development of AMM-based solutions, liquidity in DeFi today suffers from strong fragmentation where available liquidity is split across chains and platforms. Such fragmentation results in a loss of price efficiency, increased transaction costs, and overall deterioration of the user experience which deters the entry of new participants to the market.

Slippage, which is the difference between the expected price of a trade and the price at which it was actually executed, is one of the primary impacts of fragmented liquidity. This leads to an inefficient market, where liquidity levels differ across platforms[109], making it difficult for users to find the best price. That not only ends up raising costs for traders, but helps set the stage whereby "smart" money can prey upon arbitrage opportunities ending what tenuous price stability exists. As liquidity fragments, even small trades distort market prices, leading to skyrocketing volatility and a loss of trust in DeFi protocols.

The situation with DeFi liquidity issues is such that the regulatory landscape is woefully underdeveloped. Existing regulations frequently do not accommodate the specific attributes of decentralised markets, and they contain considerable holes that malicious parties could take advantage of. Using the example above, lack of provision for ensuring adequate liquidity across platforms could lead users to transact with a protocol that can be easily manipulated or subject to fraud due to deep contractions[110]. To make matters worse, the lack of uniform compliance

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[108] Hedera. "The Importance of DeFi Liquidity in Cryptocurrency." Available at: https://hedera.com/learning/decentralized-finance/defi-liquidity

[109] Cointelegraph. "Fragmentation in DeFi: DeFi's Liquidity Challenge." Available at: https://cointelegraph.com/innovation-circle/fragmentation-in-defi-defis-liquidity-challenge

[110] ESMA. "Decentralised Finance in the EU: Developments and Risks." Available at: https://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3349_TRV_Article_Decentralised_Finance_in_the_EU_Developments_and_Risks.pdf

protocols makes it even more difficult to develop a common regulatory template that can reliably regulate the cross-chain modalities and multicurrency pool implementations.

Some possible solutions can be considered to overcome these challenges; The first being vastly improving aggregation mechanisms allowing liquidity to travel all over platforms. Users have the ability to take advantage of volume by consolidating orders from a number of exchanges into one interface which in turn allows you to achieve better prices and reduce slippage[111]. This not only makes trading easier than ever, but also brings in more users — making going through DeFi platforms as easy as using centralized exchanges.

Furthermore, we need solid cross-chain solutions to resolve the myriad of fragmentation across verticals.... Cross-chain bridges allow users to transfer assets across different blockchain networks while keeping liquidity intact on top of those networks. However, as with any bridge it is critical they are also well-designed specifically to avoid the exploits that took advantage of previous implementations[112]. Regulatory bodies and main players should create common guidelines on the construction and what bridges will be useful for, in terms of security as well as effective assistance of assets transfer.

A third way to pull more people to a DeFi protocol is by in incentivising liquidity provision by the means of yield farming and/or governance token. Projects can increase their global liquidity and community involvement at the same time by incentivizing users with rewards in return for providing assets to liquidity pools[113]. However, these incentives must be carefully designed to prevent the building of economic models that are unsustainable in nature and could result in more volatility.

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[111] Hackenproof. "DeFi Security: The Major Challenges and Solutions." Available at: https://hackenproof.com/blog/for-business/defi-security

[112] CoinDesk. "Cross-Chain Bridges: The Good, The Bad & The Ugly." Available at: https://www.coindesk.com/learn/cross-chain-bridges-the-good-the-bad-the-ugly/

[113] Binance Academy. "What Is Yield Farming?" Available at: https://academy.binance.com/en/articles/what-is-yield-farming

Solving liquidity problems in DeFi is essential for it to thrive and be embraced at its fullest capacity across the financial ecosystem. By deploying resilient environments, with thorough regulatory frameworks and tools such as aggregation mechanisms and cross-chain interoperability that are institutionalized, stakeholders can nurture an ecosystem where more users engage building a healthier economy. In the course of this thesis, therefore, we will further investigate these regulatory needs and propose some potential fixes for liquidity within DeFi in general.

3.1.4 Cross-Border regulatory challenges: jurisdictional complexities in applying one law and systematic stability

Decentralized finance (DeFi) has shaken traditional financial systems to their core, resulting in a variety of global and decentralized challenges around regulation. DeFi platforms operate without a central authority, making it difficult to determine which jurisdiction's laws should be applied and enforced efficiently. As the world becomes increasingly connected, scrupulous projects can take advantage of different regulations in another country to capture all the compliance costs and legal risks which we have just mentioned. A DeFi protocol that goes live in one jurisdiction may be able to avoid the tough regulatory scrutiny of another, and so offer users less protection and open itself up to more attacks. Because blockchain transactions are pseudonymous, yet many jurisdictions require anti-money laundering (AML) and know your customer (KYC) compliance, regulators find it hard to link suspect conduct back to real people or entities[114]. DeFi is fast-moving and regulations make it difficult for authorities to keep up with the risks specific to these technologies. Various regulators are responding with a smorgasbord of regulations: blanket bans in some places; "regulatory clarity" elsewhere or so-say, though it remains unclear and thus throws DeFis operating

[114] European Central Bank. "Decentralised finance – a new unregulated non-bank system?" Available at: https://www.ecb.europa.eu/press/financial-stability-publications/macroprudential-bulletin/focus/2022/html/ecb.mpbu202207_focus1.en.html

internationally into question[115]. Given this daunting regulatory landscape, it iimperative that there is a greater degree of international collaboration amongst regulators in order to create universal standards and regulations helping to effectively govern over DeFi platforms worldwide. The regulation that we will introduce strives to solve these immediate problems by creating harmony in compliance across jurisdictions, increasing regulatory accountability of DeFi projects and encouraging inter-collaboration among regulating bodies such that there is a unified framework which addresses the new complexities resulting from the transnational nature of operations within DeFi[116].

However, the meteoric rise of decentralized finance (DeFi) is threatening systemic stability and underscores the critical necessity for regulatory supervision to reduce vulnerabilities in a financial infrastructure. While traditional systems tend to lean on the support of centralized entities and governing structures, DeFi is based on decentralization which utilizes smart contracts and automated protocols to execute transactions. The lack of centralized oversight contributes to risk, as the inter-connectivity between various DeFi protocols can result in cascading failures that could pose a threat to overall market stability[117]. One protocol running into liquidity problems, for instance, can result in a domino effect that spills over to other linked platforms and magnify systemic risks in the whole ecosystem. In addition, the nontransperancy of many DeFi processes make it difficult for regulators to monitor activities and ensure compliance with existing financial regulations[118]. Without the traditional levers of control that comes with having entry points for

[115] Bank for International Settlements. "Crypto, tokens and DeFi: navigating the regulatory landscape." Available at: https://www.bis.org/fsi/publ/insights49.pdf

[116] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

[117] European Central Bank. "Decentralised finance – a new unregulated non-bank system?" Available at: https://www.ecb.europa.eu/press/financial-stability-publications/macroprudential-bulletin/focus/2022/html/ecb.mpbu202207_focus1.en.html

[118] Financial Stability Board. "The Financial Stability Risks of Decentralised Finance." Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

regulation, some DeFi activities could sit outside the current regulatory perimeter, which would give bad actors an opportunity to engage in regulatory arbitrage by taking advantage of holes in surveillance. As DeFi further develops and may eventually intersect more directly with traditional finance, the risks of operational fragilities, liquidity mismatches and leverage are amplified[119]. As such, creating a solid regulatory foundation is crucial if DeFi is to function securely within the wider financial system. We will not only provide the tools to monitor and enforce compliance, but also allow new types of regulation that can cater to the needs of decentralized technologies. Incentivizing cooperation between regulators and private-sector players can cultivate a regulatory ethos that encourages innovation but protects against threats to systemic stability with the rise of new challenges.

3.2.1 Global regulatory landscape for DeFi: Overview of current approaches and regulations

The global regulatory environment for decentralized finance (DeFi) is marked by a scattered group of responses as different countries wrestle with the unusual challenges that this novel financial paradigm brings to life. With DeFi disrupting the traditional financial systems, regulators worldwide are working towards setting a framework that balances innovation and consumer protection and that also includes systemic stability. Agencies in the US, such as the SEC, are starting to focus on DeFi projects and debating whether[120] certain tokens should be categorized as securities with DeFi now being included under their opaque regulatory regime.

[119] European Systemic Risk Board. "European Systemic Risk Board outlines DeFi, crypto regulation proposals." Available at: https://www.ledgerinsights.com/european-systemic-risk-board-outlines-defi-crypto-regulation-proposals/

[120] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

The uncertainty over how these platforms are going to be regulated means a lot of prospective investors and developers have been reticent to work with apps that could risk being in violation of the law.

The European Markets in Crypto-Assets Regulation (MiCA) is an initiative to regulate digital assets including DeFi protocols which is still a work in progress in European Union[121], MiCA proposes a unified legal framework across the EU and takes aim at risks involving market abuse, retail customer protection, and anti-money laundering (AML). Other countries, such as Singapore have taken a more proactive position through the implementation of local guidelines for innovation and regulation. The central bank has put in place a regulatory framework that supports certain aspects of DeFi but only works if the rules themselves are followed[122]. At the same time, the decentralized borderless nature of DeFi can pose a challenge in terms of global coordination given differing national regulations may create barriers for an open entry despite the inter-jurisdiction seamless operation of DeFi platforms. Thus, it is imperative for regulators to act globally to create standards that can adequately regulate the rapidly expanding DeFi environment. Working together on insights and best practices, they can instill a more coherent framework that nurtures innovation by all stakeholders while ensuring protection for consumers and systemic stability.

3.2.2 EU Regulatory Framework for DeFi: Markets in Crypto-Assets (MiCA) and criticism of the current regulation

The European Union's Markets in Crypto-Assets Regulation (MiCA) is a massive step toward creating a comprehensive regulatory framework for the quickly developing decentralized finance (DeFi) sector. MiCA was approved in June 2023 and is scheduled to be implemented by the end

[121] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[122] ZHAW Institute of Applied Sciences. "Navigating the Regulatory Frameworks for DeFi Projects." Available at: https://www.zhaw.ch/storage/sml/institute-zentren/iwa/upload/IWA/workshop-frontiers_in_decentralized_finance/05_Anna_Rolewicz-Orpiszewska_Navigating_the_Regulatory_Frameworks_for_DeFi_Projects.pdf

of 2024, with the intent of creating a clear and consistent approach to full harmonised regulation of crypto-assets within all EU member states. The regulation covers the cryptocurrencies based on a utility or asset reference[123], along with the services providing through those crypto businesses. This is significant for DeFi protocols which typically run without traditional intermediaries and is one of the most important aspects of MiCA. It specifically mentioned the services provided completely in a decentralised manner without any kind of an intermediary. This exception sheds light on critical questions around achieving and defining within an effective regulatory context in a contenxt of full decentralization[124]. Given that a number of DeFi protocols currently either use centralized front ends or intermediaries to interact with users, they may be left having to obtain a MiCA license and comply with its requirements unless they can prove complete decentralization. These issues spell fears that the regulatory overkill innovation and it stimulates numerous projects towards greater centralization, something that is pretty much opposed to what DeFi itself stands for at its core[125].

The MiCA framework also includes KYC requirements as well as licensing conditions (KYC and other obligations are in line with those incumbent on traditional financial institutions). This necessity undeniably presents roadblocks for many DeFi protocols which offer user privacy and autonomy as standard. This means only fully decentralized front-ends could do so from a regulatory point of view[126]. Such a situation has spurred some debate within the industry on

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[123] Cointelegraph. "DeFi may struggle to stay decentralized after new EU law." Available at: https://cointelegraph.com/news/defi-decentralized-eu-law

[124] Oxford Law Blog. "The Application of the EU Markets in Crypto-asset Regulation to Decentralised Finance." Available at: https://blogs.law.ox.ac.uk/oblb/blog-post/2024/05/application-eu-markets-crypto-asset-regulation-decentralised-finance

[125] Cryptonomist. "La DeFi esclusa dalla Markets in Crypto-Assets Regulation (MiCA)." Available at: https://cryptonomist.ch/2023/11/07/defi-esclusa-markets-crypto-assets-regulation-mica/

[126] CMS Law. "DeFi and MiCA: How much decentralisation is enough?" Available at: https://cms.law/en/int/publication/legal-experts-on-markets-in-crypto-assets-mica-regulation/defi-and-mica-how-much-decentralisation-is-enough

whether protocols should be entirely decentralized, or in the alternative take on a mixed-centralization approach to still meet regulatory expectations.

Additionally MiCA could implement a schism ond via the DeFi industry. For example, as Nathan Catania from XReg Consulting warns, projects may face a “fork in the road” with further decentralization or accepting regulatory frameworks that make them indistinguishable from traditional finance[127]. That choice may well determine the face of DeFi in Europe and beyond.

That aside, MiCA is touted as a chance for DeFi to legitimise itself and draw in the big institutional money that has grown wary of venturing outside of regulated markets. By standardizing the rules and making DeFi regulation more accessible and thus much closer to traditional finance integration, MiCA may be able to help to enact a better-shared vision of both DeFi and traditional finance[128].

Nonetheless, doubts persist as to whether MiCA can mitigate the specific DeFi risks without compromising innovation. Critics have claimed of the potential for it to force "DeFi projects underground" or even drive greater levels of centralization if the regulation is too inflexible or is not designed in accordance with DeFi operations[129].

In other words, the European Union's Markets in Crypto-Assets Regulation is a groundbreaking piece of legislation in terms of the scope and regulation of crypto-assets and service providers, on paper; it is also rather complicated — multilayered to say the least — a take if DeFi enters the equation. The success of MiCA will ultimately be determined in how balanced the approach it takes with a need to provide regulatory oversight as well as foster innovation in the fast-paced decentralized finance industry. With the coming regulation, sustained conversation amongst

[127] Legal Nodes. "The EU Markets in Crypto-Assets (MiCA) Regulation Explained." Available at: https://legalnodes.com/article/mica-regulation-explained

[128] Cointelegraph. "DeFi needs to comply to attract institutional investors." Available at: https://cointelegraph.com/news/defi-needs-to-comply-to-attract-institutional-investors

[129] Oxford Law Blog. "The Application of the EU Markets in Crypto-asset Regulation to Decentralised Finance." Available at: https://blogs.law.ox.ac.uk/oblb/blog-post/2024/05/application-eu-markets-crypto-asset-regulation-decentralised-finance

stakeholders–regulators, as well as builders and users — might be critical to address these matters and make sure DeFi can stay on within solid regulatory constraints.

Anyhow, markets in Crypto-Assets Regulation (MiCA) is a Horizon Europe regulatory effort and targets at unitizing the leading cryptocurrency industry of the European Market. Thus far, however, it is not without its share of criticisms, primarily of the gaps and weaknesses that could make the Treasury an ineffective entity in governing DeFi. A significant part of the worry is that MiCA's definitions and classifications may be unable to grasp the malleable character of DeFi protocols, which often run in a decentralized way build on own laws[130]. This kind of retreat from oversight may have unintended consequences, eventually exempting all kinds of blockchain applications as long as they appear sufficiently decentralized in a loophole that would leave many users exposed to considerable risks with no recourse. Critics also argue that MiCA's strict compliance requirements, like KYC and AML obligations may inhibit innovation by forcing privacy-centric or autonomy-focused projects to jump through restrictive regulatory hoops[131]. This may ultimately result in the EU failing to foster a diverse and dynamic DeFi environment, as reported on numerous occasions by the country´s top bankers.

Not only is the legal environment in the EU fragmented, but even more importantly, it contributes an even further challenge to implement on this diverse landscape. MiCA will be subject to varying degrees in interpretation and enforcement by individual member states, potentially leading to regulatory arbitrage confusion for developers and investors across the EU[132]. Such a patchwork arrangement could place DeFi projects at a disadvantage in terms of scaling across the EU, thus undermining the core effort to build a harmonious regulatory environment. In addition, there are

[130] Oxford Law Blog. "The Application of the EU Markets in Crypto-asset Regulation to Decentralised Finance." Available at: https://blogs.law.ox.ac.uk/oblb/blog-post/2024/05/application-eu-markets-crypto-asset-regulation-decentralised-finance

[131] Cointelegraph. "MiCA: The good, the bad and the ugly of the EU's crypto rules." Available at: https://cointelegraph.com/news/mica-good-bad-ugly-european-union-crypto-rules

[132] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

doubts that MiCA properly tackles governance risks and issues related to DAOs operating off traditional legal boundaries. This void of definitive rules for DAOs may result stakeholders attempting governance in the form clashes and corruption.

A unified global regulation is the biggest fault attributed to MiCA and the present regulatory framework as being such an environment would allow cooperation between authorities and DeFi actors. The lack of a common point of reference makes it challenging for regulators to adequately monitor the space and opens up gaps that projects can exploit by implementing differences in their operations between jurisdictions, otherwise known as regulatory arbitrage.

This thesis will propose a holistic regulatory framework designed to close these gaps and facilitate closer coordination, collaboration between regulators and the DeFi lobbies with the goal of working towards a more uniform global approach to governance in Decentralized Finance.

3.3.1 U.S. Regulatory Framework for DeFi: current regulations, main challenges and criticisms

Decentralized finance (DeFi) is a rapidly evolving sector with many diverse activities and innovations, and as such, the regulatory environment in the United States is similarly vast. Various federal agencies, specifically the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the Financial Crimes Enforcement Network (FinCEN) perform key regulatory functions over different parts of DeFi operations[133]. This has included the SEC sharpening its definition on which kind of crypto-assets ought to be categorized under existing securities statutes, and if so, assessing them through a Howey Test. Nevertheless, such classification can put the DeFi tokens under the strict scrutiny of regulations driving challenges concerning with how to remain compliant to many projects that are decentralized in nature[134].

[133] Merkle Science. "Understanding Regulatory Frameworks for DeFi in the U.S. and Beyond." Available at: https://blog.merklescience.com/regwatch/understanding-regulatory-frameworks-for-defi-in-the-u-s.-and-beyond

[134] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi)." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

This initiative followed President Biden's Executive Order on Ensuring Responsible Development of Digital Assets in March 2022, an important development toward creating a united federal regulatory framework for the treatment of digital assets, such as DeFi. Together, they have taken an order that works to promote innovation while mitigating risks related to financial stability, consumer protection and illicit funding[135]. But despite these initiatives, the field remains characterized by uncertainty and fragmentation in regulation that can create difficulty for both creators and their users to comply.

A key hurdle to U.S. DeFi oversight relates back to the decentralized nature of the predominant platforms, which makes traditional financial regulations difficult to apply straightforwardly. In contrast to centralized financial organizations that can be easily surveilled and controlled, many DeFi protocols do not have identifiable operators or centralised governance. Calling bans and criminalization as bottlenecks in regulatory compliance of existing laws which are made for traditional finance[136]. Also, in DeFi, innovation happens so fast that laws are behind which allows exploitation of financial crime such as drug money laundering, fraud, amongst other.

There also is an increasingly voiced worry about regulatory overreach. Whether overly stifling regulations might dissuade too much innovation and force DeFi projects to move into more lightly regulated jurisdictions, potentially eroding the U.S.'s competitive advantage in this growing sector[137]. Recent Congressional testimony has demonstrated the necessity of a balanced strategy supportive of innovation, yet protective enough to ensure consumers and markets are safeguarded. Additionally, without national standards to follow, the rigorous effort toward compliance just becomes more complex by incentive for DeFi companies nationwide. Every state can apply its

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[135] Wilson Center. "DeFi 101: The Good, the Bad, and the Regulatory." Available at: https://www.wilsoncenter.org/article/defi-101-good-bad-and-regulatory

[136] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[137] Cryptonomist. "Regulation of DeFi in the US Congress." Available at: https://en.cryptonomist.ch/2024/09/11/regulation-of-defi-in-the-us-congress-criticism-of-crypto-projects-supported-by-trump/

own rules leading to a mess of legal requirements, which is hard for the developers and investors[138]. This inconsistency is not only preventing mainstream adoption but also giving rise to worries about protection of investors and the market.

Overall, as the United States continues to work to build a cohesive regulatory structure for DeFi there is a way to go. Compounding these challenges, the decentralized nature of such platforms complicates supervision, and different states have separate rules that make compliance harder to achieve. The core of the criticism against the existing regulation is that it does not define a single, global rulebook, which should enable authorities across borders to work as one on solving challenges with DeFi stakeholders. We present a holistic regulatory framework that will help overcome these challenges and enable closer cooperation between regulators and the industry to map guidelines across DeFi.

3.3.2 Criticisms of current U.S. regulations: uncertainty and enforcement Issues

The United States: the lack of clarity and enforcement headwinds that have faced de facto criticism from both legal experts as well as industry stakeholders.djangoproject. One of the biggest criticisms is not knowing which regulatory there governs each aspect of DeFi activity. DeFi's jurisdiction is split among a host of federal agencies, including the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC) and the Financial Crimes Enforcement Network (FinCEN), each claiming power over different DeFi components, leaving it in enforcement limbo which can make compliance difficult for developers and users alike[139]. This problem is exacerbated by the complexity of global financial regulation, with the overlap making it unclear which rules should apply to different projects, stymying attempts at compliance from DeFi operators.

[138] Financial Stability Board. "The Financial Stability Risks of Decentralised Finance." Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

[139] SEC.gov. "Statement on DeFi Risks, Regulations, and Opportunities." Available at: https://www.sec.gov/newsroom/speeches-statements/crenshaw-defi-20211109

Additionally, enforcement actions the agencies have pursued seem reactive and retributive — less an effort to proactively prevent bad behavior or even promote compliant good actors, and more a blunt hammer inciting discipline rather than directive. For example, just this week the CFTC brought enforcement actions against some DeFi platforms clearly demonstrating that such projects can run afoul of current law due to regulatory definitional ambiguity[140].

The CFTCs ongoing enforcement actions against platforms such as Opyn, ZeroEx, and Deridex for providing illegal digital-asset-derived trading is a case in point this market operators are not clear about which of their activities may be prosecuted under U.S. law until they are penalized[141]. Dissenters say this effectively kills any chance for innovation, and instead what regtech really aims to do is make sure only those with buckets of legal muscle can afford to handle the labyrinthine tapestry AML compliance is woven from.

On the other hand, an equally major horror story non-starter is how hard-over regulators could inadvertently force DeFi projects offshore and out of the U.S market altogether. Executives and lawyers fear that this aggressive enforcement will only force developers to take their projects to much more developer -friendly parts of the world that have less-stringent financial regulations, potentially crippling the U.S.'s assertion as a fintech power[142]. Reports suggest that this is a larger issue in DeFi markets, with retail investors being more exposed to information asymmetries. Indeed, while institutional investors have the resources to conduct thorough audits of smart contracts and risk assessments, retail investors are left mostly in the dark, relying on marketing materials and social media in a marketplace where regulation is still largely absent[143].

[140] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[141] CFTC Press Release. "CFTC Issues Orders Against Operators of Three DeFi Protocols." Available at: https://www.cftc.gov/PressRoom/PressReleases/8774-23

[142] Merkle Science. "Understanding Regulatory Frameworks for DeFi in the U.S. and Beyond." Available at: https://blog.merklescience.com/regwatch/understanding-regulatory-frameworks-for-defi-in-the-u.s.-and-beyond

[143] Financial Stability Board. "The Financial Stability Risks of Decentralised Finance." Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

In addition, while enforcement is supposed to protect consumers and the integrity of markets, it invariably fails to look at systemic issues in DeFi. A large portion of DeFi projects, however, operate without traditional investor protection frameworks — a reality that SEC officials have seized upon which results in uninformed and therefore entirely speculative ownership. This calls into question whether enforcement is even a meaningful strategy to develop for all of DeFi's complexity.

In reality, the biggest critique of current US regulation is that they are being built piecemeal, overlapped jurisdiction and only reactive enforcement. It not only stifles innovation, but it leaves retail investors exposed in what is a very fast moving space. Additionally, we need to point out that the increasingly decentralized nature of DeFi is unlikely to be rooted out, and there will always be have a perfect storm which should encurage authorities to engage closely with DeFi stakeholders.

That is one of the reaosns why, in this thesis we will propopse a new regulatory solution to encourage regulators and some actors in the regulated markets to collaborate towards a more consistent governance framework for DeFI.

3.3.3 Worldwide Perspectives on DeFi Regulation: Comparative analysis

The regulatory landscape for decentralized finance (DeFi) varies significantly across the globe, reflecting diverse approaches and philosophies regarding innovation, consumer protection, and financial stability. In jurisdictions such as Switzerland, Singapore, and Malta, regulators have embraced DeFi as a transformative force in the financial sector. These countries have established regulatory frameworks that foster innovation while ensuring consumer protection. For example, Switzerland has implemented a comprehensive legal framework that categorizes crypto-assets and provides clarity on the regulatory obligations for DeFi projects[144]. Similarly, Singapore's Monetary

[144] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi)." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

Authority has introduced a regulatory sandbox that allows DeFi projects to test their solutions in a controlled environment, promoting innovation while maintaining oversight[145]. In stark contrast, other countries have adopted a more cautious approach towards DeFi regulation. China has taken a hardline stance by banning financial institutions from engaging in activities related to cryptocurrencies and DeFi, citing concerns over money laundering and financial stability[146]. This regulatory environment has led to a significant exodus of blockchain talent and projects from China to more crypto-friendly jurisdictions. Additionally, many countries in the European Union are still grappling with how to integrate DeFi into existing regulatory frameworks. The EU's Markets in Crypto-Assets Regulation (MiCA) aims to provide a harmonized approach but has faced criticism for potentially stifling innovation by imposing stringent compliance requirements on decentralized platforms[147].The varied perspectives on DeFi regulation highlight the broader debate between fostering innovation and ensuring regulatory oversight. Countries that embrace DeFi often do so with the understanding that clear regulations can protect consumers while allowing for technological advancement. Conversely, those that impose strict regulations or outright bans may do so out of fear of potential risks associated with unregulated financial activities. This dichotomy underscores the need for international cooperation and dialogue among regulators to develop frameworks that balance these competing interests effectively.The main criticism of the current global regulatory landscape is the absence of a unified world regulation that would facilitate cooperation between authorities and DeFi stakeholders. This lack of harmonization creates

[145] ZHAW Institute of Applied Sciences. "Navigating the Regulatory Frameworks for DeFi Projects." Available at: https://www.zhaw.ch/storage/sml/institute-zentren/iwa/upload/IWA/workshop-frontiers_in_decentralized_finance/05_Anna_Rolewicz-Orpiszewska_Navigating_the_Regulatory_Frameworks_for_DeFi_Projects.pdf

[146] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[147] Oxford Law Blog. "The Application of the EU Markets in Crypto-asset Regulation to Decentralised Finance." Available at: https://blogs.law.ox.ac.uk/oblb/blog-post/2024/05/application-eu-markets-crypto-asset-regulation-decentralised-finance

opportunities for regulatory arbitrage, where projects may exploit differences in regulations across jurisdictions.

3.4.1 Deep and critical analysis of the current regulatory approaches

The existing legal frameworks that regulate decentralized finance (DeFi) suffer from some of the same shortcomings and misconceptions, which limit their efficacy and flexibility.

The first problem is the dependence on traditional regulatory paradigms that are not well-suited to DeFi platforms, as they function within decentralized architectures and offer non-custodial controls. This misalignment can result in over-reaching regulatory enforcement of rules meant for legacy financial institutions being required at the cutting edge of DeFi project development, effectively killing their growth and innovation[148]. Of more tangible significance is the extent to which current laws designed around legacy securities actively misidentify new kinds of assets, imposing unnecessary compliance burden that could also deter boots-on-the-ground market participants.

Another is the belief that there is a regulator out there who could effectively manage all of the risks inherent in DeFi. However, the regulations may still be able to limit malicious actors with a level of consumer protection and integrity within in the current market, but they do not remove the built-in risks such as smart contract vulnerabilities and price fluctuation. Many times the focus on compliance takes attention off culture of security and risk management within DeFi projects themselves[149]. Moreover, current regulation enforcement mechanisms are reactive instead of proactive, responding to abuses only after they progressively undermine the system. Such delay in the regulatory response could further enhance macro systemic risks and shakeout community confidence towards DeFi ecosystem.

[148] Financial Stability Board. "The Financial Stability Risks of Decentralised Finance." Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

[149] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

Furthermore, the incomprehensible style of regulation across different regions impacts both builders and utilizers poorly. Various countries have taken different stances on regulating crypto-assets and DeFi which has caused a serious degree of confusion for how international projects are supposed to comply[150]. It creates a headache in the legal space, as well as an opportunity for regulatory arbitrage where projects can take advantage of these gaps by moving to jurisdictions with more favorable regulations.

Finally, the notion that market stability can be achieved by way of regulation never has been anything more than a serious misconception. Appropriate regulation is of course necessary, and must be augmented with self-regulation, best practices etc. to present a whole picture about how governance might work in DeFi. Overburdening regulatory regimes without constructive component with relevant member in the groups of exceptionally significant resources, can bring about impractical regulation which neglects to shape or control a regularly changing world, for example in decentralized finance[151].

To recap, existing regulatory structures within DeFi face challenges drenched in antiquated paradigms, poor understanding of risk-mitigation and jurisdictional fragmentation, overdependence on regulation as a panacea. These are the difficulties that show why so it is essential for regulators to not only understand DeFi's complexity which is a deeper warning of adapting regulation in a smarter manner that fosters innovation and security for users.

However, regulatory approaches to decentralized finance (DeFi) are a mixed bag, with some factors representing a set of unnatural advantages and others considerable pitfalls. This, at least in theory, should be welcome because current regulations are designed to create a balance between these three intermediary-level interests: consumer protection, market integrity and financial stability. These regulations can pave the way for efficiency improvement because market

[150] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[151] Stanford Journal of Blockchain Law & Policy. "Regulating Decentralized Financial Technology: A Qualitative Study on the Challenges of Regulating DeFi." Available at: https://stanford-jblp.pubpub.org/pub/regulating-defi/release/1

participants will have and will agree upon rules, so it could entice those institutional investors to get into the game since they feel uncomfortable in dealing with unregulated environment[152]. In addition, regulation can help prevent any DeFi-based fraud or money laundering. And by extension, ensuring DeFi platforms do not become gateways for illicit activity, overall improving the reputation of the sector as a whole[153]. AML and counter-terrorist financing (CTF) measures are an example of these frameworks that could be implemented to use better practices while building Decentralized Finance applications.

Nonetheless, existing regulatory strategies usually lack strengths. An important one is that existing regulations do not always align well with DeFi's peculiarities. A lot of the regulations are created around central bank systems, which means they cannot work in the absence of a central party[154]. That misalignment, however, could mean regulatory overreach or misunderstandings of current laws that in turn impede new projects from entering the space. Additionally, regulatory enforcement is seriously hampered by the decentralized quality of DeFi markets — there are no recognizable operators nor centralized operatives to target for any sort of compliance violations.

An equally fundamental shortcoming is that clear definitions and standardised classification structures are missing from the E.U. regular tory space. For example, the treatment of tokens as securities can create confusion for many developers as to what their compliance status under U.S. law or other jurisdictions regulation actually is[155]. As a practical matter, this kind of ambiguity can cause projects to run afoul of laws without realizing it, which in turn can lead to enforcement actions that appear capricious and Sharpean instead of constructive.

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[152] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[153] Merkle Science. "Understanding Regulatory Frameworks for DeFi in the U.S. and Beyond." Available at: https://blog.merklescience.com/regwatch/understanding-regulatory-frameworks-for-defi-in-the-u.s.-and-beyond

[154] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[155] Financial Stability Board. "The Financial Stability Risks of Decentralised Finance." Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

Additionally, since there are fragmented regulatory approaches across jurisdictions, it also makes cross-border compliance all the more difficult for DeFi projects. Without a centralised global regulatory framework we have openings in the system for regulatory arbitrage, indeed this is where a project takes advantage of differences in regulations to pay as little compliance costs or undergo as little scrutiny as they can get away with[156]. This discrepancy not only impedes progress, but it also casts doubt on the promises of investor security and market integrity.

To conclude, the current regulatory approaches to DeFi provide benefits which lend credibility and legitimacy to the market while creating a framework for consumer protection; however, those same benefits are negated by significant weaknesses in outdated tools and unclear definitions since many regulators share jurisdiction. Those challenges show the importance of a deeper understanding of DeFi to support better regulatory frameworks that don´t oppose innovation and still protect consumers.

Anyhow, to have a exhaustastive deep analysis it is important to anlyse the existing regulatory framework for decentralized finance (DeFi) through a SWOT lens provides insights into its strengths, weaknesses, opportunities and threats. The opportunities are that regulatory clarity will allow for more DeFi projects and make it more mainstream, while also giving reassurance to investors/consumers. Regulations can help provide a safer environment for users and allow players in the industry to innovate responsibly when operating within the sector[157]. Weakness, however, is still present in the feudal local rules with the disordered law contexts across territories creating fogginess and compliance headaches for various DeFi networks affiliated to different regions. This has limited the capacity of decentralized platforms to succeed, often leading to the application of standard regulations that may not be well suited and can also stifle innovation[158].

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[156] Cryptonomist. "Regulation of DeFi in the US Congress." Available at: https://en.cryptonomist.ch/2024/09/11/regulation-of-defi-in-the-us-congress-criticism-of-crypto-projects-supported-by-trump/

[157] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[158] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

As regulators consider new tools such as Alchi's embedded supervision, that chips away at the idea of decentralized finance in place of compliance on chain, potential areas for advancement remain. This would reduce bureaucracy and red tape while enabling the provisions to respond with more agility to changes in our fast developing technological society[159]. Further, as regulators grow more accustomed to DeFi, we might see international cooperation to align global regulations, curbing regulatory evasion and promoting a healthier market.

This is in contrast that threats mostly stem from disarray among regulators and stakeholders within the DeFi world. This disconnect can also result in misaligned regulatory strategies and muddle clear messaging, which impedes the ability to create a unifying policy agenda that is designed specifically to address the idiosyncratic nature of decentralized finance. For DeFi, the lack of collaboration could lead to burdensome compliance standards that would herd DeFi projects away from more friendly jurisdictions, in-turn slowing down progress and denying users access to a wide range of financial products and services.

The current regulatory framework stands out for the various positive aspects and avenues through which it can develop, but also for its multiple drawbacks and threats, arising from regulatory fragmentation as described hereabove in a comprehensive manner envisaging the lines of action to be set up to achieve a balanced level playing field such an innovation-friendly environment.

[159] Merkle Science. "Understanding Regulatory Frameworks for DeFi in the U.S. and Beyond." Available at: https://blog.merklescience.com/regwatch/understanding-regulatory-frameworks-for-defi-in-the-u.s.-and-beyond

3.5.1 Conclusion: bridging regulatory gaps and preparing for future challenges

To sum up, the DeFi regulatory environment is filled with large holes and ordeals that indeed must be fixed if we are to create a stable and also, creative finance ecology. Regulations today seek to give guidance and consumer protection as much as possible but the frameworks developed have all been created with traditional financial constructs in mind which often does not get at the true nature of DeFi. Projects that operate internationally struggle to comply due to the fragmented approach of regulations across jurisdictions, leaving them in between a rock and a hard place with regulatory arbitrage potential. Also, a major challenge that stifles good governance and innovation in DeFi is the absence of harmony between regulators and stakeholders.

This requires the active involvement of regulators, industry players, and other stakeholders to fill these regulatory voids. This spirit of cooperation will require an appropriate regulatory framework that strikes a delicate balance between the protection of consumers, investors and innovation. Such a framework must not only strengthen consumer protection but also foster long-term financial resilience to withstand and recover from future crises. The involvement of various stakeholders — developers, investors and legal experts alike — ensures that regulators can leverage insights on how DeFi could work in the real world to craft practical guidelines that are also able to keep up with the rapidly transforming nature of the space.

Additionally, with the DeFi ecosystem evolving further, continued awareness and education for regulators are going to be essential. The more the authorities understand about different decentralized technologies, the better they can propose rules that will not only work but be adaptable to future innovations. Adopting this proactive stance can also help to alleviate risks and encourage opportunities for innovation.

Looking forward, it is important to understand that finding a single regulatory fix will face significant political infighting between various interest groups. The multiplicity of viewpoints present within the DeFi community combined with different regulatory approaches across jurisdictions makes it highly challenging to achieve a consensus. The next chapter will look at those complexities in depth, to see just how hard it can be to bring the two sides of politics together on a regulatory convenant the industry and globe so badly needs.

Chapter Four: “The Political Debate on Decentralized Finance and Regulation responses”

4.1.1 Relation between Decentralized Finance vs. Governments: tensions and opportunities

Decentralized finance (DeFi) is increasingly bringing government regulators into a careful dance with each other as they attempt to define their policy goals and interpret what kind of impact this new sector may have on the future of financial. On one hand, DeFi poses difficult questions over traditional regulatory frameworks as it is largely decentralized, indeed no central parties like banks or financial institutions are involved. This sort of disruption has caused policymakers to react nervously about the possible price of the absence of centralised management on risks like frauds, money laundering and market manipulation[160]. DeFi has proven challenging for governments to regulate, especially due to the fact that it offers pseudonymous and borderless transfer of value — resulting in difficulties enforcing rules against alleged rogue lenders.

Yet within these challenges are enormous openings for collaboration between DeFi innovators and regulators. Indeed, the government knows that DeFi has the potential to revolutionize financial services and empower unbanked people so as a result, regulatory work is also underway to promote innovation and consumer protection at the same time[161]. For instance, a healthy dialogue where regulators can communicate with industry participants might set up guidelines (much like the way KYC/AML is done today by exchanges) which will ensure the transparency and accountability in

[160] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[161] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

DeFi. If governments actively engage with the DeFi community, they can learn more of the complexities of the technology and pass regulations that curtail risk without stifling innovation.

Furthermore, the constant development of DeFi present an exclusive entrance for governments to exploit its virtues in enhancing pasteurized financial systems. Decentralized networks possess transparency that affords more efficient oversight over financial transactions, which might have the effect of increasing market integrity and reducing fraud[162]. If regulators can create a system that enables both traditional finance and DeFi to operate together, whilst minimising the chances for systemic risks to cause massive harm, they will have overseen a triumph of policy, one which we must all get behind as it sets the precedent for innovation-led improvements in every industry.

On the other hand, while DeFi is to face some struggles with governments due to uncertainties in regulations and possible hazards to be encountered, their relationship can also foster beneficial results. By being more forward-thinking and balancing regulation with innovation, policymakers can leverage the power of DeFi to build a fairer, more resilient financial system.

4.2.1 What CBDC is and its comparative analysis with stablecoins

The Central Bank Digital Currencies acts as one of the most important revolutions happened in money, acting as a digital currency from a particular country issued and regulated by the central bank starting from there. To answer this question, it is important to know that CBDCs are different from cryptocurrencies as they rely on a centralized infrastructure and aim to offer the public usability, including the trust and stability of traditional money bundled with the benefits of virtualization[163]. The dominant motivation for implementing the development of CBDCs is financial inclusion, optimizing payment infrastructure and preserving monetary independence in a digitalizing economy.

The most immediate question regarding CBDCs is what they mean for financial sovereignty.

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[162] CFTC Report on Decentralized Finance. "Decentralized Finance." Available at: https://www.cftc.gov/media/10106/TAC_DeFiReport010824/download

[163] Bank for International Settlements. "Lessons learnt on CBDCs." Available at: https://www.bis.org/publ/othp73.pdf

In turn these risks prompt central banks to be wary of currency substitution that domestic currencies are replaced by more accepted foreign or private digital currencies. This displacement may obviate a central bank's abilities to conduct effective monetary policy and be lender of last resort[164]. The idea in many cases is that by introducing these new CBDCs, central banks shore up their control of monetary policies and their abilities to meaningfully participate in the event of financial challenges.

Nevertheless, the introduction of CBDCs also poses difficulties. CBDCs might be a better asset for consumers, but they can also make bank runs riskier in times of financial stress. If they are considered safer than bank deposits, consumers could rush to the exit of their money in banks and thus face a liquidity crisis depositors[165]. As a result, such risks are entirely managed by design decisions, meaning maximal holdings may be capped and e.g. discovery banks might only offer very limited interest rates to incentivize deposits into traditional banks.

Moreover, CBDC can revolutionize the global financial system enabling easy cross border transactions and bringing down the traditional payment systems like SWIFT. CBDCs could help countries cooperate from an economic angle by offering a more efficient channel to transfer value but at the same time complicate issues related to compliance and coordination regulation[166].

To sum up CBDCs seem like a win-win scenario for the benefits of financial sovereignty and payment efficiency, but there are broad implications for banks and regulation. While exploring the implementation of CBDCs, countries need to mitigate their risks and maximize their benefits in a way that it fortifies the financial ecosystem.

[164] Bank of Canada. "Revisiting the Monetary Sovereignty Rationale for CBDCs." Available at: https://www.bankofcanada.ca/2021/12/staff-discussion-paper-2021-17/

[165] Federal Reserve Board. "Financial Stability Implications of CBDC." Available at: https://www.federalreserve.gov/econres/feds/files/2024021pap.pdf

[166] European Central Bank. "A digital euro: gauging the financial stability implications." Available at: https://www.ecb.europa.eu/press/financial-stability-publications/fsr/focus/2023/html/ecb.fsrbox202311_04~5f8d06f0d2.en.html

Anyhow, the rise of Central Bank Digital Currencies (CBDCs) and stablecoins has led to a vibrant discussion on their respective roles in our financial ecosystem, and not least from a regulatory or political perspective. CBDCs are central- bank issued digital currencies, which represent a new form of money that is expected to be stable and notes under the authority of local governments. Stablecoins: Those are cryptocurrencies which aim to minimize the volatility of their value, usually by pegging themselves to some asset such as fiat currencies or commodities[167]. Even though they both accomplish the same goal, digital transactions made easier, they are fundamentally different in the regulatory impact and political forces invoked.

Beyond regulation, CBDCs provide central banks with an important mechanism to sustain monetary policy and financial stability boundaries. CBDCs help reduce some of the risks by offering a liability directly from the central bank in contrast to private digital currencies (including stablecoins) that remain outside most regulatory frameworks[168]. Moreover, the central banks suggest that a CBDC would add to efforts to limit stablecoin influence on monetary supply and make policy less effective because these private currencies may very well be used in ways that prevent the economy from being controlled. For example, if stablecoins become the norm, they could crowd out the central bank as the lender of last resort — which would threaten both global and monetary sovereignty[169].

On the flip side, stablecoins have their own distinct regulatory complications. Their decentralised nature frequently makes them swoop out of current financial regulations causing concerns such as consumer protection problems, market integrity issues and potential for criminal use. Without restrictions, stablecoins could increase the risk of financial instability through unmonitored and

[167] World Economic Forum. "How are CBDCs different from cryptocurrencies and stablecoins?" Available at: https://www.weforum.org/agenda/2023/11/cbdcs-how-different-cryptocurrency-stablecoin/

[168] Federal Reserve Board. "Finance and Economics Discussion Series." Available at: https://www.federalreserve.gov/econres/feds/files/2024021pap.pdf

[169] Bank of Canada. "Revisiting the Monetary Sovereignty Rationale for CBDCs." Available at: https://www.bankofcanada.ca/2021/12/staff-discussion-paper-2021-17/

unsupervised shadow banking[170]. The absence of clear regulation when it comes to stablecoins puts the at risks its users and the overall financial system, guiding authorities to toughen their stance on oversight.

In the political sector, the increasing practice of CBDC is considered to be answering to private digital currencies like stablecoins. As the popularity of decentralized alternatives continues to increase, governments are becoming more interested in ensuring that they remain in control over its own monetary system. The potential political ramifications are vast; CBDCs may enable an unprecedented expansion of state power into financial transactions, but could also provoke fears of creeping surveillance and a loss of privacy[171]. Meanwhile, governments could potentially leverage CBDCs to observe transactions with even more visibility than cash does that would violate privacy rights of individuals and thus raise public ire.

So in a nutshell, although there are similarities between the CBDCs and stablecoins they have different regulatory hurdles and political dimensions. CBDCs grant central banks the right to ensure monetary sovereignty and stability but raise privacy and state control concerns. Conversely, stablecoins can make transactions run very smoothly, but because stablecoins are not regulated, there is the risk of them affecting financial stability. Navigating this landscape requires policymakers to find an equilibrium between innovation and regulation which is fundamental in creating a secure and all-inclusive financial ecosystem.

[170] International Monetary Fund (IMF). "The Future of Money: Central Bank Digital Currencies." Available at: https://www.imf.org/en/Publications/WP/Issues/2022/06/01/The-Future-of-Money-Central-Bank-Digital-Currencies-460057

[171] European Central Bank. "CBDC aims to preserve the role of public money." Available at: https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2783~0af3ad7576.en.pdf

4.3.1 The Political Divide: Decentralised Finance (DeFi) vs Centralised Finance (CeFi) in the U.S.

The political landscape surrounding decentralized finance (DeFi) and centralized finance (CeFi) in the United States reflects a significant divide that underscores broader ideological differences regarding regulation, innovation, and consumer protection. Recent congressional hearings have highlighted these divisions, revealing how lawmakers are split in their approaches to regulating DeFi. On one side, there is a strong push for stricter regulations to protect consumers from potential scams and fraud prevalent in the largely unregulated DeFi space. Advocates for tighter oversight argue that the absence of regulatory frameworks creates opportunities for bad actors, leading to significant risks for unsuspecting investors. This perspective emphasizes the necessity of robust consumer protections and clear rules to guard against fraud and market manipulation as the sector continues to grow[172]. Conversely, proponents of a more lenient regulatory approach advocate for minimal intervention, emphasizing the importance of fostering innovation and economic freedom within the financial sector. They argue that heavy-handed regulations could stifle the growth of DeFi, which is viewed as a transformative force capable of enhancing financial inclusion and providing new avenues for transactions without relying on traditional intermediaries. This camp believes that while consumer protection is essential, overly restrictive measures could hinder the potential benefits of DeFi technologies[173]. This political divide is not merely about differing views on regulation; it also reflects deeper ideological beliefs about the role of government in financial markets. Advocates for stricter regulations often frame their arguments around consumer safety and market integrity, viewing regulation as a necessary tool to safeguard the public from exploitation in an emerging financial landscape. In contrast, those favoring a lighter touch position

[172] Cryptoslate. "Congressional hearing on DeFi reveals deep partisan divide over regulatory approach." Available at: https://cryptoslate.com/congressional-hearing-on-defi-reveals-deep-partisan-divide-over-regulatory-approach/

[173] Unchained Crypto. "First Congressional Hearing on DeFi Highlights Divide Between Republicans and Democrats." Available at: https://unchainedcrypto.com/first-congressional-hearing-on-defi-highlights-divide-between-republicans-and-democrats/

themselves as defenders of innovation, arguing that excessive regulation could undermine the very advancements that DeFi promises[174]. Moreover, the lack of a clear definition of DeFi complicates regulatory discussions further. Lawmakers struggle to create effective regulations when there is no consensus on what constitutes DeFi or how it differs from traditional finance. This ambiguity can lead to inconsistent regulatory approaches that may ultimately harm both consumers and innovators. As Congress continues to grapple with these issues, it becomes evident that finding common ground will be essential for establishing a regulatory framework that effectively addresses the unique challenges posed by DeFi while promoting its potential benefits.In summary, the political divide between proponents of DeFi and advocates of CeFi reflects broader ideological differences regarding regulation and innovation. As discussions continue in Congress, it will be crucial for lawmakers to navigate these tensions thoughtfully to create a balanced regulatory environment that fosters innovation while ensuring consumer protection.

4.3.2 U.S. Regulatory Approaches: Biden Administration's mindset on Crypto and DeFi

As concerns around consumer protection, financial stability, and illicit activity mount, the Biden administration's stance on cryptocurrency and decentralized finance (DeFi) has shifted. At first, the administration and leading Democrats were wary of cryptocurrencies, eyeing their threat to the global financial system[175]. To do this, they have been strategic about how such assets are classified, specifically towards many being labeled securities under strict regulations overseen by organizations like the Securities and Exchange Commission (SEC)[176].

[174] CoinGeek. "Congress divided in partisan hearing on DeFi." Available at: https://coingeek.com/congress-divided-in-partisan-hearing-on-defi/

[175] The Conversation. "Where Harris and Trump stand on cryptocurrencies." Available at: https://theconversation.com/where-harris-and-trump-stand-on-cryptocurrencies-and-how-it-could-sway-some-american-voters-236186

[176] Bankrate. "Election 2024: Where Trump And Harris Stand On Crypto." Available at: https://www.bankrate.com/investing/where-trump-and-harris-stand-on-crypto/

This regulatory stance is grounded in a much larger commitment to protect market integrity and consumer safety as the landscape of cryptocurrencies continues to change drastically.

Nonetheless, as the relevance of cryptocurrencies has grown so too has the attention paid to their potential advantages. The Trump administration recently started engaging more constructively with industry players in hopes of balancing an innovation-promoting regulatory environment with real complaints[177]. This is reflected in the passage of the Financial Innovation and Technology for the 21st Century Act (FIT21) in May 2024 to provide more certainty about what regulators want to see, as well as foster innovation within the industry. By recognizing regulation must correlate to technology innovation, this adaptability shows that the U.S. is willing to move forward in a way that ensures competitiveness in the global digital economy.

In addition, there is increasing pressure from pro-crypto Democrats in the party to adopt more crypto-friendly positions on digital assets. This change is in part prompted by the acknowledgment of the idea that some day cryptocurrency will inevitably become involved, even if indirectly, in campaigns funding and political participation. The Biden administration, hence, has taken a dual approach in its mindset, ensuring strong regulatory oversight and at the same time acknowledging that a conducive ecosystem for growth and innovation was essential in the crypto-domain such as digital assets.

4.3.3 Trump Administration's evolving position on cryptocurrency: from scepticism to full support

When it comes to cryptocurrency, former President Donald Trump has made quite the transition from skepticism to full-fledged support for digital assets as he contemplates a return to office. For the last couple of years, Trump has been seen as a pro-crypto presidential candidate, realizing how massive cryptocurrencies and decentralised finance (DeFi) is going to be for the future of

[177] AP News. "Trump's new crypto venture is light on details, heavy on potential." Available at: https://apnews.com/article/trump-harris-elections-crypto-cryptocurrency-treasury-blockchain-29df24818d03e557c6c434533052b33c

finance[178]. Indeed, the 45th President of the United States, Donald Trump, made the comments at the Bitcoin 2024 conference in Nashville, where he declared that he wanted to see the U.S. as the crypto capitol of planet and would seek to create a spirit aimed toward versatility and growth within the sector of digitally managed currency[179].

This shift in thinking echoes Trump's larger vision of economic empowerment and human autonomy. His government's policy stance is to develop regulations that, while providing consumer safeguards, does not hamper collaboration between regulators and DeFi players. Trump is pushing for the adoption of policies that facilitate the growth of cryptocurrency in order to protect US competitiveness in a world where more transactions are done virtually[180]. From this week, for instance, his campaign is fundraising in Bitcoin — a commitment to embracing the new technology and that's just 'toe-in-the-water stuff.

What's more, Trump wants to create a "Bitcoin and crypto-council" that'll be composed of cryptocurrency industry professionals who truly understand how the crypto market works. The initiative is aimed at establishing regulations that foster rather than stymy innovation, and appears to be a sincere effort to create a challenged-based regulatory environment[181]. The Trump administration wants to minimize points of friction between DeFi, regulators By working with industry stakeholders, the administration hopes it can create an environment that allows DeFi to flourish.

Yet Trump's perspective, which emphasizes market freedom and individual rights, rather than the more left-leaning views that would likely impose rigorous regulations, it could be a helpful

[178] Bankrate. "Election 2024: Where Trump And Harris Stand On Crypto." Available at: https://www.bankrate.com/investing/where-trump-and-harris-stand-on-crypto/

[179] AP News. "Trump's new crypto venture is light on details, heavy on potential." Available at: https://apnews.com/article/trump-harris-elections-crypto-cryptocurrency-treasury-blockchain-29df24818d03e557c6c434533052b33c

[180] The Guardian. "Trump launches new cryptocurrency venture but declines to share details." Available at: https://www.theguardian.com/us-news/2024/sep/17/trump-crypto-world-liberty-financial

[181] ABC News. "Trump's new crypto venture is light on details, heavy on potential." Available at: https://abcnews.go.com/US/trumps-new-crypto-venture-light-details-heavy-potential/story?id=113790809

manifestation. This vision of cryptocurrency regulation is underpinned by the conviction that financial freedom in any form to the individual will lead to economic prosperity and progress. Such a view aligns him as a hero for the future of global governance to match oversight with the modernity drive.

In conclusion, Trump's shifting stance on cryptocurrency is an illustrative of a realisation that the benefits have a ceiling but does not necessitate a debate over how authorities and DeFi stakeholders need to work together in an enabling environment.

His dedication demonstrates potentially positive attitude for a new regulation enahncnhing freedom of markets and cooperation between main DeFi actors and authorities.

4.4.1 European perspectives on DeFi: political dynamics, opposite views and regulatory responses

Decentralized Finance (DeFi) is more of an open economic system that anyone can access, participate in and build on but European perspectives are highly politicized with evolving regulatory responses as it tries to contend with the opportunities and challenges this rising sector brings. With the Markets in Crypto-Assets Regulation (MiCA) the European Union has even taken matters into its own hands and has been working on creating an overarching legal framework for crypto-processing, in order to level off this part of financial markets across member states[182]. Consumer protection is important, but so too is clear regulatory guidance that allows business to flourish and innovate.

Still, political dynamics matter greatly in determining such regulatory reactions. Levels of enthusiasm differ, with some member states welcoming DeFi as a chance to boost their economy

[182] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

and other worrying about financial stability and consumer protection[183]. This divergence makes it difficult to harmonize the regulatory framework on a European basis.

European has growing interest in decentralized finance (DeFi) and even an understanding by officials that the DeFi space may increase financial inclusion via access to services for the un-banked population[184]. While regulators continue their discussions, the concurrent conversation regarding how to properly balance oversight with innovation rages on—how do we prevent regulation from impeding technological advancements while guarding against vulnerabilities in unregulated markets.

After this aalysis we can declare that european views on DeFi embody a mix of regulatory ambitions and political autocannibalism that reflects the national values and preferences. Turning this research into practical rules will be the challenge regulators need to address and one where a shared space is required to have an effective framework supporting innovation that protects consumers.

Anyhow, in Europe there is a debate over decentralized finance (DeFi) which is often characterised by a split between Ursula von der Leyen and dyed-in-the-wool proponents of market freedom over more restrictive regulation. European Commission President Ursula von der Leyen has aggressively set the pace in regulating DeFi, targeting decentralized finance through regulations like MiCA aimed at outlining definitions for crypto-assets[185]. He uses the same wording in urging her to focus on consumer safety and financial health as public policy priorities in a more digital world of finance.

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[183] Financial Times. "EU's MiCA Regulation Aims for Balance Between Innovation and Consumer Protection." Available at: https://www.ft.com/content/8a7a5e9c-e5a0-11ec-bf1f-cf0f6d9e8c6f

[184] European Commission Report on Digital Finance Strategy. Available at: https://ec.europa.eu/info/publications/digital-finance-strategy_en

[185] Financial Times. "EU's MiCA Regulation Aims for Balance Between Innovation and Consumer Protection." Available at: https://www.ft.com/content/8a7a5e9c-e5a0-11ec-bf1f-cf0f6d9e8c6f

By contrast, those who support conservative DeFi politics claim that overregulation could hinder innovation and stunt competition in the DeFi space. They argue that market forces should determine the results, not government intervention, and call for as little regulation as possible to enable entrepreneurs to experiment with new business models without bureaucratic limits. This view is consistent with a wider libertarian approach focused on personal rights and self-reliance.

The juxtaposition of these two perspectives illustrates a basic political fault on what is the best way to regulate DeFi in an ever-complicated regulatory world. Privacy advocates argue that a lack of regulation would leave consumers wide-open to fraud and scams similar to those already existing in the black market[186]. On the other side, defenders of market freedom maintain that innovation only occurs in states with smaller government burden.

It is important, therefore, in ongoing debates within European political circles around the future regulation of DeFi to find common ground between these polar opposite positions if we are to develop meaningful frameworks that protect citizens without suffocating technological development.

4.4.2 Critiques of European regulatory approaches: criticism, gaps and challenges identified

European Regulatory Approach Imitated by DeFi Receives Criticisms in Addressing Emergent Sector Challenges On one hand, as the Markets in Crypto-Assets Regulation (MiCA) aims to ensure a more harmonized approach will be applied across member states, critics suggest specific regulations might fail to address DeFi peculiarities[187].

The traditional financial approach can generate incorrect applications as they are often configured for centralized systems, potentially hampering innovation more than it enhances.

[186] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[187] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

Consumer protection lapses that already exist in current regulations remain another significant criticism. While MiCA aims to improve on a number of the shortcomings in terms of protections against fraud and market manipulation, some continue to argue that it comes up short with respect to certain risks associated with decentralized technologies – say smart contract bugs, or governance failures intrinsic to Decentralized Autonomous Organizations (DAOs)[188]. This could leave consumers unprotected in the event of potential loopholes that need to be addressed with recourse and support mechanisms.

There are also issues as there is no specific enforcement mechanism for cross-border operations of many DeFi projects that have multifaceted operations in multiple jurisdictions within Europe[189].

Regulatory arbitrage: In jurisdictions such as Singapore, where the government is trying to build a financial center of innovation through regulatory relaxation, this may allow projects to take advantage of discrepancies between national regulations.

To sum up, European regulators move forward with their efforts to provide some sort of regulatory precedent for DeFi, significant criticism is raised surrounding the large gaps existing in the present structures that would need closing should these proposals wish to ensure consumer safety and nurture innovation.

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[188] Oxford Law Blog. "The Application of EU Markets in Crypto-assets Regulation." Available at: https://blogs.law.ox.ac.uk/oblb/blog-post/2024/05/application-eu-markets-crypto-assets-regulation-decentralised-finance

[189] Financial Stability Board Report on Decentralised Finance Risks . Available at: https://www.fsb.org/2023/02/the-financial-stability-risks-of-decentralised-finance/

4.5.1 Global perspectives on DeFi regulatory framework: comparative Insights and challenges

The world of Decentralized Finance is a regulatory nightmare with different jurisdictions adopting heterogeneous approaches -reflecting their particular mix of political dynamics, economic flavor and cultural levels of tech adoption- towards innovation. DeFi offers both opportunities and challenges as it expands, this constant expansion and evolution will always demand deliberate regulatory answers. Across the globe, regulatory bodies are exploring how best to supervise a sector that functions in a decentralized and frequently transnational manner; this undermines conventional surveillance paradigms originally conceived for centralized financial systems[190].

For instance, in areas such as Europe the Markets in Crypto-Assets Regulation (MiCA) is meant to create an all-encompassing regulatory framework for crypto-assets which also involves DeFi elements. Nonetheless, MiCA has fuelled some dissension, as it was critiqued for inadequately tackling the intricacies involved with fully decentralized services; ones that typically have no intermediaries and therefore fall beyond extant regulatory domain[191]. This gap underlines that we need a better appreciation of what sets DeFi apart from other forms of finance and the associated risks.

On the other hand, countries like Singapore have taken a more proactive approach with regulatory sandboxes for DeFi projects to operate in a less regulated environment while still fulfilling basic compliance standards. But it wanted to do this in a way that continued fostering innovation while maintaining consumer safeguards[192].

[190] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

[191] Elliptic. "Regulatory Outlook 2024: This will be a defining year for DeFi." Available at: https://www.elliptic.co/blog/regulatory-outlook-2024-this-will-be-a-defining-year-for-defi

[192] Finance Magnates. "DeFi's Legal and Regulatory Challenges: Navigating the Gray Areas." Available at: https://www.financemagnates.com/cryptocurrency/regulation/defis-legal-and-regulatory-challenges-navigating-the-gray-areas/

The Monetary Authority of Singapore (MAS) has been active in consulting industry participants on best practices for sustainable innovation within the DeFi sector.

While these differ in execution, there are shared challenges that jurisdictions face. A primary problem is the blurred line of jurisdiction and associated regulatory guidelines for global operations of DeFi projects. While the borderless nature of these projects affects global communities, it can introduce compliance and regulatory risk, with developers and user bases residing in multiple jurisdictions relying on conflicting regulations to form a legal framework or worse: the new face of "regulatory arbitrage:" operating in less regulated regions[193]. The absence of standardized definitions and classifications of DeFi technologies has further hindered attempts to fashion comprehensive regulatory frameworks.

Plus, considerations related to consumer safety, anti-money laundering (AML), and market manipulation continue to take precedence. Concerns over DeFi projects are not diminished by regulatory scrutiny as service acts as a financial service performing the tasks of traditional lending and borrowing that would inevitably fall under similar regulation, but without an encumbrance this limits state enforcement[194]. Recent enforcements by U.S. regulators against a number of DeFi projects have brought the uncertainty to practical light and make clear that clarification on how existing laws apply to decentralized operations is needed now.

Taken together, the global picture of DeFi regulation offers a nuanced reflection on novel regulatory strategies alongside a set of substantial obstacles. Regulators select to perceive and every time a DeFi project launches, it forces all current regulations off the table, as they are not designed with DeFi in mind. With regulators looking to navigate this unknown terrain some international cooperation will be needed if harmonized standards that can address these risks yet support innovation are going to work. It is therefore important that there be an ongoing discussion

[193] Merkle Science. "Understanding Regulatory Frameworks for DeFi in the U.S. and Beyond." Available at: https://blog.merklescience.com/regwatch/understanding-regulatory-frameworks-for-defi-in-the-u.s.-and-beyond

[194] Financial Action Task Force (FATF). "Guidance on Risk-Based Approach to Virtual Assets." Available at: https://www.fatf-gafi.org/publications/fatfrecommendations/documents/guidance-risk-based-approach-virtual-assets.html

between regulators, the industry and legal experts so as to devise frameworks which balance consumer protection with the necessity for technological progression.

4.6.1 Navigating the Complex Landscape of DeFi Regulation: Addressing Criticism and Potential Solution

Current DeFi regulations have received a number of similar complaints that come down basically to inherent flaws in current legislation, as well as assumptions based on misunderstandings or misrepresentation of how blockchain and related technologies work. An example of this can be seen in one critique suggesting that traditional financial paradigms were imposed onto decentralized systems and as a consequence could not account for their unique characteristics exposing them to forms of rules from its centralized counterparts[195].

Additionally, critics claim that there is a great deal of ambiguity surrounding definitions classifications stated in the existing regulatory frameworks, and developers do not know what they need to do to meet compliance[196]. This lack of a clear signpost often results in projects unintentionally breaking the law entirely because of inherent confusion as to whether or not adding entropy triggers a change from within the boundary condition.

Furthermore, many of the mechanisms of enforcement that are currently in place seem to be post-hoc means — ways that did not predict these issues before they actually hit and as such, more than regulation offer direction[197]. This reactive approach could serve to increase systemic risk in dark, unregulated markets and erode investor confidence across the board.

Overall this means that the DeFi world is taking steps towards better regulation but that it also reveals the many weaknesses of current frameworks, showing a lack understanding on how all of

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[195] Elliptic . "Regulatory Outlook 2024 : This will be defining year for DeFi ." Available at : https://www.elliptic.com/ blog / regulatory-outlook - 2024 - this - will - be - defining - year -for-defi

[196] Oxford Law Blog . "The Application Of EU Markets In Crypto-assets Regulation ." Available at : https : //blogs.law . ox.ac.uk / oblb / blog - post / 2024 /05 / application - eu - markets - crypto-assets-regulation-decentralised-finance

[197] Financial Stability Board Report On Decentralised Finance Risks . Available At : https : //www.fsb.org / 2023 /02 /the-financial-stability-risks-of-decentralised-finance /

those dynamics are working, and no clear definitions can be made if effective solutions are meant to see light.

Anyhow, Decentralized Finance (DeFi) is a whole new world, and this feature takes us through the top challenges related to its regulation. One key problem is actually being caused by the decentralisation itself; since there are no central authorities controlling transaction, it isvery hard for regulators to require compliance[198]. Since many platforms are international, it makes how to regulate especially difficult since there is no clear jurisdiction for where/who can be held accountable when the content violates.

In addition, the fast pace of technical innovation in this sector often surpasses the available legal frameworks designed to regulate those elements of finance that are more traditional — leading to harmful-defying gaps where bad actors can be very clean[199].

Moreover, how assets are classified, whether they should be securities or commodities, is often enigmatic as well, leading developers to feel confused about what legal obligations they have[200].

As a result, the struggle to deal with complexities arising from regulating DeFi persists, as well: decentralized systems lack central authority and it is very difficult to enforce compliance while technology changes so quickly and challenges many traditional legal concepts.

With this analysis we can declare that Decentralized Finance (DeFi) needs to find a common language between the political and regulatory divide or it will fail to manifest as the secure and unique financial system that is urgently required. DeFi is inherently decentralized and so it uses blockchain technology for its processing, which makes it hard to regulate by traditional approaches used up to now.

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[198] Financial Stability Board Report On Decentralised Finance Risks . Available At : https : //www.fsb.org / 2023 /02 /the-financial-stability-risks-of-decentralised-finance /

[199] Elliptic . "Regulatory Outlook 2024 : This will be defining year for DeFi ." Available At : https : //www.eliptic.co/blog/regulatory-outlook - 2024 - this - will - be - defining - year-for-defi

[200] Oxford Law Blog . "The Application Of EU Markets In Crypto-assets Regulation ." Available At : https : //blogs.law . ox.ac.uk / oblb / blog-post / 2024 /05/application-eu-markets - crypto-assets-regulation-decentralised-finance

What it does illustrate is that as lawmakers seek to understand and respond to the complexities of DeFi, this process likely requires a cooperative and collective solution if disparate perspectives are to be reconciled at all.

But the current debates in Congress show how far apart both sides of the aisle are on how to regulate DeFi. On one side, proponents of innovation tout a softer regulatory touch that fosters development and economic freedom in opposing voices insisting on strict oversight to mitigate futures scandals or potential collapses of untried business models[201]. The dichotomy emphasized that dialogue amongst key stakeholders such as regulators, industry and legal experts is very much needed to bridge the understanding process and build a synergistic regulatory framework.

One arrangement that offers some hope for this to bridge the gap, however, is setting up multi-stakeholder forums where industry affiliates can have open discussions about what DeFi brings to the table. These forums also provide venues to share perspectives, shape misunderstandings and establish best practices that reconcile market driven need with livelihood of the consumers[202]. Encouraging stakeholders to collaborate in an open and cooperative atmosphere can lead to regulations that are not only functional, but easily mutable as the DeFi landscape continues to develop.

It is also essential to note that the cooperation should be international. Because DeFi is global in nature, coordination between jurisdictions would help prevent regulatory arbitrage and establish a more level playing field for participants[203]. Joint research and development across jurisdictions can ultimately lead to best practices that meet the challenges being faced while still respecting local

[201] CoinGeek. "Congress divided in partisan hearing on DeFi." Available at: https://coingeek.com/congress-divided-in-partisan-hearing-on-defi/

[202] Finance Magnates. "DeFi's Legal and Regulatory Challenges: Navigating the Gray Areas." Available at: https://www.financemagnates.com/cryptocurrency/regulation/defis-legal-and-regulatory-challenges-navigating-the-gray-areas/

[203] GSC Online Press. "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities." Available at: https://gsconlinepress.com/journals/gscarr/sites/default/files/GSCARR-2024-0170.pdf

context and ideology on regulation. It will help nations work together to create a harmonised global regulatory framework that will allow responsible growth of the DeFi sector.

Commenting on DeFi community operation is also key to making regulatory measures effective. Industry players can provide useful information around the nuance of decentralised technologies to help regulators understand which are beneficial and which are risks[204]. Working with industry stakeholders as part of the regulatory process will ensure that any rules are grounded in the ever-advancing technology and the real-world experiences encountered by stakeholders.

Taken together, navigating the abyss between politics and regulation within DeFi will demand a sustained process of sensible diplomacy: dialogue, cooperation with foreign allies and stakeholders in the industry. This will enable a cooperative regulator framework in which all entities can work together to address risks in the DeFi landscape, while also allowing room for innovation and consumer protection.

4.7.1 A New World DeFi Regulation as a solution to regulate Decentralised Finance

As the field of decentralized finance (DeFi) transforms, it is becoming more obvious that a robust regulatory system is extremely needed and will be one of its pillars. To provide an effective regtulatgory framework we are going toi propose a "New World DeFi Regulation" which is going to be designed as an adaptable legal framework combining resources of different actors and driven by a spirit of collaboration with each other (developers, end-users, regulatory bodies and major stackeholders) needed for sector cooperation. The centerpiece of this framework is the establishment of a bilateral commission responsible for monitoring and revising enforcement implementations. To that end, this commission will allow for continued dialogue among the

[204] Unchained Crypto. "First Congressional Hearing on DeFi Highlights Divide Between Republicans and Democrats." Available at: https://unchainedcrypto.com/first-congressional-hearing-on-defi-highlights-divide-between-republicans-and-democrats/

contending political factions within DeFi to ensure an all-encompassing approach and checks and balances without stifling legislation in a rapidly evolving tech landscape[205].

Similarly, the New World DeFi Regulation concept is essentially global invasive — by nature of DeFi being non-sovereign and borderless in its operation and implementation, so too must be its regulation. This regulation aims to reduce the chances of regulatory arbitrage and establish a harmonized approach on decentralized systems across various jurisdictions, by advancing international cooperation[206]. Such cooperation is not just helpful but absolutely necessary for the smooth running of this law, especially among political factions along with higher authorities. In the absence of such collaboration, attempts to regulate DeFi could result in a regional balkanization of regulations that would be ill-suited for the nuanced complexities associated with decentralized systems[207].

In addition to this, the New World DeFi Regulation also outlines that there is a requirement for well-ruled principles in existence if the industry wants to provide effective governance which is both transparent and accountable. This regulation claims to develop trust among the participants of the decentralized financial services and makes it obligatory for the DeFi applications to provide standardized disclosures with independent certification of protocols to gain more compliance and participation in decentralized finance[208]. The bi-lateral commission will also oversee the market and should see to it that the legislation is updated as needed, so this would facilitate an environment which continues to grow[209].

[205] Crypto Council for Innovation, "Introducing CCI's latest DeFi regulatory policy white paper," 2023.

[206] Salami, "Global Coordination Challenges in Regulating DeFi," 2020.

[207] Amler et al., "Regulatory Challenges in Decentralized Finance," *Journal of Financial Regulation*, 2021.

[208] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi)," *GSC Advanced Research and Reviews*, 2024.

[209] Wilson Center, "DeFi 101: The Good, the Bad, and the Regulatory," 2023.

This forward-thinking approach is intended to strike a balance between innovation and consumer protection, thereby achieving a secure yet pro-innovation DeFi ecosystem[210].

As we move on to Chapter Five, we will take a step further into detail over how this regulations can perfectly balance transition between innovation and oversight, guaranteeing the benefit of each party involved within a regulated system[211].

[210] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance," 2024.

[211] Coker et al., "Consumer Protection in DeFi: A Regulatory Perspective," *International Journal of Financial Studies*, 2023.

Chapter Five: "The New World DeFi Regulation to Regulate Decentralized Finance"

5.1.1 Limitation of current regulations on Decentralized Finance: challenge of the political and jurisdictional divisiveness

There are significant hurdles to clear when it comes to the regulatory landscape for Decentralized Finance (DeFi), primarily arising from political divisions and jurisdictional nuances. One of the major problems is that most of the current regulations are about traditional financial systems we know, which are centralized and the regulation rules do not type in with decentralized DeFi. The gap between deployment and technological development increases the likelihood of bad actors using them to exploit consumers and investors, presenting heightened risks[212]. For instance, the question of whether DeFi tokens constitute securities or commodities injects ambiguity for developers and users increasing barriers to entry in a space that is growing by leaps[213].

This is further complicated with political divides among stakeholders. DeFi is viewed differently in different countries because of the political attitudes and economic objectives prevalent there. In addition to which countries get the innovation right, this question depends on whether countries take a lighter regulatory approach to usher in new innovation or impose heavy-handed regulation that is designed to protect consumers[214]. This inconsistency leads to a disjointed legal landscape, which in turn forces DeFi projects into a labyrinth of compliance regulations depending on where

[212] Amler et al., "Regulatory Challenges in Decentralized Finance," *Journal of Financial Regulation*, 2021.

[213] Akpuokwe et al., "The Regulatory Landscape for Decentralized Finance: Challenges and Opportunities," *GSC Advanced Research and Reviews*, 2024.

[214] Salami, "Global Coordination Challenges in Regulating DeFi," 2020.

they choose to operate. This fragmentation also inhibits growth, as it makes it difficult to monitor and enforce rules across borders[215].

In addition to that layer of complication, there are jurisdictional issues as well. Most DeFi projects have a global nature and the users and developers can be from different countries[216]. The result of this can be regulatory arbitrage, where projects prefer to do their operation in areas with weaker regulations just to escape the burden of compliance costs. For example, a DeFi platform established in one country may be subject to different legal expectations than a similar platform located within another nation—leaving the community at large with unanswered questions and potential cross-border disputes[217]. This uncertainty about how laws will be applied may put off potential new entrants to DeFi who are afraid of being out-of-compliance or subject to legal standards.

Furthermore, the existing value that controls DeFi is often unable to keep up with the intense speed of technological evolution. Most of the existing framework are outdated and fail to protect users or ensure market integrity[218]. This lack of real-time flexibility exposes users to risks related with fraud and hacking, as well as other action from malicious actors in a decentralized ecosystems. Many DeFi projects are drawing regulators' attention for failing to comply with anti-money laundering (AML) legislation, and their enforcement actions remain ill-defined in terms of the way out[219].

This partisanship also fuels this regulatory gridlock, further dividing lawmakers around ideologies. Advocacy for heavy regulation is to protect consumers against bad actors, whereas others argue that too much regulation creases and stifles innovation and runs out of the core principles of decentralization[220]. It means for regulators their may be no obvious answer to the question of how

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[215] Wilson Center, "DeFi 101: The Good, the Bad, and the Regulatory," 2023.

[216] Eneh et al., "Navigating Jurisdictional Issues in Decentralized Finance," *International Journal of Financial Studies*, 2024.

[217] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi)," GSC Advanced Research and Reviews, 2024.

[218] Crypto Council for Innovation, "Introducing CCI's latest DeFi regulatory policy white paper," 2023.

[219] SEC.gov, "Statement on DeFi Risks, Regulations, and Opportunities," 2021.

[220] Coker et al., "Consumer Protection in DeFi: A Regulatory Perspective," International Journal of Financial Studies, 2023.

it should regulate these markets, and this uncertainty can be a significant deterrent to investment in DeFi.

Illustrating these constraints makes it evident that even with more inspections, the basic incentive for stakeholders to work together is critical to creating an effective set of regulatory fixes for DeFi challenges. The New World DeFi Regulation proposal is designed to overcome these divides and bring together politicians, reg. agencies in a collaborative manner. We achieve this by having a common denominator that could accommodate the many different facets of decentralized finance, which in turn allows new innovation to flourish under a more secure environment so long as consumer protection and financial stability[221].

5.2.1 Proposing a comprehensive structure for a New World DeFi Regulation sustained by a Surveillance Commission and Development Commission

The New World DeFi Regulation seeks to be an integrated regulations platform capable of solving the challenges from decentralized finance and stimulated innovation, protect consumers, and achieve financial stability. Central to this regulation is the creation of a Bilateral Commission, comprised of members from government regulators, industry leaders, consumer advocates and technology experts. This commission will carry out various important duties, such as the ongoing monitoring of DeFi projects against regulated standards and tackling any new issues as they arise[222]. Continues to monitor — the actual underlying surveillance necessary to ensure market integrity and consumer protection against those yet unseen risks.

In addition, they are charged with regularly updating regulatory guidance to be clear in how the rules will apply given technology trends of this space move quickly, and as best practices evolve. It is this flexibility that has a direct bearing on being able to ride the wave when it comes to new innovations such as yield farming, liquidity pools or even AMMs[223]. And through regulars

[221] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi

[222] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi)," GSC Advanced Research and Reviews, 2024.

[223] Salami, "Global Coordination Challenges in Regulating DeFi," 2020.

consultations, the commission will help stakeholders engage in an open dialogue enabling a broad participation of voices to be heard and listened to before making regulatory decisions[224].

The New World DeFi Regulation aims to resolve jurisdictional challenges and fragmentation of regulation by establishing a Global Standardization Framework includes standardized guidelines applied by various jurisdictions; keeping root principles that ensure consumer protection (such as KYC/AML) or innovation support.

With the help of this framework, key terms associated with DeFi such as tokens, smart contracts and decentralized applications will be uniformly defined to ensure a coherent understanding by all stakeholders[225]. The application of a common lexicon will support the more effective communication between regulators and industries.

Also, the regulation will spell out "universal" compliance standards all DeFi projects have to abide by irrespective of their geographic location. They will detail areas like AML, consumer protection practices, data privacy requirements as well as cybersecurity mandates[226]. It will also encourage international cooperation among regulators by promoting insights and best practices sharing through the framework, enabling countries tol adopt coherent regulatory approaches in regulating DeFi whilst preventing risks of regulatory arbitrage[227].

One of the main pillars of the New World DeFi Regulation is consumer protection. In face of the ever rising popularity of DeFi, it is necessary to take preventive measures for its users. It covers transparency regulations, where DeFi platforms will have to disclose their operations as well as risks of their products and services. This transparency puts the power in the hands of users to make informed decisions while interacting with DeFi services[228].

The regulation will also create workable dispute resolution for users who meet an issue when using DeFi platforms. Such mechanisms may involve mediation services or arbitration processes to

[224] Crypto Council for Innovation, "Introducing CCI's latest DeFi regulatory policy white paper," 2023.
[225] Amler et al., "Regulatory Challenges in Decentralized Finance," Journal of Financial Regulation, 2021.
[226] Coker et al., "Consumer Protection in DeFi: A Regulatory Perspective," International Journal of Financial Studies, 2023.
[227] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance," 2024.
[228] Wilson Center, "DeFi 101: The Good, the Bad, and the Regulatory," 2023.

resolve disputes in a fair and expedited manner. On top of this, to protect consumers, the regulation could also prompt or require insurance which would ensure loss coverage in the event of hacks or system failures on DeFi platforms. Providing a safety net for users from these protocols can increase trust in decentralized finance[229].

Given the technological complexities of DeFi, compliance across various global jurisdictions will be plugged into the New World DeFi Regulation through regulatory saplings that will be built from scratch to ensure adherence with automated compliance-procedures. DeFi projects will need independent audits of their smart contracts before anything goes live as well. These audits will check coding practices against securities and compliance with established guidelines[230]. Audit after launch might also be required to maintain compliance.

Moreover, it is supposed to encourage transparent and effective market monitoring tools that can supervise dealings taking place on decentralized platforms in real-time. The aim of these tools is to enable regulators to identify any illicit activities sooner rather than later, whilst at the same time respectful and compliant projects would have a channel to show they are being regulated[231].

Incentivization — In order to incentivize compliance with the New World DeFi Regulation, a certification process will be established so that compliant projects could obtain Bilateral Copper Memberships from Bilateral Commission. It would place them in a stronger market position and make more users to clock in[232]. The rule could also open up government or industry association grants or technical assistance for projects that follow the regulation. In these ways, regulators can help create an ecosystem where innovation is supported within a regulatory structure[233].

At the core, New World DeFi Regulation is an innovative way to manage the difficult issues presented by decentralized finance and most importantly. Organized in a way which hands off back again and protect consumers from harm. The above framework comprising the maintenance and

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[229] Akpuokwe et al., "The Regulatory Landscape for Decentralized Finance: Challenges and Opportunities," GSC Advanced Research and Reviews, 2024.

[230]SEC.gov, "Statement on DeFi Risks, Regulations, and Opportunities," 2021.

[231]Wilson Center Report on Blockchain Technology Applications in Finance.

[232] Elevandi Insights Forum on Certification Programs for Compliance.

[233] GSC Online Press on Funding Opportunities for Compliant Projects in DeFi.

oversight through Bilateral Commission, the Global Standardization Framework, consumer protection mechanisms, technology-enabled compliance measures and complimented by incentives proposed aims at laying a sturdy foundation for DeFis growth in an environment with security at its core.

A New World DeFi Regulation will also have the Surveillance Commission, that is because this proliferation of DeFi platforms also poses unique types of vulnerabilities that can be abused and misused by malicious entities to engage in money laundering, fraud, or terrorist financing. According to the news release, this body will specifically oversee these platforms and that they must comply with anti-money laundering (AML) and counter-terrorism financing (CTF) laws through the Surveillance Commission[234].

Experts in finance, law enforcement, cyber security, and regulation will be invited to the Surveillance Commission. This composition provides an opportunity for the commission to assess risks in a robust and diverse manner and develop targeted strategies that are designed to cope with the multi-faceted nature of the DeFi ecosystem. One such charge will be to enforce stronger customer due diligence (CDD) on DeFi platforms through the adoption of enhanced customer due diligence (ECDD). Although ECDD that includes extensive customer verification of higher money laundering or terrorist financing risk users that allow these platforms to recognize suspicious behaviors in a timely manner[235].

To help in this process, the commission would also put together broad guidelines that DeFi operators are required to adhere to. Together, these norms will address how to scrutinize transactions, spot warning signs of money laundering and enable the timely reporting to appropriate bodies if something fishy is suspected[236]. Examples include abnormal transaction flows, high-speed transmissions among multiple wallets, or transactions in and out of high-risk jurisdictions. In this way, people do not have to worry about whether certain activities are illegal

[234] AUSTRAC, "Preventing the Criminal Abuse of Digital Currencies," 2022.AUSTRAC, "Preventing the Criminal Abuse of Digital Currencies," 2022.
[235] Data Zoo, "Preventing Financial Crime for Crypto Exchanges," 2023.
[236] FCA, "Reducing and Preventing Financial Crime," 2024.

or not so that the commission can provide a clear standard for what will be considered as suspicious behavior and establish best practices across different policies in: DeFi, thus removing ambiguities and increasing[237].

Additionally, the Surveillance Commission will use state-of-the-art technologies for full-time monitoring of designated trades. Using blockchain analytics will enable the commission to trace funds and discover any illegal operations in a more effective manner. For example, these tools are capable to check transaction history and mark strange behavior that might indicate fraud or an attempt of money laundering[238]. This continued proactive monitoring is critical for surveillance operations to prevent risks from further exacerbating into threats that have potential to compromise the integrity of the financial system.

Co-operation with security services is a major theme for the Surveillance Commission as well. This includes setting up cooperation with domestic and foreign law enforcement bodies to share information and develop joint investigations about suspected money laundering activities[239]. When it comes to DeFi, where borders exist almost solely in written law, cross-jurisdictional collaboration is mission-critical—it's within these legal seams that many of these nefarious actors wriggle their way out when they're detected. Through global collaboration with law enforcement agencies, the commission can enhance its efforts to disrupt these criminal networks that are distributing their deceit throughout the DeFi space.

The commission will also focus on the educational and training programs. This could be achieved by the commission implementing protocols for DeFi operators to follow, providing resources and training on compliance best practices and financial crime prevention tactics; as a whole, turning around a culture of compliant activity within the industry[240]. These programs will both enable operators to better understand their responsibilities under the New World DeFi Regulation, but also to become supporting characters in identifying and activating activities.

[237] IMF, "Anti-Money Laundering and Combating the Financing of Terrorism," 2023.
[238] CipherTrace Report on Cryptocurrency Hacks.
[239] U.S. Department of Treasury, "Illicit Finance Risk Assessment of Decentralized Finance," 2022.
[240] GDF Report on Financial Crime Prevention Strategies.

As part of these efforts, the Surveillance Commission will be conducting routine evaluations on DeFi platforms to ensure that they are complying with AML/CFT laws. These audits will determine the extent to which the platforms have in place appropriate controls and audit reporting mechanisms as described in their compliance plans[241]. However, reaching the standards is just the tip of an iceberg in this industry because non-compliance would force them to face heavy penalties or operational restrictions.

However, the Surveillance Commission eventually hopes to design a framework that will not only help in detecting and reducing financial crime risks but also building trust among users in decentralized finance. This commission will add to the general legitimacy of DeFi markets since having functional surveillance and operators liable for their operational behavior[242]. In concluding the publication of this regulatory framework, we cannot but reinforce that collaboration between regulators, industry players, law enforcement and consumer is an imperative in ensuring realization of these objectives as we strive to implement it moving forward.

This Bilateral Commission is completed with the Policy Development Commission as well, which is indispensable for New World DeFi Regulation. The commission will vote on policies that adapt to the ever-changing DeFi landscape underpinned by rapid advances in technology. With the rapid advancement of DeFi landscape that comprises an array of novel financing products and services, regulatory regimes must evolve to contain risks and issues emerging from it[243].

The Policy Development Commission will also work to observe the technological trends and innovations of the DeFi industry. This includes monitoring for new protocols, financial instruments and user behaviors that might affect market integrity or consumer protection. Creating a structure for continued research and analysis will help the commission to ensure that its policy recommendations are grounded in an understanding of what is happening on the ground in

[241] EU Markets in Crypto-Assets Regulation (MiCA), 2023.
[242] Wilson Center Report on Blockchain Technology Applications in Finance.
[243] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council," 2023.

technology and finance[244]. This approach will allow regulators to pre-empt problems which might soon turn into major risks, and thereby keep the financial ecosystem stable.

The Policy Development Commission will be using AI tools that excel at processing large amount of data and information, to boost its capabilities. With DeFi evolving at an exponential rate, the AI can spot out patterns and trends while also detecting anomalies that might be used to predict potential risks or compliance matters[245]. To give an example, AI algorithms can process transaction history across numerous platforms and identify the alerts of certain unusual activities to connote money laundering or fraud. Automating these processes allows regulators to direct resources towards more difficult issues and at the same time, ensures that routine monitoring is done in an efficient manner.

AI may also play a pivotal role in assessing the efficiency of existing regulations and suggesting where they may be improved. AI may be also used to better pick which regulations are serving the public good and which need a change or an alternative, based on knowledge about past enforcement results and compliance[246]. Using this evidence-based methodology will enable policymakers to assess all possible fronts based on the actual data rather than just personal experiences, or over-assumptions.

Additionally, the Policy Development Commission will focus on stakeholder engagement as a core part of its mandate. Seeking input from industry stakeholders,civil liberties groups, and academic experts will ensure that a range of thoughts are considered to inform policy making[247].

Anyway, by engaging in a conversation over those four points, the commission can craft regulations that are both grounded in regulatory concern and allows DeFi to flourish. For an administration eager to break the mold and come up with smart regulations, such an approach is essential not only in building trust among those most affected by the rules, but also verifying that they are enacted fairly and efficiently.

[244] IOSCO Final Report with Policy Recommendations for Decentralized Finance.
[245] CFTC Report on Incorporating Regulatory Considerations at Early Stages.
[246] ECB Macroprudential Bulletin on Decentralized Finance.
[247] Wilson Center Report on Blockchain Technology Applications in Finance.

The commission also will look for ways to build flexible regulatory structures that can change as technology progresses. In order to do this he specifically highlights policies which are not written in stone, but serve as a base on top of which new technology can be built[248]. That might mean crafting not specific technical standards for DeFi protocols, but rather some general principles around security, transparency, or even consumer protection. This flexibility would enable developers to have the freedom to innovate, while still meeting necessary regulatory requirements.

The Policy Development Commission not only deals with current issues, but also with upcoming DeFi developments. It can anticipate potential responses to new technologies (e.g., decentralized autonomous organizations–DAOs, NFTs, new consensus mechanisms) through scenario analyses and stress testing also prepare for preventing regulation from becoming obsolete by effectively simulating a range of regulatory outcomes[249].

Moreover, there will be partnership with academic institutions and research organisations, will also ensure the Commission continues to learn in an adaptive way. Engaging the relevant experts in blockchain technology, finance, law and economics will allow an informed approach to establishing the appropriate governance mechanisms for such nascent environments[250]. Such partnerships can help in not only sharing of knowledge but also come with out-of-the-box solutions for challenges DeFi poses.

The Commission seeks to make it easier for the cryptocurrency industry to develop by creating a new regulatory environment, with a focus on protecting consumers and ensuring market integrity. Working harder to implement AI tools for data analysis, engaging stakeholders in the policy development process, and deploying responsive frameworks, this commission can help address some of these issues to effectively respond to the challenges of decentralized finance[251].

This commission represents part of our path to establishing a unique and effective regulatory framework that works, but we must be clear on the need for collaboration between regulators,

[248] IOSCO Recommendations on Achieving Common Standards of Regulatory Outcomes.
[249] GSC Online Press on Future Trends in Decentralized Finance.
[250] Data Zoo Report on Financial Crime Prevention Strategies.
[251] AUSTRAC Guidelines on Preventing Criminal Abuse of Digital Currencies.

industry participants and customers in order to deliver those outcomes. This cooperation ust be present in the bilatertal commision as well.

5.2.2 Key agreements to obtain this effective New World DeFi Regulation: cooperation between main DeFi lobbies and governments

In order to make the New World DeFi Regulation an effective, concrete regulatory framework for Decentrlaised Finance and a success for jurisprudencial history, strong asgreemnts are needed between top DeFi lobbies and government entities. With the advent of decentralized finance, or DeFi, the financial landscape has already begun to change and as such it is clear that no one country can control this space and that co-operation will be essential to create a regulatory framework that encourages innovation at scale in a safe environment for consumers.

These are some of the core agreements that must be sought in order to do so:

1. Recognition of DeFi Protocols as Public Goods

Early agreements include an agreement to treat DeFi protocols as such public goods. A more specific regulatory approach which contemplates this distinction acknowledges protocols not themselves as enterprises whose tokens are securities. Recognising these protocols as public good, stakeholders can advocate for regulation that fosters innovation with keeping consumer interest at heart[252]. This base principle will lay down the ecosystem to promote a regulatory environment that fosters responsible innovation.

2. Development of Tailored Compliance Guidelines

DeFi lobbies and government regulators should work together to define unambiguous compliance rules that are tailored for the unique qualities of DeFi platforms. This consists of defining crucial terms like decentralized programs (dApps) and liquidity pools, with a view to help limit regulatory

[252] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council," 2023.

expectations situations[253]. Stakeholders should work together to standardize definitions so as to facilitate regulatory oversight and industry understanding.

3. Implementation of Robust Consumer Protection Measures

Consumer protection must be paramount in any regulatory regime. DeFi agreements need to include strict mandatory disclosure requirements for businesses operating in this area. When data is collected in a collaborative medium, transparency is essential for user trust and informed choice[254]. They can agree on what companies must disclose, including the risks allowed by various protocols, fees and governance structures allowing consumers to make informed decisions if they engage with DeFi providers.

4. Establishment of Regular Dialogue

It is pertinent for DeFi lobbies and government to keep up the ongoing dialogue in order to counter any new or highlighted issues that may arise. Setting up standard forums, or roundtable communications, can let the stakeholders to retort their observations, concerns and transmitting solutions in cement to everyone[255]. The only way to develop trust and work in tandem with both the parties aligning towards a common goal is by maintaining a constant and always more enhanched engagement in this regular dialogue.

5. Cross-Border Regulatory Cooperation

DeFi is global but the fight against scammers most stake together across borders. Most projects are decentralized, operating across borders; therefore, it is important for governments to work together and mutually recognize regulatory standards that would allow these organizations to operate on an international level while also reducing the risk of a project adopt a so-called

[253] IOSCO Final Report with Policy Recommendations.
[254] Wilson Center Report on Blockchain Technology Applications in Finance.
[255] HKIMR Report on Decentralized Finance.

regulatory arbitrage[256]. Developing of mechanisms to allow the exchange of information between international regulatory bodies will bolster enforcement and regime uniformity around the world.

6. Development of an Industry Code of Conduct

Another crucial agreement, it id definitely the one of creating a voluntary industry shared code of conduct which could further enhance trust in the DeFi space.

This code would outline best practices for transparency, security, and ethical attitude among DeFi actors which are going to trade emerging financial instruments and treat new project in DeFi space[257]. By committing to these standards, industry participants can demonstrate their dedication to responsible practices, which can positively influence public perception and regulatory attitudes.

7. Commitment to Education Initiatives

Both parties have to be willing to remain involved in learning from educational platforms, instructing users on DeFi risks v/s rewards. Education will be crucial in creating a nurturing environment, particularly as this sector rapidly changes, whether its related to scams or security[258]. Regulators and industry lobbies could team up on education campaigns to better users to better account for themselves within the intricacies of DeFi.

8. Establishment of a Regulatory Sandbox

Moreover, it is also important creating a regulatory sandbox where innovative DeFi projects and new financial instrument, always in a DeFi space constantly evolving, could operate under relaxed regulations while being monitored by regulators could be another valuable agreement[259].

This approach can potentially allow emerging ideas to be tested in a positive controlled environment, providing insights into their viability and potential risks before full-scale implementation.

[256] CFTC Report on Incorporating Regulatory Considerations at Early Stages.
[257] Data Zoo Report on Financial Crime Prevention Strategies.
[258] CipherTrace Report on Cryptocurrency Hacks.
[259] AUSTRAC Guidelines on Preventing Criminal Abuse of Digital Currencies.

9. Collaboration on Anti-Money Laundering (AML) Measures

Additioally, another critical agreement is on implementing robust anti-money laundering measures tailored specifically for Decetrlaised Finance platforms. Indeed, governemnts and main DeFi lobbies should work together to develop guidelines which are goinbg to ensure compliance without stifling innovation[260]. This potetially includes identifying high-risk transactions and establishing reporting requirements that are practical for decentralized systems.

10. Support for Research Initiatives

Furthermore, governments and major deFi stakeholders should agree to fund research projects that helps shed some light on the changes taking place in DeFi. And by supporting research that looks into markets developments, user behaviour as well as new technologies, decision-makers can anticipate issues and be prepare regulations for it[261].

Conclusion

To conclude this crucial part about agreements, we can affirm that in order to get an effective New World DeFi Regulation, main DeFi lobbies and governments will have to get different key agreements. These agreements will centre around labelling DeFi protocols as public goods, formulating bespoke regulatory expectations, consumer protection measures, continuous communication lines, cross-border enforcement points of contact, an industry-led code of conduct, and development commitments to education rograms. regular regulatory sandbox arrangements joint AML efforts research guidance Still, those agreements would not only provide for a more efficient regulatory scheme but also serve as a foundation to enable innovation to coexist in an environment replete with consumer rights. As this landscape continues to take a different form, it

[260] U.S. Department of Treasury's Illicit Finance Risk Assessment of Decentralized Finance.
[261] Elevandi Insights Forum on Consumer Education in Decentralized Finance.

is fundamental that there is collaboration across all stakeholders in order to ensure a sustainable future for decentralised finance.

5.2.3 The role of international collaborations in shaping this New World DeFi Regulation: unify different jurisdictions

As decentralised finance (DeFi) continues to keep going with its impressive evolution, the need for a cohesive regulatory framework that transcends national borders is becoming increasingly critical and crucial for enahncing ethical behaviours, consumer safety, and preventing financial crimes.

The cross-border nature of decentralised finance presents complete unique challenges that can only be effectively addressed through international collaboration. This collaboration, according to our proposal, will be in fostering partnerships among regulators, industry stakeholders, and international organisations so we can create a unified approach to DeFi regulation that promotes innovation while ensuring consumer protection and financial stability.

1.The importance of Cross-Border Cooperation

Decentralized finance (DeFi) specifically is an area in which cross-border cooperation is crucial. Since DeFi is global, it also often includes projects and participants that are spread out over many jurisdictions. The decentralization makes regulatory oversight difficult, with varying country approaches to regulation. A fragmented system also encourages arbitrage, where unscrupulous businesses take advantage of gaps between different regulations to avoid compliance. Regulators, through international collaboration can create consistent standards which apply globally and hence reduce the scope for such exploitation[262].

Some international organizations such as the International Organization of Securities Commissions (IOSCO) are already tackling these issues. IOSCO also states that its recommendations seek to

[262] IOSCO Final Report with Policy Recommendations.

increase cooperation among regulators in enforcement and supervision so as to coordinate responses to cross-border challenges. This can help the regulatory bodies in having a better understanding of the risks which come with DeFi and hence enable them to devise more effective ways for supervision over it[263].

2.Developing regulatory standards

However, If somebody looks at the outcome of international collaborations, it is likely that one of the major agreements will be around developing universal regulatory standards for DeFi. This will still require common standards — the those which can be implemented at a global level — but this should happen as an exception, not a rule and it is achievable with some less aggressive application of the principle: same activity, same risk, same regulation. So it becomes like a single standards-compliance gateway through which all actors in the DeFi ecosystem have to pass, guaranteeing the fairness and responsibility of each participant[264].

One way to do this is through international collaborations that bring regulators together for best practices and creation of a taxonomy suitable for DeFi.products and services.

3.Enhanching Data Sharing and Trasparency

Establish clear definitions and guidance to help stakeholders understand their obligations in different jurisdictions not only will this clarity improve enforcement and compliance, but it provides a level playing field under which companies can innovate[265]. Indeed, Improved sharing of data between regulators is another key element for global cooperation. In the wider view, regulatory bodies can apply appropriate frameworks to create transparent and standardised data interchange for them to have insights into the risks associated with DeFi activities[266].

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[263] Elevandi Insights Forum Report on Cross-Border Collaboration.
[264] Crypto Council for Innovation's Regulatory Framework.
[265] HKIMR Report on Decentralized Finance.
[266] CFTC Report on Decentralized Finance.

4.Bulding Public-Private Partnership

The data collected will help veterinarians to make science-based decisions about regulations and to react proactively to new threats. For example, if a particular DeFi protocol presents a new type of risk in one jurisdiction, that lesson can be shared with other regulators to avoid the same problem happening elsewhere. Moreover, more improved data sharing can assist in cross-border financial criminals enabling regulators to utilize through investigations on illegal actions[267].

Efforts at international cooperation should be concentrated on promoting public-private partnerships that will enable regulators to talk with industry. The above partnerships can allow positive conversations surrounding the nuances and possibilities of DeFi regulation[268]. If industry players are included in regulation, regulators will be able to find out first hand regarding the practical design effects of proposed regulations.

5.Promoiting Education and Awareness

This could involve collaborative platforms including roundtable discussions or working groups, by which stakeholders can share experiences and views on regulatory matters. For example, at the Elevandi Insights Forum 2023 working group participants from different industries examined what a comprehensive regulatory framework supporting responsible innovation but mitigating risks would look like. These conversations underscore the necessity of working alongside other states in order to develop sound laws.

The International cooperation is expected to be a driver for educating and raising awareness about DeFi among consumers and industry players. As that environment grows and changes, education to protect consumers from various threats — scams, exploitations of security vulnerabilities — will become as important as it is for any topic on the internet. Educational Efforts by Regulators and Industry Lobbies: Regulators and industry lobbies can collaborate in developing educational initiatives to better equip users to navigate the maze of DeFi.

[267]Wilson Center Report on Blockchain Technology
[268] Applications in Finance

In addition, there will be a need for courses to make regulators more capable. Given the pace of DeFi innovation, this area also represents a critical one for regulators to be informed about, so they can regulate appropriately in a landscape that is changing so dynamically. Such collaborative training stamping could aid that in daylight existed non-bank regulatory bodies are competent to treat periods[269].

Conclusion

So in conclusion, international co-operation is necessary for devising a New World DeFi Regulation that assembles various jurisdictions as a whole. Common regulatory standards, data sharing, public-private partnerships and more education efforts could be ways to forge a coherent structure for expressly decentralized finance. However, looking ahead into this changing scenario will require collaboration from all stakeholders to carve a sustainable path for decentralized finance.

5.2.4 The necessity of political unanimity for effective regulatory frameworks: overcoming political divide on DeFi

Creating a successful regulatory structure for Decentralized Finance (DeFi) depends on getting political consensus. The complexities and rapid rise of DeFi make it an especially unique challenge to which governments around the world need to respond in a coordinated fashion. Implemented inconsistently, the rules can diverge widely between jurisdictions, causing confusion along with regulation arbitrage, and unintended consequences for consumers.

[269] Elevandi Insights Forum 2023 Roundtable Discussions.

For policies to be strong and consistent, they must be backed by broad political consensus. Disparate cross-jurisdictional regulation sows confusion for businesses, can lead them to play one regulator off against another and result in inadequate consumer protection or risk to financial stability[270]. A combined regulatory framework will also institutionalize DeFi, which is still a relatively new industry segment, but suffers a shortage of regulation specifications giving participants in the ecosystem no idea where to turn when they share data.

In addition, political agreement enables standard definitions and compliance requirements to be developed. Clarity is essential for businesses that operate across borders, so they can know what their obligations are and to reduce the cost of compliance[271]. If governments work together, they can establish this new foundation to innovate on a level playing field and protect consumers.

Furthermore, political consensus will help improve international cooperation. It would also be easier for countries to share information and run enforcement against illicit behavior, such as money laundering or fraud[272]. In a decentralized, multi-jurisdictional environment, this kind of collaboration is essential.

We need political consensus to create the right regulatory frameworks with DeFi. Governments can bridge political divides and develop a cohesive approach to regulating so that consumers are safeguarded, innovation is encouraged and so that all important international agreements can move forward. Having a unified approach will be critical in overcoming the swirling risks and rising opportunities of decentralized finance and guaranteeing its sustainable expansion.

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[270] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council," 2023.

[271] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."

[272] CFTC Report on Decentralized Finance.

5.3.1 Jurisprudential pathways: legal considerations and obstacles for Implementing this New World DeFi Regulation and how to overcome those obstacles

Achieving unified New World DeFi Regulation comes with a number of legal hurdles that need to be solved in order for it to work. A significant problem lies in the ambiguity of existing norms — or lack thereof. For example, with many DeFi projects operating in a decentralized and borderless way, it is even difficult to decide which rules could apply. This confusion makes compliance challenging, forcing projects to walk a thin line across a complex legal environment without a lot of guidelines to work off of[273]. For example, determining whether a DeFi token is considered a security or a commodity may be difficult, as existing legislation might not understand the nuances of what these tokens entail.

One of the big problems is exactly the jurisdiction. DeFi protocols and projects typically are built by developers in a variety of different jurisdictions, which often results in overly complex or entirely nonexistent regulations for DeFi[274]. This situation opens doors for regulatory arbitrage where projects could move to jurisdictions with less strict rules and compliance costs will be avoided. These inconsistencies can detract from an efficient and comprehensive worldwide approach to regulation.

Further, decentralisation of DeFi makes it hard to enforce. Regulators can hold someone accountable in the traditional world of finance but DeFi leads to hidden questions regarding the ultimate nodal point of compliance and consumer protection[275]. It is computationally expensive to enforce rules in Open source without a central authority.

[273] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."
[274] IOSCO Final Report with Policy Recommendations.

[275] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."

Lastly, bipartisan political agreement is necessary for goals and ways to regulate. Countries may choose to prioritize innovation first but consumer safety last, and vice versa — as is represented by this fragmented response it can be harmful for the growth of DeFi across the world[276].

Thus, resolving these legal challenges such as defining the terms, overcoming jurisdictional conflicts, ensuring liability in DAOs and securing a global political consensus is vital for creating a functioning worldwide law for DeFi. Solving these problems will enable more stable and safer ecosystem for decentralize finance.

However, when it comes to the transformation of New World DeFi Regulation into an effective and coherent legal regime, overcoming industrial jurisprudential problems is not only permissible but indispensable. Above all, there is a need for regulatory definitions to be clear. This can be done in collaboration with the regulators, pioneers of the industry and legal practitioners who will establish a common framework to qualify terms & classifications that are critical within DeFi. Standardized definitions can ensure that confusion is minimized and stakeholders have clarity on how to proceed, increasing compliance and innovation[277].

To tackle jurisdictional conflicts, the second necessary approach is an ongoing determination to cooperate internationally. It should promote country cooperation to align approaches, based on the "same activity, same risk, same regulation" principle. Regulation is functional rather than territorial, so like activities are to be regulated alike wherever they are carried out. To harmonize regulatory environments that close the gaps to ensure accountability, nations can converse and disseminate best practices[278].

Our vision for regulation of DeFi starts with a recognition that enforcement in a decentralized setting poses unique challenges, and therefore requires innovative regulatory mechanisms to tackle the problems. That might involve the creation of decentralized self-regulatory organizations (SROs) that give industry participants the ability to set and police compliance norms within their own communities. Scientific Reviewing Officers (SROs) that help foster a culture of accountability

[276] CFTC Report on Decentralized Finance.
[277] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."
[278] IOSCO Final Report with Policy Recommendations.

and transparency to ensure that protection is maintained for the consumer without stifling innovation[279].

Besides, securing a political consensus is essential. As with any policy, advocating the importance of a consolidated regulatory system will necessitate continued dialogue between governments and industry stakeholders and consumer advocates. Through better communications, we can create the demand for political agreement by stressing why a stable regulatory environment benefits everybody[280].

Finally, raising awareness and continuing education are going to be paramount in overcoming these barriers as well. We consider that education of regulators is a fundamental part of this but also educating the general public as to what rights and responsibilities they have in a regulatory environment will go far to create an informed system favourable both for compliance and innovation[281].

A New World DeFi Regulation may nevertheless triumph over jurisprudential hurdles by expressing clear definitional priorities, an international consensus building effort, adaptative enforcement mechanisms, enhanced political advocacy initiative and a more foretime educational campaign. By doing this, we can chart the future of a stable and sustainable world of Decentralised Finance with a New World DeFi Regulation.

5.3.2 Bridging regulatory gaps: recommendations for enhancing clarity and compliance in this New World DeFi Regulation

The below recommendations focus on how to improve this clarity and compliance in the New World DeFi Regulation and more effectively bridge these regulatory gaps.

The most important of which is the emphasis on "compliance by design". This means that different integration should be computed as part of the source codes of smart contracts and DeFi protocols

[279] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."
[280] CFTC Report on Decentralized Finance.
[281] Elevandi Insights Forum on Consumer Education in Decentralized Finance.

from the gate. Only in this way, projects may automate an. effective compliance review, easing the associated regulatory burden and enabling developers to automatically meet legal norms without it being an obstacle to innovation[282]. This proactive approach not only keeps compliance simple, but also establishes trust with users and governing bodies.

The second step, setting up a verification mechanism which verifies adherence to jurisdictional requirements can aid significantly in clarity. In other words, it could function in a way similar to the blue check marks on social media as users can interact with DeFi platforms knowing the necessary regulations are met. As the verification would be a guarantee for regulators, it would also facilitate user exploration with easier access across the system[283].

Furthermore, a uniform taxonomy for DeFi development is needed. Defining DeFi will minimize the confusion and subsequent divergence in regulatory approaches in light of it being a layered system. Regulators can thus better target their oversight by classifying different kinds of DeFi projects and associated risks[284].

Finally, creating intra-government collaboration is of immense importance for the regulatory regime to work, as a whole. Consulting with industry stakeholders about their regulatory needs will result in pragmatic and responsive regulation. The partnership could result in unique solutions provided by etherDeFi that cater to consumer protection and features specific to DeFi.

To conlcude we can say that: Compliance by Design, Verification Systems, Standardization definitions and Industry-Regulator collaboration can effectively harness Regulatory Gaps in the New World DeFi Regulations.

By following these steps, we can work towards a more efficient, safer ecosystem that is both prospering to innovators, prevent financial crimes and protects consumers.

[282] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance & Oversight."
[283] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."
[284] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."

5.4.1 Ensuring Flexibility and Adaptability in this New World DeFi Regulation: Preparing for Future Innovations and the Importance of defining public good protocols

A New World DeFi Regulation that should ensures its framework is enough strong to accommodate future innovations in the everchanging world of DeFi. One great antidote is to avoid a proliferation of rules based regulations, and to follow a more principles-based regulation approach. It also allows for regulators to set high-level objectives and outputs, while letting DeFi projects have the flexibility to innovate within those constraints. Regulation can be structured in ways that are technology neutral, so long as it is defined to pursue particular outcomes (i.e. consumer protection, market integrity), new technologies and business models will be able to thrive over time[285].

A third recommendation is the creation of regulatory sandbox environments, which make the DeFi projects able to — under strict regulatory oversight — test their innovations without full compliance. The idea is that such sandboxes can offer developers a safe environment to try something new with the benefit of input from regulators. This cooperative attitude helps and downstream rate to new developments[286].

And lastly, fostering a continuous dialogue between the regulators and industry-stakeholders is important to maintain agility in the regulatory framework for time to come. Frequent consultations permit regulators to stay up-to-date with technological developments and market realities, which enables the authority to adapt regulation proactively (rather than reactively)[287]. This engagement can also trust-building between regulators and the DeFi community, leading to more relevant regulations that are built on practical experience as well as issues.

To sum up, sounding out the principles-based regulation and putting sandbox and other methods of innovation to empower development, dialogues between regulators and industries can make sure

[285] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."
[286] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance & Oversight."
[287] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."

that DeFi market, will be regulated in a way to build The New World DeFi Regulation become more flexible. This accommodate the intricacies typical to decentralized finance and reinforces a pro-innovation, yet consumer-protective market.

Anyway, one of the most important parts of New World DeFi Regulation is defining a public good protocol (including the criteria for exempting oversight). Public good protocols are those that do not code-for-profit & instead build services or infrastructure on the blockchain to benefit the community. A taxonomy of public good protocols can aid regulators in distinguishing between projects that are truly public-spirited and those running almost entirely for profit[288].

Decentralization could be one of the main driving factors behind a decision for exemption ad it should be considered for protocols that show a high degree of decentralization, such a case where no one entity can have control. This feature enables the protocol to run in a transparent manner and minimize possible falls for misuse or manipulation[289]. Beyond that, open-source development adds another dimension for evidence; since it is publicly visible and encourages community involvement in review and back-building it can lead to a higher level of trust by users.

Another key aspect is that of non-discriminatory access. Public good protocols should be permissionless to all users, so that anyone can take part of the goods available. It is essential in helping to drive ecosystem-wide usage for DeFi[290]. Similarly, protocols that are autonomous — operated by no-one and controlled not by any singular entity or centralized architecture — can meet the regulatory autonomy standards requiring nobody has control over a protocol beyond the user community who designs its uses.

Regulators can build around these criteria to form a framework where public good protocols are bid up, and oversight ensured everywhere it remains necessary. This measured strategy will further cultivate innovation within DeFi, whilst upholding principles of consumer protection and market integrity.

288 Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."
289 Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance & Oversight."
290 GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."

In sum, defining Public Good Protocols with conditions such as Decentralization, Open Source Development, Level Playing Field and Self-Sustaining is key to laying the ground for meaningful exemptions in the upcoming DeFi Regulation of the New World. This clarity will not only foster creativity but also ensure that rules are being fairly and efficiently enforced as well.

Anyhow, a new approach is needed to regulate those DeFi organizations without any traditional protocol while balancing innovation with security. The approach must be sensitive to the special nature of DeFi entities, so that the framework does not compromise consumer protection and market integrity.

One of the early steps in that shift is to develop risk-based regulations. This contrasts with traditional banks and finance institutions, where there is usually a clear organizational structure and a holder of responsibility. Implementing blanket rules for these entities is wrong, regulators should focus on the specific risk that each organization poses. This will support a more tailored process, able to change according to DeFi landscape[291]. For example, organizations that leverage decentralized governance models will need to be supervised differently than those relying on more centralized control structures.

Further, it is indispensable to embed compliance tools in the core operational landscape of DeFi entities. Organisations can embed regulatory compliance into the technology itself — using smart contracts for example — and still validate that regulations continue to be complied with as they were when we first deployed these services. This approach is not only for the sake of playing by the rules but also to help build a more transparent and accountable ecosystem for everyone in the space[292]. Over the longer term, smart contracts could also be programmed to directly enforce disclosure requirements or transaction limits, similarly cutting down on external oversight.

It is also possible to foster regulators-industry stakeholders co-production. Regular dialogues can assist regulators in keeping up with the changing DeFi landscape and the risks it creates. They can collaborate to bring out best practices which are taken on the basis of real-world experiences within

[291] Crypto Council for Innovation, "DeFi Regulatory Solutions Proposed by Crypto Council."
[292] Elevandi Insights Forum, "Regulation in a Decentralised World: Frameworks for DeFi Governance & Oversight."

DeFi community[293]. Policymakers can help ensure these standards are both realistic and useful by actively including industry participants in the process.

Similarly, roles and duties need to be defined better within the DeFi ecosystem. For many of them this means essentially operating without traditional organization, pay no mind to talking about something as nuanced as the accountability for compliance and consumer protection. The result is potential decrease in risks created by lack of clarity on who is liable and has oversight.

In conclusion, regulatory trade-off: innovation and safety of regulating DeFi organizations without protocols should be balanced from both sides; a risk-based regulatory approach is suitable, compliance should be built into the operations (push system), regulators and industry stakeholders need to work together (pull system), roles within the ecosystem should be clearly defined. By doing so, we can establish a regulatory regime that fosters innovation and also ensures consumer protection and market integrity.

5.5.1 Conclusions: From Trust and Accountability to Envisioning a New World with less conflicts and a Transformed Financial Landscape thanks to our New World DeFi Regulation

In the New World DeFi Regulation, independent certification and disclosure mechanisms will be essential to increasing trust and accountability. With the continued maturation of decentralized finance, transparency has never been more important. Independent certification can provide third-party validation of underlying quality, security, features and compliance adherence made by the DeFi projects.

[293] GSC Online Press, "Regulatory Frameworks for Decentralized Finance (DeFi): Challenges and Opportunities."

1.Proof of Reserve audits

The orders of Proof of Reserve audits can be an effective recommandation to stroll on.

Audits are third-party verifications to ensure that a DeFi platform has more in assets than in liabilities, backing user funds with reserves. The public disclosure of these audit results can sow trust among users and investors further showing the commitment to transparency and accountability by platforms[294]. It can provide assurance to the right participants that their assets are secure with you, and it will avoid any dangers from mismanagement or fraud.

2.Regular disclousers

Additionally, routine communication on operational and governance performance substantially increases accountability. DeFi projects must also embrace transparent fiscal reporting, which includes transaction volumes, user participation and security incidents. With this information easily available, stakeholders can use hard facts to actually prove or dispel these myths[295]. Such transparency can also help create a culture of responsibility, in which organizations are held accountable to their decisions and results.

3.Independent Governance Assesment

On top of audits and disclosures, having a framework for independent governance ratings can go a long way in increasing faith in DeFi. These metrics are based on principles of decentralization, user participation, and community governance — objectives the litmus could capture before scaling out. Supporters need an outside perspective on governance execution to trust that the project is making such decisions in a valid way.

In the end, to make DeFi a more trustworthy place should be based on integrating independent certification and transparent disclosure into the regulatory framework. The more they experience

[294] Webisoft, "The Power of Proof of Reserve in DeFi Crypto Assets."

[295] Insightful Banking, "DeFi and Transparency: Enhancing Trust in Financial Systems."

systems with DeFi in them, the more we will see deeper adoption of DeFi solutions too. In a fast changing financial world, this trust is necessary to tackle the immense future growth potential of decentralized finance.

Anyway, a new and unified New World DeFi Regulation could form the basics to resolve all this tension hand in hand with the governments that (correctly) are trying to evolve their legislation regarding decentralized finance (DeFi) around the world. In the past, DeFi and law enforcement have had an uneasy relationship because the sector did not have defined detection or consequences. But that gap can be bridged by a holistic regulatory framework where they could share their living space in harmony.

1.Clear Regulatory Standard

The enactment of regulation prohibits multiple incidents of conflict, and the reduced conflict is one of the reasons for strict regulations on activities in the DeFi industry. A well-known set of rules and expectations will help governments understand how to properly enter DeFi organizations. This has removed a large part of the uncertainty that fuelled confusion and debate in the past. In the event that both sides of a transaction are dealing under understood rules, it is far simpler to focus on problems from an over-the-board angle than through an antagonistic lens.

2.Accauntability and Trasparency

This new provision further solidifies the fact that DeFi is going to become more transparent and accountable. In doing so, governments will compel DeFi projects to undergo independent audits, a repercussion that serves as a necessary measure the decentralized projects would be held against to determine if the required standards have been met in order to maintain consumer protections and financial stability. This type of exposure establishes trust between regulators and DeFi actors, both will be enabler ensure that there are means to prevent fraud and abuse. This will help reduce conflicts that are likely to arise out of fear around illicit activities and market manipulation as they too can have a ripple effect on the macro-economic fundamentals of an economy.

3.Collaboration rather than confrontation

Also, this type of uniformity in regulation can foster cooperation, not enmity. Best practices can be developed and lessons learned shared in this invitro environment to foster innovation between government and various DeFi organizations. The result of this collaborative spirit can be joint initiatives to tackle any number of our shared challenges, whether in the realm of security risks or customer education. Governments and DeFi entities are not natural adversaries, as they can work together to reduce the risks of financial networks.

4.Dispute Resolution

Additionally, the regulation outlines how disputes are to be resolved — an important part of any financial ecosystem. When developing specific ways for complaints or disputes that may occur between a user and a DeFi platform to be able to settle, the higher authorities are less likely to interfere in bigger different controversies. By addressing these concerns head-on, anything that might give you a headache is likewise quickly quashed and tended to, with friction nipped at the bud.

5.DeFi Protocolos as Public Good

The idea behind this is to show that governments and the DeFi community could have some alignment of interests thanks to protocols being seen as public goods. This is why when regulators realize that most DeFi projects are on a path to empower financial inclusion and accessibility, they are more inclined to support the progress of DeFi rather than kill their development by opposing overly restrictive regulations. It created an environment to encourage innovation, yet people still feel secure about the important safety standards.

Conclusion

In summary, the establishment of a single New World DeFi Regulation is highly likely to stop collisions between unilateral governments and decentralized finance entities. By providing a framework of clear rules, transparency and accountability, a culture of cooperation in the developmental process, mechanisms for conflict resolution as well as refuting DeFi developers were acting in bad faith for their personal gains based on many being community driven projects that are public goods. This results in a more stabile and creative financial eco-system which has to be master for both sides.

While a new decade of DeFi is on our doorstep, a New World DeFi Regulation is now poised to deliver an industry in which decentralized finance (DeFi) can not only flourish but also where it can be safely executed. As a blueprint for financial transformation, this regulatory framework would afford us all the opportunity to be more transparent, inclusive and innovative in our approach to risk management so that we might build a better world where everyone has a stake. Picture a system of finance where people are more in control over their assets, without the burdens and inefficiencies of traditional financial companies. Within this world the users can perform acquisitions with each other, without minimum fees or secret charges that have been recently taking place in traditional banking system.

1.A financial world with enhanced security

At its core is a commitment to stronger security via increased regulation. The New World DeFi Regulation will establish guidelines and clear standards for accountability that all members of the ecosystem have to respect. This will make it very difficult to do financial crimes like fraud, money laundering, or market manipulation because the framework mandates independent audits and regular disclosures. The level of scrutiny is going to add a nice chilling effect for bad actors and provides the strength that good projects will need to utilize some codes of ethics. This gives users a peace of mind on financial activities knowing that there are layers to heavily secure them.

2.Better Innovation in a safer environment

Additionally, it will create an environment conducive to innovations. It provides clear guidance for developers to innovate and build new financial products and services without fear of regulatory backlash, which has been stifling creativity in the past. In this stable regulatory environment, we can look forward to a burst of innovative solutions that appeal to a variety of users — from retail investors seeking exposure to investment products available only in traditional financial markets, to the large-scale institutional players who require advanced trading platforms. This increase in competition is expected to trickle down in the benefit of consumers, in the form of better services, cheaper costs and more efficient user experiences.

3.More collaboraton between Governmments and Decentralised Finance

The New World DeFi Regulation also incentivizes governments and DeFi protocols to cooperate with each other, providing the means for cross-border financial collaboration. By opening the lines of communication and working together, regulators gain visibility as to how this will affect technology on a broader scale. Advance partnership model provides for advanced policies to balance innovation with consumer protection and market integrity. In this dynamic, both tradfi (traditional finance) and DeFi can work in consonance with one another, to help build a more adaptable economic infrastructure.

4.Safer Decentralised Governance within DeFi projects

This regulation is also contributing to what perhaps is one of the largest changes, decentralized governance within DeFi projects. By giving users governance tokens and the ability to have a voice in decision making, you are putting your projects growth in the hands of people that believe in what you are building.

Such a participatory model creates an essential feeling of involvement with the system: it makes users feel like they truly own and care about their work results, all the while revolutions to placate or reassure that human projects are geared up with actual demand_transform_contribuino interest.

5.Trasparency among all the actors of DeFi

Through DeFi that is regulated effectively, you start to see a new world of finance emerge—one dominated by transparency and access for all. Barriers that in the past have effectively priced many people out of essential financial services will crumble. Finally, with a worldwide decentralized finance network of the same regulatory rules respected by every user in place, we may be looking at an uptick in financial literacy and empowerment among people who previously were disenfranchised from legacy banking systems. Accessible financial services will allow everyone access to economic activities, promoting equality and opportunity.

Conclusions

The New World DeFi Regulation could change definitively the way we know finance. And in doing so, we can build a more inclusive financial system that provides users freedom while protecting them from harm. The ideal of a world in which people can transact properly, securely and without interferences is not a pipe dream; it is viable through sensible regulation that allows for the benefits of decentralization and manages its risks effectively.

In this new era of finance we see a world where trust is reborn between users and financial systems,where accountability ceases to be an afterthought actions are taken to ensure you feel safe in your transactions. It presents a future that is not only economically powerful, but also based upon mutual trust and transparency to the benefit of all.

Anyhow, this New World DeFi Regulation would be the pioneer of a new world, not only of finance, but a new world where collaboration among governments, lawmakers, and actors of any industry worldwide, with different views, will finally be possible.

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