

# **REGULATING DeFi: SAFEGUARDING MARKET INTEGRITY WHILE MANAGING HIGH EXPECTATIONS\***

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*Abstract: Digital finance has contributed to the dematerialisation and disintermediation of financial transactions. Technological innovations, namely blockchain technology and smart contracts, have generated an additional ecosystem – decentralised finance (DeFi). Since its main characteristics are pseudonymity and a lack of intermediaries, which are currently challenging to systemically evaluate, it requires an equally innovative approach from policy makers, regulators, and legislators. The purpose of the paper is twofold. Firstly, it illuminates market trends and highlights the emerging risks associated with DeFi. Secondly, it examines policies, legislative proposals, and existing regulation, focusing on three main areas: consumer protection, anti-money laundering, and determining jurisdiction and applicable law. Drawing on a qualitative analysis of primary sources, namely EU and US legislation, and supported by relevant reports and case studies made by financial authorities, international standard-setting bodies, and business associations, this paper adopts a theoretical approach. It puts forward arguments in favour of the hypothesis that regulatory certainty fosters a favourable environment for the development of financial services in the realm of crypto innovations, a correlation that will hopefully hold significance within the context of DeFi.*

*Keywords: decentralised finance (DeFi), MiCA, crypto assets, financial regulation, consumer protection, AML, jurisdictional issues.*

‘CREATIVE DESTRUCTION IS THE ESSENTIAL FACT ABOUT CAPITALISM’.

JOSEPH A SCHUMPETER

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## 1 Introduction

Digital finance has creatively disrupted financial services and business models within the global financial ecosystem. Technological innovations, such as distributed ledger technology (DLT), often referred to as blockchain, have contributed to the dematerialisation and disintermediation of financial transactions. Combined with big data analytics, artificial intelligence (AI), and machine learning, there is the ongoing potential for operational upgrades, allowing speedier, more convenient, and often cheaper financial services.<sup>1</sup> New market entrants, namely start-ups (also known as FinTechs)<sup>2</sup> and large technology firms (or BigTechs), have fostered both competition and collaboration with incumbents, ie traditional financial intermediaries, such as banks and stock exchanges, compelling them to modernise their legacy systems.

The Bitcoin cryptocurrency was the first example of applying blockchain technology in a new way to financial markets, with the idea of creating ‘a peer-to-peer electronic cash system’, ie utilising new technology to cut off financial intermediaries from their role in processing, authorising, and clearing financial transactions, in order to generate more direct, faster, and more cost-effective financial services.<sup>3</sup> So far, Bitcoin has proven to be captivating. It had an essential role in moulding the crypto ecosystem, an industry that is valued at close to USD 3 trillion.<sup>4</sup> However, it is highly volatile and speculative,<sup>5</sup> with dramatic booms and

<sup>1</sup> Financial Stability Board, ‘Artificial Intelligence and Machine Learning in Financial Services: Market Developments and Financial Stability Implications’ (2017) <[www.fsb.org/wp-content/uploads/P011117.pdf](http://www.fsb.org/wp-content/uploads/P011117.pdf)> accessed 22 May 2024.

<sup>2</sup> Although the FinTech expression covers a broader area and represents: ‘technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services’. Financial Stability Board, ‘Fintech and Market Structure in Financial Services: Market Development and Potential Financial Stability Implications’ (2019) Financial Stability Board 2, fn 1 <[www.fsb.org/wp-content/uploads/P140219.pdf](http://www.fsb.org/wp-content/uploads/P140219.pdf)> accessed 22 May 2024. The term FinTechs is also often used to describe new challengers/start-ups in financial markets.

<sup>3</sup> S Nakamoto, ‘Bitcoin: A Peer-to-peer Electronic Cash System’ (2008) White Paper <<https://satoshinakamoto.me/bitcoin.pdf>> accessed 22 May 2024.

<sup>4</sup> At its peak in November 2021, the value of the global cryptocurrency market was around USD 2.9 trillion. On 22 May 2024, the value stood at USD 2.70 trillion, according to Forbes Digital Assets, global cryptocurrency market capitalization daily estimates. See Forbes, ‘Cryptocurrency Prices Today by Market Capitalisation’ (2024) <[www.forbes.com/digital-assets/crypto-prices/?sh=5d21d05f2478](https://www.forbes.com/digital-assets/crypto-prices/?sh=5d21d05f2478)> accessed 22 May 2024.

<sup>5</sup> ESMA, ‘Crypto Assets: Market Structures and EU Relevance’ (2024) ESMA Report on Trends, Risks and Vulnerabilities Risk Analysis, ESMA50-524821-3153, 10 April 2024 <[www.esma.europa.eu/sites/default/files/2024-04/ESMA50-524821-3153\\_risk\\_article\\_crypto\\_assets\\_market\\_structures\\_and\\_eu\\_relevance.pdf](https://www.esma.europa.eu/sites/default/files/2024-04/ESMA50-524821-3153_risk_article_crypto_assets_market_structures_and_eu_relevance.pdf)> accessed 22 May 2024; F Panetta, ‘Paradise Lost? How Crypto Failed to Deliver on Its Promises and What to Do about It’ (Speech at a panel on the future of crypto at the 22nd BIS Annual Conference, Basel, 23 June

busts, while cyberattacks and fraud are also issues.<sup>6</sup> Bitcoin and other cryptocurrencies are therefore justifiably disapproved of by financial experts and regulatory authorities,<sup>7</sup> but they are also recognised as ‘remarkably resilient under adverse circumstances and shocks’.<sup>8</sup>

Subsequently, since the cryptocurrency market has primarily evolved into a speculative financial playground – missing the chance to contribute to financing the real economy while also being highly volatile<sup>9</sup> – the private and public sectors have both commenced the pursuit for ‘cryptostability’, ie more stable forms of crypto assets, eg stablecoins<sup>10</sup> and central bank digital currencies (CBDCs).<sup>11</sup>

Although all the abovementioned crypto assets contain innovative technologies which, as mentioned, purport to decentralise finance – by

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2023) <[www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230623\\_1~80751450e6.en.html](http://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230623_1~80751450e6.en.html)> accessed 22 May 2024.

<sup>6</sup> A Briola, D Vidal-Tomás, Y Wang and T Aste, ‘Anatomy of a Stablecoin’s Failure: The Terra-Luna Case’ (2023) 51 Finance Research Letters <[www.sciencedirect.com/science/article/abs/pii/S1544612322005359?via%3Dihub](http://www.sciencedirect.com/science/article/abs/pii/S1544612322005359?via%3Dihub)> accessed 22 May 2024; M Lewis, *Going Infinite: The Rise and Fall of a New Tycoon* (WW Norton & Company 2024).

<sup>7</sup> F Panetta, ‘For a Few Cryptos More: The Wild West of Crypto Finance’ (Speech at Columbia University, New York, 25 April 2022) <[www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220425%7E6436006db0.en.html](http://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220425%7E6436006db0.en.html)> accessed 22 May 2024; P Krugman, ‘Bitcoin Is Evil’ *The New York Times* (New York, 28 December 2013) <<https://archive.nytimes.com/krugman.blogs.nytimes.com/2013/12/28/bitcoin-is-evil/?mcubz=1>> accessed 22 May 2024; ESMA, EBA and EIOPA, ‘EU Financial Regulators Warn Consumers on the Risks of Crypto-assets’ ESA 2022 15, Press Release, 17 March 2022 <[www.esma.europa.eu/sites/default/files/library/esa\\_2022\\_15\\_joint\\_esas\\_warning\\_on\\_crypto-assets.pdf](http://www.esma.europa.eu/sites/default/files/library/esa_2022_15_joint_esas_warning_on_crypto-assets.pdf)> accessed 22 May 2024; ESMA, ‘Crypto-assets and Their Risks for Financial Stability’ (2022) ESMA TRV Risk Analysis <[www.esma.europa.eu/sites/default/files/library/esma50-165-2251\\_crypto-assets\\_and\\_financial\\_stability.pdf](http://www.esma.europa.eu/sites/default/files/library/esma50-165-2251_crypto-assets_and_financial_stability.pdf)> accessed 22 May 2024.

<sup>8</sup> I Angeloni, ‘Digital Finance in the Global Context: Challenges and Perspectives’ in T Beck, L Giani and G Sciascia (eds), *Digital Finance in the EU: Drivers, Risks, Opportunities* (The EU Supervisory Digital Finance Academy’s First Year e-book, European University Institute 2023) 31 <<https://cadmus.eui.eu/handle/1814/76429>> accessed 22 May 2024.

<sup>9</sup> S Aramonte, W Huang and A Schrimpf, ‘DeFi Risks and the Decentralisation Illusion’ (2021) BIS Quarterly Review, December 2021 <[www.bis.org/publ/qtrpdf/r\\_qt2112b.pdf](http://www.bis.org/publ/qtrpdf/r_qt2112b.pdf)> accessed 22 May 2024.

<sup>10</sup> Despite Facebook’s ‘epic fail’ of the proposed stablecoin Diem (formerly known as Libra), stablecoins have thrived over the past years, currently accounting for approximately 7% of the crypto market. See CoinMarketCap, ‘Top Stablecoin Tokens by Market Capitalization’ <<https://coinmarketcap.com/view/stablecoin/>> accessed 22 May 2024). However, due to many risks and uncertainties surrounding stablecoins, they have, in policymaking circles, been wisecracked as ‘neither stable nor coins’. See D Arner, R Auer and J Frost, ‘Stablecoins: Risks, Potential and Regulation’ (2020) BIS Working Papers No 905, Bank for International Settlements, 7 <[www.bis.org/publ/work905.pdf](http://www.bis.org/publ/work905.pdf)> accessed 22 May 2024.

<sup>11</sup> CBDCs have so far been launched in emerging economies, eg Bahamas, Zimbabwe and Nigeria, while developed economies follow a more cautious and gradual approach. For an interactive geographical map of CBDCs (inaugurations, pilot projects, conducted research by countries, etc) since January 2014, see CBDC Tracker Database <<https://cbdctracker.org/>> accessed 22 May 2024.

cutting off intermediaries – there is still a certain degree of centralised finance (CeFi) involved in the crypto ecosystem, ie intermediaries providing services around crypto assets, eg crypto exchanges. A number of intermediary services are currently provided, such as the conversion of fiat currency to cryptocurrency, the exchange of crypto assets for other crypto assets (cross-chain bridge operations), the operation of trading platforms for crypto assets, the provision of custody of crypto assets, advisory services, etc.

Accordingly, another step toward disintermediation in digital finance is decentralised finance, also known as DeFi. DeFi is defined as a ‘competitive, contestable, composable and non-custodial financial ecosystem built on technology that does not require a central organisation to operate and that has no safety net’, and which ‘consists of financial protocols – implemented as “smart contracts” – running on a network of computers to automatically manage financial transactions’.<sup>12</sup> Aramonte, Huang and Schrimpf contend that this is yet another instance of the ‘decentralisation illusion’, as all DeFi platforms exhibit certain centralised characteristics, eg central governance structures, decision-making power that is concentrated among major coin-holders, and the influence of key validators.<sup>13</sup>

DeFi was first introduced in 2014 in the form of an innovative open-source blockchain platform called Ethereum, which was invented by its co-founder Vitalik Buterin.<sup>14</sup> The technology of DeFi relies on blockchain and smart contracts,<sup>15</sup> ie computer programmes stored on the blockchain that are self-executed in an automated manner when predetermined conditions are met. As a system, DeFi cannot support fiat currencies, so stablecoins have an important function in the DeFi ecosystem by enabling financial transactions between users and facilitating fund transfers across platforms, while bypassing fiat currency swaps and the

<sup>12</sup> R Auer, B Haslhofer, S Kitzler, P Saggese and F Victor, ‘The Technology of Decentralized Finance (DeFi)’ (2023) BIS Working Papers No 1066, Bank for International Settlements, 3 <<https://www.bis.org/publ/work1066.pdf>> accessed 22 May 2024.

<sup>13</sup> Aramonte and others (n 9) 27–29; also in ESMA, ‘Decentralised Finance in the EU: Developments and Risks’ (2023) ESMA TRV Risk Analysis, Financial Innovation, ESMA50-2085271018-3349, 11 October 2023, 5 <[www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3349\\_TRV\\_Article\\_Decentralised\\_Finance\\_in\\_the\\_EU\\_Developments\\_and\\_Risks.pdf](http://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3349_TRV_Article_Decentralised_Finance_in_the_EU_Developments_and_Risks.pdf)> accessed 22 May 2024.

<sup>14</sup> V Buterin, ‘Ethereum: A Next-Generation Smart Contract and Decentralized Application Platform’ (2014) <[https://ethereum.org/content/whitepaper/whitepaper-pdf/Ethereum\\_Whitepaper\\_-\\_Buterin\\_2014.pdf](https://ethereum.org/content/whitepaper/whitepaper-pdf/Ethereum_Whitepaper_-_Buterin_2014.pdf)> accessed 22 May 2024.

<sup>15</sup> Smart contracts were first presented by Nick Szabo in 1990s as a computer program which eliminates the need for trust between the parties involved since its execution would be self-enforced. See P De Filippi, C Wray and G Sileno, ‘Smart Contracts’ 10(2) Internet Policy Review <<https://doi.org/10.14763/2021.2.1549>> accessed 22 May 2024; also acknowledged by Buterin (n 14) 10.

high volatility of cryptocurrencies. DeFi aims to perform the same functions as traditional finance (TradFi), like trading, asset management, lending, and payments, but in a more automated way.<sup>16</sup>

Similar to cryptocurrency market trends, DeFi is also a very concentrated market, with Ethereum having a 60% market share measured as total value locked (TVL), but new entrants have emerged since 2021, eg Binance, Tron, Solana, etc.<sup>17</sup> DeFi counts for around 7% of the total crypto market and is also highly volatile. During a two-year period known as 'DeFi summer', the market experienced growth of 524%; starting with a TVL estimated at around USD 600 million at the beginning of 2020, it peaked at USD 315 billion by the end of December 2021.<sup>18</sup> However, following the collapse of the Terra DeFi platform, the market saw a nearly 40% drop in TVL within just a few days. By the end of 2023, the number of DeFi users was estimated at around 7.4 million, reflecting an annual growth rate of 35%.<sup>19</sup> In May 2024, TVL in DeFi services was estimated at around USD 107 billion,<sup>20</sup> while DeFi's major assets were estimated at approximately USD 93 billion based on market capitalisation.<sup>21</sup>

According to Chainalysis's 2023 report on regional trends in crypto asset adoption, Central and Southern Asia (CSA) lead the way in terms of DeFi platform usage, followed by the US, the UK, Russia, and Ukraine. In 2023, DeFi usage in the US declined due to the 'crypto winter' and regulatory uncertainty, but it is expected to rise again, with regulation playing a crucial role in its recovery. In Europe, the largest cryptocurrency adopters are the UK, Spain, France, Germany, Italy, and the Netherlands, with DeFi accounting for more than 50% of the cryptocurrency value gained. France has emerged as a leader in DeFi transaction volume growth, with Paris becoming the European headquarters for major

<sup>16</sup> ESMA, 'Decentralised Finance: A Categorisation of Smart Contracts' (2023) ESMA TRV Risk Analysis, Financial Innovation, ESMA50-2085271018-3351, 11 October 2023 <[www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3351\\_TRV\\_Article\\_Decimalised\\_Finance\\_A\\_Categorisation\\_of\\_Smart\\_Contracts.pdf](http://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3351_TRV_Article_Decimalised_Finance_A_Categorisation_of_Smart_Contracts.pdf)> accessed 22 May 2024; Auer and others (n 12).

<sup>17</sup> Total value locked (TVL) is a measure in the cryptocurrency industry that calculates the fiat currency worth of digital assets that are locked or staked on a particular DeFi blockchain platform or decentralised applications (dApps). See in ESMA (n 13) 5.

<sup>18</sup> See T Roukny, 'Decentralized Finance: Information Frictions and Public Policies – Approaching the Regulation and Supervision of Decentralized Finance' (2022) European Commission, Directorate-General for Financial Stability, Financial Services and Capital Markets, June 2022, 8 <[https://finance.ec.europa.eu/system/files/2022-10/finance-events-221021-report\\_en.pdf](https://finance.ec.europa.eu/system/files/2022-10/finance-events-221021-report_en.pdf)> accessed 22 May 2024.

<sup>19</sup> ESMA (n 13) 6.

<sup>20</sup> DeFi Llama, 'Overview: Total Value Locked' (May 2024) <<https://defillama.com/?tv-l=true>> accessed 22 May 2024.

<sup>21</sup> DeFi Market Cap, 'Top 100 DeFi Tokens by Market Capitalization' (May 2024) <<https://defimarketcap.io/>> accessed 22 May 2024.

players like Binance, Crypto.com, and Circle. Notably, Eastern and Western Europe and CSA are the only regions to see an increase in DeFi activity over the past year.<sup>22</sup>

Despite this information, monitoring DeFi remains a highly challenging task, mainly due to the scarcity of reliable data, which is principally a result of its decentralised and anonymous nature. DeFi operates across multiple platforms, which are frequently located in tax havens, and currently lacks requirements for reporting and auditing. Its complexity is continuously evolving, and the market is often vulnerable to manipulation.<sup>23</sup> The European Securities and Markets Authority (ESMA) has reported that 'Crypto markets are global in nature, and the activities of market participants and service providers remain impossible to trace back to individual jurisdictions in systematic ways'.<sup>24</sup>

The aforementioned analyses indicate that regulatory certainty is vital for promoting positive market development and improving risk monitoring. By establishing clear rules and standards, regulation can provide a framework that fosters trust, stability, and confidence in emerging technologies and markets such as DeFi. In line with this, the purpose of the paper is twofold. Firstly, it illuminates market trends and highlights the emerging risks associated with DeFi. Secondly, it analyses policies, legislative proposals, and existing regulations, with a distinctive emphasis on three critical areas: consumer protection, anti-money laundering measures, and the determination of jurisdiction and applicable law. This analysis is enriched by drawing insightful examples from two prominent legal frameworks – the EU and the US – offering a unique comparative perspective on the approaches and challenges within these jurisdictions. By contrasting the regulatory approaches and practical implementation between the EU and the US, this examination provides a deeper understanding of how different legal systems address common issues. Such a comparative approach not only highlights best practices but also identifies potential gaps and opportunities for harmonisation or adaptation in the policy-making realm. It puts forward arguments in support of the hypothesis that regulatory certainty plays a significant role in fostering a favourable environment for the development of financial services

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<sup>22</sup> Chainalysis, 'The 2023 Geography of Cryptocurrency Report: Everything You Need to Know about Regional Trends in Crypto Adoption' October 2023 <<https://go.chainalysis.com/geography-of-cryptocurrency-2023.html>> accessed 22 May 2024.

<sup>23</sup> ESMA (n 5); Chainalysis, 'The 2024 Crypto Crime Report: The Latest Trends in Ransomware, Scams, Hacking, and More' (February 2024) 35–42 <<https://go.chainalysis.com/rs/503-FAP-074/images/The%202024%20Crypto%20Crime%20Report.pdf?version=0>> accessed 22 May 2024.

<sup>24</sup> ESMA (n 5) 4.



within the realm of crypto innovations.<sup>25</sup> By establishing clear guidelines and frameworks, regulatory certainty not only encourages investment and innovation but also installs confidence among stakeholders. This is particularly significant with regard to the evolving landscape of decentralised finance, where the need for robust regulatory structures is becoming increasingly apparent.

The research for this paper was based on a qualitative analysis of primary sources, namely EU and US legislation, supplemented by relevant reports and case studies made by financial authorities, international standard-setting bodies, and business associations. A comparative analysis was chosen in order to balance conflicting interests and emphasise the need for legal certainty, which can be a significant catalyst for ensuring these technologies are used for the benefit of the financial sector as a whole; by ensuring a stable and predictable legal framework, legal certainty may prove to be crucial in resolving conflicting interests and fostering trust in emerging technologies. To ensure clarity while reading the paper, the authors have included a list of abbreviations at the end of the paper.

The paper is structured as follows: the introduction presents an overview of digital finance developments, in particular cryptocurrency and DeFi markets, combined with market trends. Section two provides a literature review of the regulatory policy activities directed towards the DeFi ecosystem. Sections three to five delve deeper into regulatory approaches with regard to consumer protection, anti-money laundering, and determining jurisdiction and applicable law, analysing potential regulatory gaps and exploring regulatory strategies and best practices for policy making in these areas. Section six concludes.

## **2 Navigating technological and financial complexities through policy and regulatory mechanisms: a literature review**

DeFi has introduced innovative financial products to the market, eg perpetual futures, flash loans, and autonomous liquidity pools. It has the potential to enhance financial inclusion, and its underlying technology could offer additional advantages in terms of speed, security, and cost efficiency. At the same time, the DeFi market is also vulnerable to operational, technological, and security risks, including cyberattacks, fraud, and other illicit activities, posing considerable risks for investors.<sup>26</sup>

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<sup>25</sup> R La Porta, F Lopez-de-Silanes and A Schleifer, 'The Economic Consequences of Legal Origins' (2008) 46(2) *Journal of Economic Literature* 285.

<sup>26</sup> ESMA (n 13) 7–9.

Within the realm of FinTech advancements, DeFi has highlighted the entanglement of two highly sophisticated complexities: technological and financial. Attention is therefore focused on regulators and their efforts in managing high expectations. The prevailing challenge is to strike a balance between fostering financial innovation and maintaining financial stability, ensuring sustainable growth in FinTech through adequate regulatory and supervisory measures and safeguards.<sup>27</sup> This balancing act may appear to be an endless pursuit or even an oxymoron, especially when considering the historical lessons from centuries of financial crises, which often seem unpredictable in their recurrence.<sup>28</sup>

Addressing arising complexities, ESMA's risk analysis reports signal that the usage of smart contracts on the Ethereum blockchain platform has changed significantly over the past few years. During the first embryonic period from 2017 to 2018, smart contracts were utilised for simple transactions such as lending. However, in the period from 2020 to 2023, observed operations included derivatives management, prediction markets, insurance, yield farming, stablecoins, decentralised asset management, etc.<sup>29</sup> These operations lead to new densities and complexities, which Angeloni describes as 'increasing the speed at which transactions can be executed; facilitating automation and round-the-clock activity; augmenting the possibility of diversifying and hedging risks; enhancing geographical transmission; and, more generally, requiring faster and more complex decision-making'.<sup>30</sup>

Stability risk reports conducted to date by ESMA, the ESRB, the BIS, and the FSB indicate that, at present, DeFi does not pose a systemic risk to financial stability. This is primarily due to its relatively small scale and the limited channels of contagion between the crypto

<sup>27</sup> ST Omarova, 'Technology v Technocracy: Fintech as a Regulatory Challenge' (2020) 6(1) *Journal of Financial Regulation* 75 <<https://doi.org/10.1093/jfr/fjaa004>> accessed 22 May 2024; M Amstad, 'Regulating Fintech: Objectives, Principles, and Practices' (2019) ADBI Working Paper Series No 1016, Asian Development Bank Institute, October 2019 <<https://ssrn.com/abstract=3491982>> accessed 22 May 2024.

<sup>28</sup> CM Reinhart and KS Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* (Princeton University Press 2009); CP Kindleberger and R Aliber, *Manias, Panics, and Crashes, A History of Financial Crises* (5th Edition, John Wiley 2005).

<sup>29</sup> ESMA (n 16) 7–12. For a historical overview of DeFi's services by categories (assets, auxiliary, credit, insurance, payments, staking, trading) between 2018 and 2023, see the chart 'Total value locked in DeFi protocols by category' in European Systemic Risk Board, European System of Financial Supervision, 'Crypto-assets and Decentralised Finance: Systemic Implications and Policy Options' (2023) ESRB Task Force on Crypto-Assets and Decentralised Finance, May 2023, 18 <[www.esrb.europa.eu/pub/pdf/reports/esrb.cryptoassetsand-decentralisedfinance202305~9792140acd.en.pdf?853d899dcdf41541010cd3543aa42d37](http://www.esrb.europa.eu/pub/pdf/reports/esrb.cryptoassetsand-decentralisedfinance202305~9792140acd.en.pdf?853d899dcdf41541010cd3543aa42d37)> accessed 22 May 2024.

<sup>30</sup> Angeloni (n 8) 28.



sector and TradFi markets.<sup>31</sup> For example, turbulence in the crypto asset market and DeFi sector during 2022 revealed significant operational vulnerabilities within the DeFi ecosystem. The collapse of the DeFi Terra blockchain platform in May 2022, triggered by a liquidity pool attack on its stablecoin TerraUSD, which lost its peg to the USD and subsequently collapsed,<sup>32</sup> led to substantial investor losses of approximately USD 100 billion in TVL, while overall loss in value across the crypto market was estimated at USD 400 billion.<sup>33</sup> At the same time, attackers profited by an estimated USD 800 million.<sup>34</sup>

On a positive note, this collapse of the crypto asset market in May 2022, along with the downfall of one of the largest crypto exchanges, FTX, in November 2022, demonstrated that, for now, the crypto asset market is neither a systemic risk in terms of size nor interconnected with the traditional financial market.<sup>35</sup> Additionally, the collapse of Silicon Valley Bank (SVB) in March 2023, which also caused the second largest stablecoin USD Coin (USDC) to temporary depeg, did not directly impact the TradFi sector.<sup>36</sup>

Cybersecurity remains a critical concern relating to DeFi, with 84% of all crypto assets stolen in 2022, amounting to USD 3.1 billion, and 64% in 2023, equating to USD 1.1 billion; this can be directly linked to vulnerabilities in smart contract design and implementation. The surge in hacking incidents correlates with the growing popularity and market share of DeFi, as well as deficiencies in the operational security of leading DeFi platforms, which have prioritised growth over the implementation and maintenance of robust security systems. On a positive note, the value lost in DeFi hacks declined significantly by 63.7% in 2023, which can be attributed to improved security practices but also a decrease in overall DeFi activity.<sup>37</sup>

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<sup>31</sup> ESMA (n 13) 7–16; ESRB (n 29) 17–19; FSB – Financial Stability Board, ‘The Financial Stability Risks of Decentralised Finance’ (16 February 2023) 24–28 <[www.fsb.org/wp-content/uploads/P160223.pdf](http://www.fsb.org/wp-content/uploads/P160223.pdf)> accessed 22 May 2024; BIS – Bank for International Settlements, ‘The Financial Stability Risks of Decentralised Finance: Executive Summary’ (2023) Financial Stability Institute 31 August 2023 <[www.bis.org/fsi/fsisummaries/defi.pdf](http://www.bis.org/fsi/fsisummaries/defi.pdf)> accessed 22 May 2024; Aramonte and others (n 9) 29; Bank for International Settlements, ‘The Crypto Ecosystem: Key Elements and Risks – Report Submitted to the G20 Finance Ministers and Central Bank Governors’ (July 2023) 13–16 <[www.bis.org/publ/othp72.pdf](http://www.bis.org/publ/othp72.pdf)> accessed 22 May 2024.

<sup>32</sup> Briola and others (n 6).

<sup>33</sup> ESMA (n 13) 8.

<sup>34</sup> Briola and others (n 6) 2.

<sup>35</sup> ESRB (n 29) 4, 10–13.

<sup>36</sup> The exceptions were Silvergate Bank and Signature Bank in the US, which primarily served the crypto asset sector. ESRB (n 29) 6.

<sup>37</sup> Chainalysis (n 23) 35–42.

Although DeFi and TradFi currently operate as separate realms, financial authorities' reports indicate emerging signs of connectivity between the two. The primary vulnerabilities of DeFi related to financial stability have been identified as: operational fragilities; leverage; liquidity and maturity mismatches; a lack of shock-absorbing capacity; interconnectedness within the financial ecosystem; spillover effects due to the automatic liquidation of collateral based on smart contracts or a reliance on underlying blockchain technologies; and non-compliance with existing regulatory requirements or the absence of regulation.<sup>38</sup>

Based on the identified risks, international standard-setting bodies have also agreed that traditional regulatory mechanisms might not be suitable for DeFi, due to its decentralised and pseudonymous business model. Interestingly, financial authorities have also embraced an innovative tactic, developing new financial governance models, eg regulatory sandboxes and innovation hubs, which allow for a more flexible approach in crafting rules that are adaptable to the digital age.

At the EU level, the European Forum for Innovation Facilitators gathers European supervisory authorities for knowledge sharing activities, eg in the areas of private sector engagement and technological expertise. They also coordinate on the regulatory treatment of innovative products, services, and business models. More specifically, the European Blockchain Regulatory Sandbox, an initiative of the European Commission, aims to facilitate dialogue between regulators and innovators to increase legal certainty for blockchains and other DLT, including smart contracts.<sup>39</sup>

The BIS provides a comprehensive overview of regulatory activities related to crypto and DeFi undertaken by 25 financial authorities in 11 jurisdictions around the world.<sup>40</sup> In line with its main purpose, the

<sup>38</sup> ESMA (n 13) 7–16; ESRB (n 29) 27–29; FSB (n 31) 16–29; BIS (n 31) 'The financial stability risks ...'; BIS (n 31) 'The crypto ecosystem ...' 13–14; Aramonte and others (n 9) 29–33.

<sup>39</sup> ESA – EBA, EIOPA and ESMA, 'Report – Update on the Functioning of Innovation Facilitators – Innovation Hubs and Regulatory Sandboxes' (2023) ESAs Joint Report, ESA 2023-27, 11 December 2023 <[www.eba.europa.eu/sites/default/files/2023-12/e6b1d9b3-9fec-49ef-9bd7-8dcdf56d8efb/Joint%20ESAs%20Report%20on%20Innovation%20Facilitators%202023.pdf](http://www.eba.europa.eu/sites/default/files/2023-12/e6b1d9b3-9fec-49ef-9bd7-8dcdf56d8efb/Joint%20ESAs%20Report%20on%20Innovation%20Facilitators%202023.pdf)> accessed 22 May 2024. For European Blockchain Regulatory Sandbox activities, see <<https://ec.europa.eu/digital-building-blocks/sites/display/EBSI/Sandbox+Project>>.

<sup>40</sup> Including: EU, France, Germany, Italy, Netherlands, United Kingdom, United States, Canada, Japan, Singapore and United Arab Emirates. For a concise overview of regulatory approaches associated with DeFi protocols, see Box 1, in D Garcia Ocampo, N Branzoli and L Cusmano, 'Crypto, Tokens and DeFi: Navigating the Regulatory Landscape', Bank for International Settlements, Financial Stability Institute, FSI Insights on Policy Implementation No 49, May 2023, 36 <[www.bis.org/fsi/publ/insights49.pdf](http://www.bis.org/fsi/publ/insights49.pdf)> accessed 22 May 2024. Additionally, online Annex B provides a complete list of the regulatory and policy documents

ESRB primarily focuses on enhancing monitoring capabilities so as to oversee market developments, identify potential risks, and propose policy options for mitigating these risks. More specifically, it advocates for introducing reporting requirements to map exposures connecting the DeFi and TradFi ecosystems.<sup>41</sup> The OECD encourages reporting measures for technology-mediated structures (like decentralised autonomous organisations (DAOs)), smart-contract auditing, and the greater disclosure of DeFi applications.<sup>42</sup> Auer proposes 'embedded supervision' within DeFi protocols through the automated compliance monitoring of decentralised market ledgers.<sup>43</sup> Roukny and Halaburda advise that public observatories investigate and issue warnings about DeFi protocols, practices, and voluntary compliance through an open policy framework that benefits DeFi services.<sup>44</sup> As part of a global cooperation mechanism, the International Organization of Securities Commissions (IOSCO)<sup>45</sup> has published a policy toolkit to support the construction of a regulatory architecture for DeFi, focusing on investor protection and market integrity.<sup>46</sup>

All things considered, regulatory aspirations are aimed at establishing a legal framework with defined liabilities for key actors in DeFi protocols, such as miners and validators, to generate a more controlled and transparent business environment that is conducive to the sustainable growth of the DeFi ecosystem. This also involves building capacities within national supervisory authorities and fostering global cooperation

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by the aforementioned regulatory authorities with online references: Annex B: References of regulatory and policy responses covered in Table 6.

<sup>41</sup> ESRB (n 29) 35–36.

<sup>42</sup> OECD, 'Why Decentralised Finance (DeFi) Matters and the Policy Implications' (2022) OECD, Paris 58–62 <[www.oecd.org/daf/fin/financial-markets/Why-Decentralised-Finance-DeFi-Matters-and-the-Policy-Implications.pdf](http://www.oecd.org/daf/fin/financial-markets/Why-Decentralised-Finance-DeFi-Matters-and-the-Policy-Implications.pdf)> accessed 22 May 2024.

<sup>43</sup> eg The Bank of Lithuania's 'LBchain' regulatory sandbox to embed a regulatory infrastructure in a DLT-based market and Federal Reserve Bank of Boston's supervisory node case study. See R Auer, 'Embedded Supervision: How to Build Regulation into Decentralised Finance' (2019) BIS Working Papers No 811, Monetary and Economic Department, September 2019 (revised May 2022) 20 <[www.bis.org/publ/work811.pdf](http://www.bis.org/publ/work811.pdf)> accessed 22 May 2024. For an overview of innovation facilitators' arrangements with regard to FinTech, see P Bains and C Wu, 'Institutional Arrangements for Fintech Regulation: Supervisory Monitoring' (2023) <[www.imf.org/en/Publications/fintech-notes/Issues/2023/06/23/Institutional-Arrangements-for-Fintech-Regulation-Supervisory-Monitoring-534291](http://www.imf.org/en/Publications/fintech-notes/Issues/2023/06/23/Institutional-Arrangements-for-Fintech-Regulation-Supervisory-Monitoring-534291)> accessed 22 May 2024.

<sup>44</sup> Report under the auspices of the European Commission – DG FISMA, while voluntary compliance is attributed to Hanna Halaburda. See Roukny (n 18) 39–42.

<sup>45</sup> IOSCO, 'Final Report with Policy Recommendations for Decentralized Finance (DeFi)' (2023) The Board of International Organization of Securities Commissions, FR/14/2023, December 2023, <[www.iosco.org/library/pubdocs/pdf/IOSCOPD754.pdf](http://www.iosco.org/library/pubdocs/pdf/IOSCOPD754.pdf)> accessed 22 May 2024.

<sup>46</sup> For additional policy recommendation and guidance reports, eg the World Economic Forum, the Financial Action Task Force, etc, see Roukny (n 18) 8–9.

and knowledge exchange regarding DeFi market developments and key stakeholders.

A comprehensive examination of policy documents from relevant financial authorities demonstrates that regulatory activities are underway globally in many jurisdictions. With this context in mind, the following sections will delve deeper into consumer protection, anti-money laundering protocols, and jurisdictional issues.

### 3 Consumer protection

Consumer protection has two sides – one concerned with cybersecurity, and the other connected with investment scams. Due to the decentralised and virtual nature of DeFi, it is significantly more difficult to ensure a high degree of security and control over potential cyber-attacks. Although there are protocols which try to ensure that breaches do not happen, their effectiveness is questionable, with some DeFi systems severely lacking in this area. A failure in any part of this complex structure can have an adverse effect on the whole system. These systems are highly automated, and the lack of human control can mean that any vulnerabilities can go unnoticed for a significant period of time. In addition, due to the high popularity of such systems, some developers rush the development process, circumventing the necessary testing which could identify and prevent these issues in the first place. Even when these protocols are thoroughly tested and without technical flaws, hackers have been known to target other vulnerabilities.<sup>47</sup> A study by Chainalysis determined that in Q1 of 2022, hackers stole USD 1.3 billion from exchanges, platforms, and private entities, with almost 97% of all stolen cryptocurrency being taken from DeFi protocols.<sup>48</sup> Even the Federal Bureau of Investigation published a public service announcement warning of the dangers of DeFi.<sup>49</sup> Victims, therefore, suffer not only as a

<sup>47</sup> For example, in April 2021, hackers successfully attacked the DeFi protocol EasyFi by stealing access to the code from the founder's computer, which resulted in losses of around USD 75 million. See J Crawley, 'DeFi Protocol EasyFi Reports Hack, Loss of Over \$80M in Funds' (*Coindesk*, 14 September 2021) <[www.coindesk.com/markets/2021/04/20/defi-protocol-easyfi-reports-hack-loss-of-over-80m-in-funds/](https://www.coindesk.com/markets/2021/04/20/defi-protocol-easyfi-reports-hack-loss-of-over-80m-in-funds/)> accessed 29 July 2023.

<sup>48</sup> Chainalysis Team, 'Hackers Are Stealing More Cryptocurrency from DeFi Platforms Than Ever Before' (*Chainalysis*, 14 April 2022) <[www.chainalysis.com/blog/2022-defi-hacks/](https://www.chainalysis.com/blog/2022-defi-hacks/)> accessed 30 July 2023. In the newest report, Chainalysis once again emphasises DeFi's importance to hackers in stealing cryptocurrency. Once again, DeFi protocols were the most likely target, with most cryptocurrency thefts connected with DeFi protocols. Somewhat paradoxically, Chainalysis also states that due to DeFi's transparency, DeFi is a poor choice for obfuscating the movement of funds being stolen. See Chainalysis (n 23) 24.

<sup>49</sup> Federal Bureau of Investigation, 'Cyber Criminals Increasingly Exploit Vulnerabilities in Decentralized Finance Platforms to Obtain Cryptocurrency, Causing Investors to Lose Money' (*FBI*, public service announcement, 29 August 2022) <[www.ic3.gov/Media/Y2022/](https://www.ic3.gov/Media/Y2022/)>

consequence of the theft itself, but also due to the inability of authorities to hold anyone accountable for errors in the operation of the DeFi protocols which were at fault for the cyberattack, as a result of the high degree of protocol decentralisation.<sup>50</sup>

Regarding investment scams, DeFi scams consist of cases where a scammer programs a crypto token's underlying smart contract to perform a 'rug pull'; this is the malicious abandonment of the crypto project by the development team in which they cash out or remove all of the project's liquidity, therefore running away with investors' funds.<sup>51</sup> There are many different types of rug pulls, with some of the most commonly used being: honeypots, which prevent buyers from re-selling their tokens; hidden mints, which enable developers to create unlimited new tokens, thereby depreciating the value of investors' investments; hidden balance modifiers, giving developers the ability to directly edit users' balances; fake ownership renunciations, which let developers hide the fact that they can call sensitive functions; and hidden transfers, which give developers the power to transfer tokens from users to themselves. Of these, honeypots account for almost 50% of all DeFi rug pulls.<sup>52</sup>

Dangers exist far outside the scope of influence of the developers themselves. Other market participants can exert an influence on the price of crypto assets without anyone being able to determine if someone is engaging in malevolent practices. If there is no effective way to ascertain the true identities of the traders or owners of smart contracts, it becomes highly challenging to differentiate whether asset prices and trading volumes are being driven by genuine market interest; manipulative practices, such as a single individual utilising bots to control multiple wallets; or a coordinated group engaging in collusive trading. DeFi eliminates the intermediaries holding crucial gatekeeping roles and operates independently of the established investor and market protection framework. As a result, retail investors may lack access to professional financial advisors or other intermediaries who traditionally aid in evaluating the quality and legitimacy of investments. In TradFi, these

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PSA220829> accessed 13 August 2023. C Ferguson, 'Banking Is a Criminal Industry Because Its Crimes Go Unpunished' (*HuffPost*, 15 September 2012) <[www.huffpost.com/entry/bank-crimes\\_b\\_1675714](http://www.huffpost.com/entry/bank-crimes_b_1675714)> accessed 25 July 2023.

<sup>50</sup> I Salami, 'Challenges and Approaches to Regulating Decentralized Finance' (2021) 115 *AJIL Unbound* (e-journal) 425.

<sup>51</sup> 'Rug pull' (*Binance Academy Glossary*) <<https://academy.binance.com/en/glossary/rug-pull>> accessed 29 July 2023; 'Rug pull' (*Alexandria Glossary*) <<https://coinmarketcap.com/alexandria/glossary/rug-pull>> accessed 27 August 2023.

<sup>52</sup> 'What Is a Rug Pull? DeFi and Exit Scams Explained' (*Solidus Labs*, 27 October 2022) <[www.soliduslabs.com/post/rug-pull-crypto-scams#:~:text=DeFi%20scammers%20may%20modify%20their,rug%20out%20from%20under%20investors](http://www.soliduslabs.com/post/rug-pull-crypto-scams#:~:text=DeFi%20scammers%20may%20modify%20their,rug%20out%20from%20under%20investors)> accessed 27 July 2023.

intermediaries play a significant role in reducing fraud and assessing risks, but in the realm of DeFi, there are limited alternatives who can provide similar levels of assistance.<sup>53</sup>

### **3.1 The consumer protection regulatory landscape**

#### *3.1.1 The EU: stretching the boundaries of MiCA and MiFID II*

On 20 April 2023, the European Parliament adopted MiCA,<sup>54</sup> a long-awaited framework for the functioning of markets in crypto assets. It has been described as ‘the first and only legislation of its kind in the world’, ‘position[ing] Europe as an attractive region in the crypto market’.<sup>55</sup> Two remarks about MiCA must be made at this point: firstly, MiCA is a legal act with a broad reach, covering all three identified legal areas, with the relevant parts being elaborated at appropriate places in this paper; secondly, MiCA’s application to DeFi is arguable, due to it explicitly not applying<sup>56</sup> to services which are performed in a fully decentralised manner without any intermediary.<sup>57,58</sup> However, for the purposes of this

<sup>53</sup> CA Crenshaw, ‘Statement on DeFi Risks, Regulations, and Opportunities’ (SEC, 9 November 2021) <[www.sec.gov/news/statement/crenshaw-defi-20211109](http://www.sec.gov/news/statement/crenshaw-defi-20211109)> accessed 20 August 2023.

<sup>54</sup> Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 [2023] OJ L150/40 (hereinafter MiCA).

<sup>55</sup> ‘EU Markets in Crypto-Assets (MiCA) Regulation: What Is It and Why Does It Matter?’ (BBVA, 20 April 2023) <[www.bbva.com/en/innovation/eu-markets-in-cryptoassets-mica-regulation-what-is-it-and-why-does-it-matter/](http://www.bbva.com/en/innovation/eu-markets-in-cryptoassets-mica-regulation-what-is-it-and-why-does-it-matter/)> accessed 16 August 2023.

<sup>56</sup> MiCA (n 54) Preamble, para 22.

<sup>57</sup> In the Preamble, MiCA defines its scope of application, stating that it applies to natural and legal persons, certain other undertakings and to the crypto-asset services and activities performed, provided or controlled, directly or indirectly by them, but only when part of such activities or services is performed in a decentralised manner. When these services are performed in a fully decentralised manner without any intermediary, they do not fall within the scope of this Regulation (MiCA, Preamble, para 22). This regulatory decision has already been criticised, since determining whether a service is only partially or fully decentralised is, in essence, impossible. Some view the concept of decentralisation at the infrastructure level (with the possibility of also including decentralisation at the front end and custody), while others find that it is not just a question of how many nodes or physical computers support the service, but rather the ‘political’ aspect of who controls it and how they exercise that control. For more, see C Veas, ‘DeFi and MiCA: How Much Decentralisation Is Enough?’ (CMS, 24 May 2023) <<https://cms.law/en/int/publication/legal-experts-on-markets-in-crypto-assets-mica-regulation/defi-and-mica-how-much-decentralisation-is-enough>> accessed 3 August 2023.

<sup>58</sup> Even the regulators are not certain when it comes to answering the question whether or not MiCA applies to DeFi. For example, the ESRB has concluded the following: ‘Despite their name, DeFi protocols can never be fully decentralised. They need mechanisms for making strategic decisions, adapting to changes and correcting errors. Governance, operation and maintenance always have a significant degree of centralisation’. See ESRB (n 29) 8. MiCA



paper, and since there are reasonable arguments to be made for its application to DeFi, the rest of this paper will be based on the assumption that regulators could apply MiCA to DeFi, while at the same time acknowledging its shortcomings.

Entities covered by MiCA, or crypto-asset service providers (CASPs), include custodial wallets, exchanges for crypto-to-crypto transactions or crypto-to-fiat transactions, crypto-trading platforms, crypto-asset advising firms, and crypto-portfolio managers. MiCA's focus on consumer protection is visible through the imposition of an obligation on the CASP to issue white papers containing information about the issuer, the crypto asset, the rights and obligations attached to the crypto asset, the underlying technology, risks, etc.<sup>59</sup> More importantly, however, MiCA also expressly imposes the liability of the issuers of e-money tokens for the information given in a crypto-asset white paper.<sup>60</sup> Specifically, if the issuer provides information that is not complete, fair, or clear, or that is misleading, that issuer and the members of its administrative, management, or supervisory body will be liable to a holder of such an e-money token for any loss incurred due to that infringement. In order to prevent any contractual mechanisms aimed at avoiding this liability, MiCA states that any contractual exclusion or limitation of civil liability will be deprived of legal effect. It can be concluded that such provisions could also be applicable to DeFi platforms (or, more precisely, their operators) as well.<sup>61</sup> In order to prevent investment scams, MiCA also stipulates

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explicitly states that it does not apply to crypto-asset services and activities performed in a fully decentralised manner without any intermediary. This would mean that every DeFi protocol is in fact covered by MiCA. However, the ESRB's report stated that DeFi is on the perimeter of MiCA, essentially meaning that certain protocols do not fall within its scope. That said, the expert public is also unsure of MiCA's scope. While the general understanding is that DeFi was to be omitted from MiCA's scope, some have put forward their opinions that DeFi is not to be excluded and that it is actually to a significant extent covered by MiCA. As Galea points out, 'the interpretation of the law is typically at the hands of the regulatory & supervisory authorities and the courts of the land, not the legislator'. The ESRB's opinion that no DeFi is ever really fully decentralised might be seen as an indication of the regulators' practice in the future, which could compensate for an insufficient explicit legal framework. It would, in fact, be very difficult to apply MiCA's provisions to extremely decentralised protocols, but extensive interpretation is most certainly not foreign to EU institutions. For more, see J Galea, 'Is DeFi Really Excluded from MiCA's Scope?' (BCAS, 28 March 2023) <<https://blog.bcas.io/is-defi-really-excluded-from-micas-scope>> accessed 6 August 2023; Shyft Network, 'Navigating Regulatory Challenges: MiCA and the DeFi Landscape' (*Medium*, 6 June 2023) <<https://medium.com/shyft-network/navigating-regulatory-challenges-mica-and-the-defi-landscape-5fd0fe86045d#:~:text=MICA%20aims%20to%20regulate%20crypto,of%20decentralization%20in%20DeFi%20services>> accessed 1 August 2023.

<sup>59</sup> MiCA (n 54) Articles 19 and 51.

<sup>60</sup> *ibid*, Article 52.

<sup>61</sup> Entities establishing DeFi platforms could be obliged to issue white papers providing information on the functioning of DeFi protocols, the services they provide, risks, underlying technology, etc.

that all members of the management body of the CASP, as well as all shareholders of the CASP, must provide evidence for the absence of a criminal record with respect to convictions or the absence of penalties imposed under applicable commercial law, insolvency law, and financial services law, or in relation to anti-money laundering and counter-terrorist financing, fraud, or professional liability.<sup>62</sup> This translates to more transparent CASP management and ownership structures through background checks, which ensures that CASPs are not owned and run by those who have already carried out misuses in the past.

Still, enforcing the abovementioned will prove difficult. Even if MiCA applies to DeFi, how will the regulators be able to determine the management and ownership structures of DeFi CASPs? Who will in the end be liable for misleading white papers? Without the effective enforcement of a legal framework designed to ensure the security of end users, which can be achieved only when fraudulent behaviour is sanctioned, DeFi could become unattractive not only to new users but also to existing ones. If there is no regulation, tech-savvy users will still be willing to experiment with new technologies and use their benefits, even with the risks involved. However, when a regulatory framework is adopted, the users' perception changes; they expect a certain level of security, even if the adopted acts fall short of an optimal level of protection. If they then become victims of a rug pull, even when there is a legal framework in place, there is a high possibility that they will completely stop utilising DeFi as a whole, due to the loss of trust in any authorities which should be able to provide at least some protection. The consequences of such legal solutions could therefore be far reaching, undermining trust in the safeguards in place, thereby having a negative effect on DeFi's market perception.

MiCA's rules could be supplemented by the provisions of the MiFID II directive.<sup>63,64</sup> In essence, MiFID II regulates various financial instruments, including derivatives, transferable securities, and various types of contracts relating to commodities. Some DeFi protocols offer tokens or assets that could potentially be categorised as financial instruments, especially if they exhibit characteristics of traditional securities or

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<sup>62</sup> MiCA (n 54) Article 18 para 5.

<sup>63</sup> Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) [2014] OJ L173/349 (hereinafter MiFID II or MiFID).

<sup>64</sup> Bron, for example, argues that DeFi platforms that operate within the European Union may come under the purview of existing regulations, such as MiFID and the Prospectus Regulation, contingent on the specific services they offer. See D Bron, 'The Legal Aspects of Decentralized Finance (DeFi): Regulation, Compliance, and Consumer Protection' (*LinkedIn*, 19 April 2023) <<https://www.linkedin.com/pulse/legal-aspects-decentralized-finance-defi-regulation-daniel-bron->> accessed 20 July 2023.

derivatives.<sup>65</sup> MiFID, for example, introduced new powers to supervisors at both national and European level – these include the right to access any document or other data in any form which the competent authority considers could be relevant for the performance of its duties; to receive or take a copy of this document or data; to demand the provision of information from any person and, if necessary, to summon and question a person with a view to obtaining information; to carry out on-site inspections or investigations; to require the freezing and/or sequestration of assets; to require the temporary prohibition of professional activity; to require the auditors of authorised investment firms, regulated markets, and data-reporting-service providers to provide information; etc.<sup>66</sup> These rules, giving wide supervisory authority to regulators, mean that the framework established by MiFID is already tried and tested, and regulators have extensive experience in its interpretation. Due to the width of its application and the goals which it aims to achieve – consumer protection, as well as preventing market abuse and manipulation – regulators may very well try to argue that certain DeFi protocols do fall within MiFID's scope, in order to monitor and mitigate these risks. MiCA does contain special rules concerning the supervisory powers of regulators,<sup>67</sup> but these rules bear great resemblance to those introduced by MiFID. This is exactly why regulators could interpret them just as they have over the past ten years during the implementation of MiFID and national legislation transposing MiFID. This could result in an increased level of consumer protection without any additional legislative activity.

### 3.1.2 *The US – the SEC, the CFTC, and regulation-by-enforcement*

Although lacking a specific legal framework regulating DeFi, US regulators have decided to crack down on DeFi platforms through a very strict approach, which some have named 'regulation-by-enforcement', as opposed to the alternative of developing a tailor-made regulatory

<sup>65</sup> Smart contracts and blockchain technology, the basis of DeFi, is used to provide financial services such as trading and yield farming, which does not necessarily fall under the same regulatory framework as traditional financial products and services. However, in 2021 the European Central Bank (ECB) published its Opinion on a proposal for a regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937. In it, while discussing the proposal of MiCA, the ECB emphasised that 'more clarity is needed with respect to the distinction between crypto-assets that may be characterized as financial instruments (falling under the scope of the MiFID II) and those which would fall under the scope of the proposed regulation'. For more, see Opinion of the European Central Bank of 19 February 2021 on a proposal for a regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 (CON/2021/4) 2021/C 152/01 [2021] OJ C152/1, para 1.4 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021AB0004>> accessed 3 August 2023. Bron (n 64) has also asserted that DeFi could fall within the scope of MiCA.

<sup>66</sup> MiFID II (n 63) Article 69.

<sup>67</sup> MiFID II (n 63) Article 94 para 2.

framework for the crypto sector.<sup>68</sup> For example, in April 2023, the Securities and Exchange Commission (SEC) declared that rules governing trading exchanges in the US also apply to DeFi, by altering proposed amendments to the definition of an exchange under Exchange Act Rule 3b-16.<sup>69,70</sup> Such a statement was not a change of stance by the SEC, since it already proposed the amendments in January 2022; the new proposal simply clarified the view the SEC had already taken – existing exchange rules must apply to DeFi.<sup>71</sup> Such an approach considers consumer protection to be the most important goal, and it is to be achieved via a regulatory framework. However, consequently, this could also lead to the exact opposite, driving DeFi platforms offshore where regulation isn't necessarily as strict, and could result in less protection for domestic

<sup>68</sup> C Mesidor, 'SEC Regulation of DeFi Could Box out Diverse Entrepreneurs and Impact Projects' (*Forbes*, 9 July 2023) <<https://www.forbes.com/sites/digital-assets/2023/07/09/sec-regulation-of-defi-could-box-out-diverse-entrepreneurs-and-impact-projects/>> accessed 27 August 2023.

<sup>69</sup> US Securities and Exchange Commission, 'SEC Reopens Comment Period for Proposed Amendments to Exchange Act Rule 3b-16 and Provides Supplemental Information' (SEC, press release, 14 April 2023) <[www.sec.gov/news/press-release/2023-77](http://www.sec.gov/news/press-release/2023-77)> accessed 15 August 2023.

<sup>70</sup> The declaration had a significant impact, with all relevant media outlets conveying the news. For more, see J Hamilton, 'SEC Lays Its Cards on the Table With Assertion That DeFi Falls Under Securities Rules' (*Coindesk*, 17 April 2023) <[www.coindesk.com/policy/2023/04/17/sec-lays-its-cards-on-the-table-with-assertion-that-defi-falls-under-securities-rules/](http://www.coindesk.com/policy/2023/04/17/sec-lays-its-cards-on-the-table-with-assertion-that-defi-falls-under-securities-rules/)> accessed 21 August 2023; L Beyoud, 'SEC's Gensler Takes on Crypto DeFi Exchanges With Refreshed Rule Plan' (*Bloomberg*, 14 April 2023) <[www.bloomberg.com/news/articles/2023-04-14/gensler-takes-on-crypto-defi-exchanges-with-refreshed-rule-plan#xj4y7vzkg](http://www.bloomberg.com/news/articles/2023-04-14/gensler-takes-on-crypto-defi-exchanges-with-refreshed-rule-plan#xj4y7vzkg)> accessed 23 August 2023; C Prentice and H Lang, 'U.S. SEC Sees Decentralized Crypto Platforms as Exchanges, Seeks Public Input' (*Reuters*, 14 April 2023) <[www.reuters.com/markets/us/us-sec-weigh-taking-more-feedback-plan-expand-exchange-definition-2023-04-14/](http://www.reuters.com/markets/us/us-sec-weigh-taking-more-feedback-plan-expand-exchange-definition-2023-04-14/)> accessed 27 August 2023.

<sup>71</sup> The industry instantly criticised this decision, seeing it as an unlawful attack on their freedom to develop new technologies. More surprisingly, however, the SEC has faced criticism from within as well. Commissioner Hester Pierce published a dissenting opinion 'Rendering Innovation Kaput: Statement on Amending the Definition of Exchange' in which she stated the following: 'Rather than embracing the promise of new technology as we have done in the past, here we propose to embrace stagnation, force centralization, urge expatriation, and welcome extinction of new technology'. She stated in a different interview: 'We see this new technology, and we're not willing to make any adjustments to accommodate it. If you don't look exactly like incumbent firms, then we're just going to be fine with killing you off or driving you offshore or forcing you to turn yourself into a centralized entity'. On the other hand, Gary Gensler, the chair of the SEC, explicitly stated that crypto firms can and must operate within the bounds of the law (Gensler, 2023). For more, see HM Peirce, 'Rendering Innovation Kaput: Statement on Amending the Definition of Exchange' (SEC, 14 April 2023) <[www.sec.gov/news/statement/peirce-rendering-innovation-2023-04-12](http://www.sec.gov/news/statement/peirce-rendering-innovation-2023-04-12)> accessed 17 August 2023; C Lancaster, 'SEC in the Spotlight as It Moves to Regulate DeFi' (*Payments Journal*, 18 April 2023) <[www.paymentsjournal.com/sec-in-the-spotlight-as-it-moves-to-regulate-defi/](http://www.paymentsjournal.com/sec-in-the-spotlight-as-it-moves-to-regulate-defi/)> accessed 25 May 2024; G Gensler, 'Getting Crypto Firms to Do Their Work within the Bounds of the Law' (*The Hill*, 9 March 2023) <<https://thehill.com/opinion/congress-blog/3891970-getting-crypto-firms-to-do-their-work-within-the-bounds-of-the-law/>> accessed 20 August 2023.

investors. A more moderate approach could therefore prove to be a wiser one. In Japan, such an approach proved successful – the Japanese subsidiary of FTX was the first to restart withdrawals, making it a rare case of customers being able to recover the frozen funds.<sup>72</sup> While the Japanese regulatory framework obliges crypto exchanges to register with the Financial Services Agency, and requires that any foreign entity wishing to register with the Financial Services Agency establishes either a subsidiary (in the form of a *kabushiki kaisha*, or joint-stock company) or a branch in Japan, at the same time it gives the crypto industry self-regulatory status, permitting the Japan Virtual Currency Exchange Association to police and sanction exchanges for any violations.<sup>73</sup> This kind of approach may foster cooperation between the industry and regulators, while still ensuring a satisfactory level of customer protection. It remains to be seen whether the SEC will change its stance in the aftermath of the US presidential elections, due to its change in leadership.<sup>74</sup>

The US Commodity Futures Trading Commission (CFTC) has made the biggest steps in enforcing existing rules on DeFi platforms in the US.<sup>75</sup> The CFTC has recently directed its focus towards DeFi – in June 2023, the CFTC secured a default judgment against Ooki DAO, a DAO facilitating trading based on the price differentials of digital assets. Determining these transactions to be retail commodity activities within its jurisdiction, the CFTC mandated Ooki DAO to register under the Commodity Exchange Act (CEA). Amidst widespread industry and academic speculation, the US District Court for the Northern District of California

<sup>72</sup> Z Tayeb, 'FTX's Crypto Customers in Japan Can Now Get Their Frozen Money Back as It Starts Allowing Withdrawals' (*Business Insider*, 21 February 2023) <<https://markets.businessinsider.com/news/currencies/crypto-fts-collapse-japan-customers-start-withdraw-money-frozen-funds-2023-2>> accessed 14 November 2024.

<sup>73</sup> T Nagase and others, 'Blockchain & Cryptocurrency Laws and Regulations 2025: Japan' (*Mondaq*, 14 November 2024) <[www.mondaq.com/fin-tech/1544186/blockchain-cryptocurrency-laws-and-regulations-2025-japan](http://www.mondaq.com/fin-tech/1544186/blockchain-cryptocurrency-laws-and-regulations-2025-japan)> accessed 14 November 2024; and T Uranaka, 'Japan Grants Cryptocurrency Industry Self-regulatory Status' (*Reuters*, 24 October 2018) <[www.reuters.com/article/technology/japan-grants-cryptocurrency-industry-self-regulatory-status-idUSKCN1MY10W/](http://www.reuters.com/article/technology/japan-grants-cryptocurrency-industry-self-regulatory-status-idUSKCN1MY10W/)> accessed 14 November 2024.

<sup>74</sup> Gary Gensler, SEC's chairman, stepped down from the SEC following the presidential elections effective on 20 January 2025. As opposed to Gary Gensler's stance on cryptocurrency, the new SEC chairman, Paul Atkins, is known as a backer of cryptocurrencies. For more, see 'Trump Picks Crypto Backer Paul Atkins as New Securities and Exchange Commission Chair' (*NPR*, 4 December 2024) <<https://www.npr.org/2024/12/04/g-s1-36803/trump-crypto-paul-atkins-sec-chair>> accessed 19 January 2025.

<sup>75</sup> Other regulators, such as the SEC, have not been so successful. For example, in *SEC v Ripple Labs*, the court found that the XRP token does not qualify as a security when sold to the public on an exchange, but it is when sold to institutional investors. Such a decision may have far-reaching effects on the future of crypto asset regulation. See US District Court, Southern District of New York, *Securities and Exchange Commission vs Ripple Labs, Inc, et al*, <[https://storage.courtlistener.com/recap/gov.uscourts.nysd.551082/gov.uscourts.nysd.551082.874.0\\_2.pdf](https://storage.courtlistener.com/recap/gov.uscourts.nysd.551082/gov.uscourts.nysd.551082.874.0_2.pdf)> accessed 26 May 2024.

ruled in favour of the CFTC, establishing Ooki DAO as a legal entity under the CEA, marking a precedent-setting decision regarding the legal status of DAOs under federal jurisdiction.<sup>76</sup> The CFTC's focus on consumer protection can be seen in a statement given by Ian McGinley, then Director of the CFTC's Division of Enforcement, who stated that Ooki DAO's founders created the platform with an evasive purpose, with the explicit goal of operating an illegal trading platform without legal accountability.<sup>77</sup> Following a favourable judgment, the CFTC issued orders simultaneously filing and settling charges against OpyN, Inc; ZeroEx, Inc; and Deridex, Inc. The orders required that OpyN, ZeroEx, and Deridex pay civil monetary penalties of USD 250,000, USD 200,000, and USD 100,000, respectively, and cease and desist from violating CEA and CFTC regulations.<sup>78</sup>

As things currently stand, the CFTC has so far done the most to support consumer protection against misuses common in the DeFi universe.<sup>79</sup> In light of this, it remains to be seen in what way other regulators will adapt their approaches and regulations to address the evolving landscape of DeFi and its associated challenges.<sup>80</sup>

#### 4 Anti-money laundering

The second main issue connected with DeFi, but still related to consumer protection, is covered by another area of law – anti-money

<sup>76</sup> 'Forum: CFTC Announces Its DeFi Presence with Authority' (*Thomson Reuters*, 26 January 2024) <[www.thomsonreuters.com/en-us/posts/government/forum-cftc-defi/](http://www.thomsonreuters.com/en-us/posts/government/forum-cftc-defi/)> accessed 26 May 2024.

<sup>77</sup> 'Statement of CFTC Division of Enforcement Director Ian McGinley on the Ooki DAO Litigation Victory' (CFTC, press release, 9 June 2023) <[www.cftc.gov/PressRoom/PressReleases/8715-23](http://www.cftc.gov/PressRoom/PressReleases/8715-23)> accessed 26 May 2024.

<sup>78</sup> 'CFTC Issues Orders Against Operators of Three DeFi Protocols for Offering Illegal Digital Asset Derivatives Trading' (CFTC, press release, 7 September 2023) <[www.cftc.gov/PressRoom/PressReleases/8774-23](http://www.cftc.gov/PressRoom/PressReleases/8774-23)> accessed 26 May 2024.

<sup>79</sup> These results back up the view of some that the CFTC may be a favourite to helm a proposed US crypto regulatory framework. For example, the CFTC would be given the broadest scope of supervisory powers in regulating crypto (and DeFi) by many current crypto-centred regulatory proposals, such as the Digital Commodity Exchange Act of 2022, the Responsible Financial Innovation Act (RFIA), the Digital Commodities Consumer Protection Act of 2022 (DCCPA) and the Financial Innovation and Technology for the 21st Century (FITC) Act. For more, see 'Forum: CFTC Announces Its DeFi Presence with Authority' (*Thomson Reuters*, 26 January 2024) <[www.thomsonreuters.com/en-us/posts/government/forum-cftc-defi/](http://www.thomsonreuters.com/en-us/posts/government/forum-cftc-defi/)> accessed 26 May 2024.

<sup>80</sup> It seems as if the SEC has taken a hard stance and will not give up on the regulation-by-enforcement approach. In July 2023, a relatively small DeFi project in comparison with others, BarnBridge DAO, announced that it was under investigation by the SEC, with its legal counsel immediately advising on closing any existing liquidity pools, not opening new ones, and all work on BarnBridge products stopped until further notice. For more, see A Shirinyan, 'SEC Attacking Smaller DeFi Projects, What's Happening?' (*U.today*, 7 July 2023) <<https://u.today/sec-attacking-smaller-defi-projects-whats-happening>> accessed 22 August 2023.



laundering, or AML. DeFi can be, and often is, used for the purpose of bypassing laws and regulations. The decentralised and frequently anonymous nature of transactions within these platforms creates challenges in tracing and supervising illicit activities. Furthermore, DeFi services commonly operate without intermediaries, presenting obstacles in applying both AML and combating the financing of terrorism (CFT) measures.<sup>81</sup> The main issues are: certain DeFi services not being covered by existing AML/CFT obligations; weak or non-existent AML/CFT controls in some jurisdictions; pseudonymity; and disintermediation, which is the self-custody and transfer of virtual assets without the involvement of an intermediary financial institution.<sup>82</sup> Perhaps the most troublesome of these is the weak or non-existent AML/CFT controls in some jurisdictions – international cooperation in any area is difficult to achieve, especially in those with direct financial consequences. States want to attract capital, and one of the easiest ways to do so is to enact lenient legislation, which creates a protective environment for potential money laundering, tax evasion, and any other forms of financial crimes.

In connection with AML and CFT measures, there are also know your client (KYC) obligations, which are important for a wide range of professionals, including financial and legal experts. These obligations, in essence, consist of verifying information about a client and trying to spot potentially suspicious activity so it can be flagged as soon as possible. Due to the nature of the services these experts provide – providing consultation services when clients are in trouble, usually in marginal situations – their AML/CFT and KYC obligations can come into direct conflict with their obligation to keep their clients' information confidential, as well as to protect their clients' best interests, eg when defending a client from money laundering accusations.

## **4.1 The anti-money laundering regulatory landscape**

### **4.1.1 The EU – the Fifth Anti-Money Laundering Directive**

The Fifth Anti-Money Laundering Directive (5AMLD)<sup>83</sup> is an EU directive designed to strengthen AML, CFT, and KYC obligations at the

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<sup>81</sup> Bron (n 64).

<sup>82</sup> 'Illicit Finance Risk Assessment of Decentralized Finance' (US Department of the Treasury, April 2023) <<https://home.treasury.gov/system/files/136/DeFi-Risk-Full-Review.pdf>> accessed 27 August 2023.

<sup>83</sup> Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU [2018] OJ L156/43 (hereinafter 5AMLD). On 31 May 2024, the Sixth Money Laundering Directive was adopted, with Member States having the

EU level, by providing a more detailed framework which Member States needed to transpose into their national legislations by 10 January 2020.<sup>84</sup> The main improvements include changes to improve the transparency of registers of beneficial owners, enhanced customer due diligence measures, and also an extension of the scope of persons subject to AML and CFT measures, in particular due to technological advancements.<sup>85</sup> Cryptocurrency and DeFi are attractive to those with malicious intent because of the anonymity they provide. Obviously, a quick reaction was needed, and the proposal was quickly adopted. However, a legal vacuum still exists concerning DeFi.

Generally speaking, 5AMLD demands that centralised cryptocurrency exchanges and wallet providers which operate within the territory of the EU verify the identities of those who are participating in transactions, as well as fulfil certain data-sharing obligations. The problem is that DeFi is, as the name suggests, decentralised. There are DeFi protocols with different levels of decentralisation, but if DeFi protocols are sufficiently decentralised, they will not be covered by 5AMLD. In addition, even if they fall within the scope of 5AMLD, incorporating KYC requirements into DeFi protocols poses significant challenges due to their nature – consent would have to be obtained from a diffuse network of governance-token holders worldwide, some, if not most, of whom would not like for this to happen.<sup>86</sup>

As a result, the current legal framework concerning AML, CFT and KYC obligations is lacking in the context of DeFi. While certain steps have been taken with regards to centralised cryptocurrency exchanges, crypto assets are in general still underregulated. However, certain attempts are being made to change this. As part of an EU AML package,<sup>87</sup> a regulation of the European Parliament and of the Council on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing could include some rules which would explicitly regulate DeFi. Although still in the early stages, some amendments to

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obligation to transpose it into their national legal systems by 10 July 2027. For more see Directive (EU) 2024/1640 of the European Parliament and of the Council of 31 May 2024 on the mechanisms to be put in place by Member States for the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Directive (EU) 2019/1937, and amending and repealing Directive (EU) 2015/849.

<sup>84</sup> 5AMLD (n 83) Preamble, para 53.

<sup>85</sup> '5th AML Directive. Key Aspects' (Arendt, 2018) <[www.arendt.com/jcms/p\\_15555/en/5th-aml-directive-key-aspects](http://www.arendt.com/jcms/p_15555/en/5th-aml-directive-key-aspects)> accessed 10 August 2023.

<sup>86</sup> Salami (n 50).

<sup>87</sup> 'The EU AML Package: Where Is It in the Legislative Process?' (EY, 12 June 2023) <[www.ey.com/en\\_mt/articles/the-eu-aml-package---where-is-it-in-the-legislative-process-](http://www.ey.com/en_mt/articles/the-eu-aml-package---where-is-it-in-the-legislative-process-)> accessed 27 August 2023.

the proposal for the abovementioned regulation do seem to be heading in the right direction. The proposed amendments state that:

Decentralised Autonomous Organisations (DAO) and other Decentralised Finance (DeFi) arrangements should also be subject to Union AML/CFT rules to the extent they perform or provide, for or on behalf of another person, crypto-asset services which are controlled directly or indirectly, including through smart contracts or voting protocols, by identifiable natural and legal persons. Developers, owners or operators which fall within the scope of this Regulation should assess the risks of money laundering and terrorist financing before launching or using a software or platform and should take appropriate measures in order to mitigate the risks of money laundering and terrorist financing on an ongoing and forward-looking manner.<sup>88</sup>

Whether these amendments will be implemented remains to be seen, since they also state that DAO or DeFi arrangements should be considered to be crypto-asset service providers falling within the scope of MiCA. As was previously discussed, the applicability of MiCA to DeFi is arguable. Still, this is currently the closest thing to explicit DeFi obligations in EU law.

#### 4.1.2 *The US – IIJA, the Bill, and regulatory competition*

The Infrastructure Investment and Jobs Act (IIJA)<sup>89</sup> was signed into law on 15 November 2021. Although unusual for an act of its name, it does in fact include two provisions affecting the reporting of transactions involving digital assets, including cryptocurrency. The first imposes the obligation to report transfers of digital assets via Form 1099-B filing, while the second requires transaction participants to report transactions of digital assets amounting to over USD 10,000. These provisions apply to returns that are required to be filed after 31 December 2023.<sup>90</sup> In essence, IIJA's provisions impose certain KYC obligations on cryptocurrency brokers regarding their clients and customers for tax purposes.

On 18 July 2023, the US Senate proposed a new bill – a bill to clarify the applicability of sanctions and anti-money laundering compliance

<sup>88</sup> European Parliament, 'Report on the proposal for a regulation of the European Parliament and of the Council on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing' (2023) <[www.europarl.europa.eu/doceo/document/A-9-2023-0151\\_EN.html](http://www.europarl.europa.eu/doceo/document/A-9-2023-0151_EN.html)> accessed 14 August 2023.

<sup>89</sup> Infrastructure Investment and Jobs Act, *117th Congress*, HR3684 (2023) <[www.congress.gov/bill/117th-congress/house-bill/3684/text](http://www.congress.gov/bill/117th-congress/house-bill/3684/text)> accessed 15 August 2023.

<sup>90</sup> 'Infrastructure Investment and Jobs Act Contains New Cryptocurrency Reporting Requirements' (BDO, 5 January 2022) <[www.bdo.com/insights/tax/infrastructure-investment-and-jobs-act-contains-new-cryptocurrency-reporting-requirements](http://www.bdo.com/insights/tax/infrastructure-investment-and-jobs-act-contains-new-cryptocurrency-reporting-requirements)> accessed 27 August 2023.

obligations to United States persons in the decentralized finance technology sector and virtual currency kiosk operators, and for other purposes, or for short, the Crypto-Asset National Security Enhancement Act of 2023.<sup>91</sup> Unlike other regulations analysed so far, this bill focuses on DeFi specifically, and expresses the Senate's intent to regulate DeFi more strictly, mostly by imposing certain AML obligations.<sup>92</sup>

The Senate identifies the main issue of regulating DeFi – determining who has control over the whole system, which could potentially even be fully decentralised, at least in the future. Consequently, in Sec 2(a)(1), it defines the term control over a digital asset protocol as:

the power, directly or indirectly, to direct a change in the computer code or other terms governing the operation of the protocol, as determined by the Secretary of the Treasury. Such power may be exercised through ownership of governance tokens, administrator privileges, ability to alter or upgrade computer code, or otherwise.

Usually, control over a DeFi protocol is exercised by the developer, who has access to the code of the protocol. In order to prevent abuses in more specific cases, the Bill introduces two safeguards. Sec 2(a)(4) introduces the term 'digital asset protocol backer', meaning a person who holds governance tokens of a digital asset protocol valued at more than USD 25 million or who makes an investment in the development of a digital asset protocol of the same value, as well as a combination of investments totalling at least USD 25 million, with each of the investments being at least USD 2.5 million. This ensures that liability is determined even in cases where 'control' cannot be – as a backstop, anyone who invests more than USD 25 million in developing a project will be responsible for AML obligations, such as conducting due diligence on the customers and reporting suspicious transactions to the Financial Crimes Enforcement Network.<sup>93</sup> Sec 2(a)(5) introduces a 'digital asset transaction facilitator' – a person who controls a digital asset protocol, but also a person who provides access to an application designed to facilitate transactions using a digital asset protocol. This can be interpreted as a reference to groups who build

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<sup>91</sup> 'A Bill to clarify the applicability of sanctions and anti-money laundering compliance obligations to United States persons in the decentralized finance technology sector and virtual currency kiosk operators, and for other purposes' [2023] *US Senate, 118th Congress*, S.2355 <[www.congress.gov/bill/118th-congress/senate-bill/2355/text?s=3&r=1](https://www.congress.gov/bills/118/congressional-legislation/2355/text/s3/r1)> accessed 25 May 2024.

<sup>92</sup> D Nelson, 'New US Senate Bill Wants to Regulate DeFi Like a Bank' (*Coindesk*, 19 July 2023) <[www.coindesk.com/policy/2023/07/19/new-us-senate-bill-wants-to-regulate-defi-like-banks/](https://www.coindesk.com/policy/2023/07/19/new-us-senate-bill-wants-to-regulate-defi-like-banks/)> accessed 17 August 2023.

<sup>93</sup> MR Warner, 'US Senators Unveil Crypto Anti-Money Laundering Bill to Stop Illicit Transfers' (*US Senate*, press release, 19 July 2023) <[www.warner.senate.gov/public/index.cfm/2023/7/bipartisan-u-s-senators-unveil-crypto-anti-money-laundering-bill-to-stop-illicit-transfers](https://www.warner.senate.gov/public/index.cfm/2023/7/bipartisan-u-s-senators-unveil-crypto-anti-money-laundering-bill-to-stop-illicit-transfers)> accessed 21 August 2023.

user-friendly frontends for protocol smart contracts that would otherwise be hard to understand and implement. For example, Uniswap Labs does this for Ethereum's top decentralised exchange.<sup>94</sup> These groups will also have to comply with the Bill's requirements.

Although very short, the Bill manages to pinpoint the main issues relating to DeFi regulation. Despite its brevity, the Bill goes beyond every other legal act in regulating DeFi. Its rules seem to be very precise, applicable to a clearly defined scope of subjects. The Bill does not contain provisions of general character; instead, it tries to impose concrete obligations on three specific groups – those who exercise control over digital asset protocols, digital asset transaction facilitators, and digital asset protocol backers – adopting a 'regulate-DeFi-like-a-bank' approach. Although still only a proposal, which could change significantly up until its adoption and entry into force, it can be used as an example of a framework which takes into consideration the specifics of DeFi and does not prevaricate by adopting a soft approach which excludes some DeFi protocols.

## 5 Jurisdiction and applicable law

### 5.1 The multi-jurisdictional aspect

As opposed to traditional financial institutions, which must adhere to strict regulations concerning capital requirements, risk management, and consumer protection, DeFi platforms often operate without a central authority or clear lines of responsibility. This makes it difficult to apply existing regulations – since their application relies on the existence of strong connections to a particular place or jurisdiction – resulting in jurisdictional challenges and making it almost impossible to determine applicable law.<sup>95</sup> DeFi protocols with a high degree of decentralisation and DAOs can easily escape regulation. DAOs can be run strictly through the codes and protocols which form the basis of DeFi's operation. Salami<sup>96</sup> also provides an analysis of fully decentralised DAOs, which could

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<sup>94</sup> Nelson (n 92).

<sup>95</sup> Bron (n 64). For many of these concepts, even uniform definitions do not exist. For example, smart contracts are usually determined by their inherent characteristics, and not by a single definition. This only presents more of a problem when jurisdictional problems are considered. As explained by Dell'Erba, in the absence of a relevant jurisdiction, smart contracts carry no inherent legal meaning. See 'Decentralised Finance: A Categorization of Smart Contracts' (ESMA, 11 October 2023) <[www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3351\\_TRV\\_Article\\_Decentralised\\_Finance\\_A\\_Categorisation\\_of\\_Smart\\_Contracts.pdf](http://www.esma.europa.eu/sites/default/files/2023-10/ESMA50-2085271018-3351_TRV_Article_Decentralised_Finance_A_Categorisation_of_Smart_Contracts.pdf)> accessed on 26 May 2024. Cf M Dell'Erba, 'Do Smart Contracts Require a New Legal Framework? Regulatory Fragmentation, Self-regulation, Public Regulation' (2018) University of Pennsylvania Journal of Law & Public Affairs <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3228445](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3228445)> accessed 26 May 2024.

<sup>96</sup> Salami (n 50).

operate and be governed entirely by a code or a protocol without any influence from a central body such as a software developer. In such cases, the question of who would be regulated for the activities occurring within such DAOs remains open. Although it is arguable whether full decentralisation is even plausible, as was previously discussed, the provided example still illustrates potential problems. In addition, although full decentralisation arguably does not currently exist, it is only a matter of time before technological advances will make it a reality. In instances without a physical presence or, even more problematic, with a digital presence in multiple locations, the current regulatory framework does not provide sufficient criteria for determining jurisdiction and applicable law. This is also the first step when resolving disputes, if and when they arise. Attempts at creating efficient decentralised dispute-resolution platforms, as an answer to the decentralised nature of DeFi, have so far shown to be potentially even more problematic, since they raise questions about the enforceability of decisions, their quality, as well as their compatibility with existing legal frameworks.<sup>97</sup>

This problem can be emphasised even more in the presence of strict regulation. By implementing a static approach to regulating a dynamic technological development such as DeFi, the result may not be the protection of investors or a well-functioning financial market. It may not even prevent certain users from accessing DeFi protocols. DeFi platforms would exit or never enter such jurisdictions, but any user with an internet connection would be able to access the services they offer.<sup>98</sup> In other words, it would not ensure any protection but rather would only create more problems as, thus far, there is little to no coordination between different jurisdictions, nor are there clear criteria for establishing applicable law. Even if such criteria existed, enforceability remains questionable.

Still, initial attempts at ensuring multi-jurisdictional cooperation have been made at the EU level. Based on the provisions contained in Article 107 paragraphs 1 and 3 of MiCA, ESMA has (in cooperation with the EBA) adopted a template document for cooperation arrangements which competent national authorities can conclude with supervisory authorities of third countries concerning the exchange of information with those supervisory authorities and the enforcement of obligations under MiCA in

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<sup>97</sup> Bron (n 64).

<sup>98</sup> Blockchain Association and DeFi Education Fund, 'Reply to the Notice of Proposed Amendments to Exchange Act Rule 3b-16 Regarding the Definition of "Exchange"; Regulation ATS for ATSs That Trade US Government Securities, NMS Stocks, and Other Securities; Regulation SCI for ATSs That Trade US Treasury Securities and Agency Securities' (SEC, Release No 34-94868; File No S7-02-22, 13 June 2022) <<https://www.sec.gov/comments/s7-02-22/s70222-202979-407862.pdf>> accessed 20 August 2023.



those third countries.<sup>99</sup> It remains to be seen whether competent national authorities will actually conclude such agreements – this will depend on a multitude of factors, especially the political willingness of both sides (the EU and third countries). Japan has also recently decided to draft new legislation to prevent domestic assets from being transferred out of the country in cases of foreign crypto-exchange bankruptcies. Under the new regulatory framework, cryptocurrency exchanges would be prohibited from transferring assets belonging to Japanese residents to foreign entities during a domestic financial crisis. This measure aims to protect local investors from potential losses resulting from the bankruptcy of exchanges based abroad, which is often the case (eg with Bahamas-based FTX).<sup>100</sup> Through such interventions, Japan is starting to place more emphasis on the multi-jurisdictional aspect of crypto regulation, making significant strides in the area of consumer protection as well.

## 5.2 The intra-jurisdictional aspect

In addition to certain jurisdictional issues at the international level, cooperation may become an issue even within a single jurisdiction. For example, different regulatory bodies may want to expand their regulatory authorities to a new, unregulated area. Digital assets, unlike traditional assets, are not governed by a single agency, nor are they overseen by a centralised regulated exchange. This consequently results in regulatory arbitrage, as competition between regulators leads to less effective enforcement of still rather modest rules, as well as a lesser degree of clarity for all market participants.

This issue has so far proved to be most complex in the US. For example, the aforementioned IIJA reflects the intention of the Internal Revenue Service (IRS) to increase its regulatory power over cryptocurrencies and digital assets in general,<sup>101</sup> influencing DeFi as well. Different regulators are treating cryptocurrency differently – the SEC applies the Howey principle, a test conducted by US regulators to determine wheth-

<sup>99</sup> ESMA, EBA and EIOPA (n 7).

<sup>100</sup> C Hope, 'Japan Tightens Crypto Laws on Domestic Assets to Prevent FTX Repeat' (Yahoo Finance, 6 November 2024) <[https://finance.yahoo.com/news/japan-tightens-crypto-laws-domestic-084457702.html?guccounter=1&guce\\_referrer=aHR0cHM6Ly-93d3cuZ29vZ2xlLmNvbS8&gugu\\_referrer\\_sig=AQAAAJgdej9jnRwOu-XXozA0HaPLv2wPU-Bz0nab\\_dewRwu5OkI60AsMS-Nk4IsWdxVR-aU509INNIYR8XXypMiFuVe-FX20p6O7Ms-fgY\\_ZRxxg0ONU8QvFp8SdaC8W3YYjvZf8X8KQGbpDJi4WGqzqx8DAaID4w9HhHhoTmh-8hEhKX6tR](https://finance.yahoo.com/news/japan-tightens-crypto-laws-domestic-084457702.html?guccounter=1&guce_referrer=aHR0cHM6Ly-93d3cuZ29vZ2xlLmNvbS8&gugu_referrer_sig=AQAAAJgdej9jnRwOu-XXozA0HaPLv2wPU-Bz0nab_dewRwu5OkI60AsMS-Nk4IsWdxVR-aU509INNIYR8XXypMiFuVe-FX20p6O7Ms-fgY_ZRxxg0ONU8QvFp8SdaC8W3YYjvZf8X8KQGbpDJi4WGqzqx8DAaID4w9HhHhoTmh-8hEhKX6tR)> accessed 14 November 2024.

<sup>101</sup> SH DeAgostino, JM Martins and RB Hofherr, 'The Infrastructure Investment and Jobs Act: Building A Road to Liability for Cryptocurrency Industry?' (Harris Beach, 15 December 2021) <[www.harrisbeach.com/insights/the-infrastructure-investment-and-jobs-act-building-a-road-to-liability-for-cryptocurrency-industry/#:~:text=Under%20the%20II-JA%2C%20the%20IRS,IRS%20on%20a%201099%20form.](http://www.harrisbeach.com/insights/the-infrastructure-investment-and-jobs-act-building-a-road-to-liability-for-cryptocurrency-industry/#:~:text=Under%20the%20II-JA%2C%20the%20IRS,IRS%20on%20a%201099%20form.)> accessed 21 August 2023.

er something qualifies as an investment contract or, when applied to cryptocurrency, to determine whether it should qualify as a regulated security;<sup>102</sup> the CFTC argues that crypto assets should be treated as a commodity; while the IRS taxes crypto similarly to property.<sup>103</sup> Just as the IRS has gained some new powers through IIJA, this is also the intention of the SEC via the amendments to the Exchange Act analysed above.

This regulatory competition will not simply vanish upon adopting new acts or amending old ones – crypto and DeFi are too complex for this to happen. An area that is at the intersection of different fields necessarily must be regulated by a combined effort from all authorities. The way forward should be regulatory cooperation, not regulatory competition.

Contrary to the US, the EU has thus far curbed this regulatory competition. Although the EU has many regulatory bodies and agencies playing a significant role in DeFi regulation,<sup>104</sup> they have so far taken a more cooperative approach. MiCA even formalises such cooperation – the abovementioned Article 107 paragraphs 1 and 3 state that ESMA shall, in close cooperation with the EBA, develop draft regulatory technical standards. Additionally, other agencies have also formally cooperated, or at least shown that they closely follow the opinions of other EU agencies. ESMA, the EBA, and the European Insurance and Occupational Pensions Authority (EIOPA) have published a joint press release warning consumers about the risks of crypto assets.<sup>105</sup> In addition, the ESRB's Task Force on Crypto-Assets and Decentralised Finance published a report on crypto and DeFi in May 2023<sup>106</sup> – while referring to ESMA's functions, it emphasised that ESMA's first report regarding MiCA will focus on the latest market developments at the perimeter of MiCA, non-fungible tokens (NFTs) and DeFi.<sup>107</sup> Once again, further action must be taken in the form of elaborated, planned, and coordinated steps forward.

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<sup>102</sup> P Kim, 'The Howey Test: A Set of Rules that Determine if an Investment Is a Security' (*Business Insider*, 31 May 2022) <[www.businessinsider.com/personal-finance/howey-test](https://www.businessinsider.com/personal-finance/howey-test)> accessed 19 November 2023.

<sup>103</sup> DeAgostino and others (n 101).

<sup>104</sup> The European Securities and Markets Authority (ESMA), for example, holds responsibility for overseeing securities markets and coordinating activities among national securities regulators. In doing so, it plays a role in influencing the EU's stance on DeFi by providing analysis and recommendations related to crypto-assets and distributed ledger technologies (DLT). The European Banking Authority (EBA) has also already cautioned against the risks linked to virtual currencies and emphasised the necessity for a comprehensive regulatory framework for both crypto-assets and DeFi platforms. For more, see Bron (n 64).

<sup>105</sup> ESMA, EBA and EIOPA (n 7).

<sup>106</sup> ESRB (n 29).

<sup>107</sup> *ibid* 8.

## 6 Concluding remarks

The paper argued from a theoretical standpoint that legal certainty plays a significant role in the sustainable embracing of DeFi, which in turn influences the development of financial services. The paper identifies three areas of law which are challenging in the context of DeFi: jurisdiction and applicable law (on the international level, but also within a jurisdiction through regulatory competition); consumer protection; and AML/CFT. Through an analysis of the legislative frameworks of two major legal systems – the EU and the US – it can be concluded that most regulatory work is focused on consumer protection and AML/CFT, while little focus has been placed on adopting uniform criteria for determining jurisdiction and applicable law at the international level, with problems even arising due to conflicts between regulators. Legal uncertainty in some jurisdictions and overly lenient regulation in others could create an imbalance on the global scale. Legal clarity, on the other hand, enhances and promotes DeFi's potential benefits, eg financial inclusion.

Comparing the two major legal systems – the EU and the US – two different approaches to DeFi regulation can be observed, each of them having a similar effect on the financial services industry. The EU has decided to utilise its usual gradual approach, with a specialised regulation in the form of MiCA having many exemptions, most importantly the exclusion of at least some DeFi protocols.<sup>108</sup> With other legal acts not adapted to regulate DeFi specifically, the necessity for broad interpretation to fill the existing legal vacuum until new acts are adopted creates legal uncertainty. For example, there is a possibility that MiFID can be applied to DeFi, but doing so would require very broad interpretation by the authorities. Such legal uncertainty disproportionately hurts consumers, who fall victim to DeFi rug pulls with few if any effective remedies. Would this broad interpretation hurt or benefit DeFi? On one hand, certain precedents would be established, making it easier for end users to know the rules of the game and act accordingly. However, 'creating' law through, fundamentally, its application can be problematic from both a competence and a legal certainty aspect. The acceptance of such 'lawmaking' depends on the quality of the proposed solutions, with those widely accepted by the crypto community welcomed with open arms and others being subject to heavy criticism. Because of this, there is a strong

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<sup>108</sup> However, as is presumed in the paper, it seems that the regulators will interpret MiCA in a way which would ensure MiCA's application to DeFi as much as possible. This interpretation was suggested in ESRB's Crypto-assets and decentralized finance report of May 2023: 'MiCA in its recitals sets a seemingly high hurdle for DeFi activities to be included within its scope ("services provided in a fully decentralised manner without any intermediary"). This boundary (e.g. the meaning of "fully") will be further clarified by practical application'. For more, see ESRB (n 29) 46.

possibility that the more direct involvement of regulators in such practices would be a welcome occurrence, especially if this means greater protection for consumers or, in general, market participants. Paradoxically, although first created to restore faith in traditional financial institutions after the 2008 financial crisis, regulators are now aiming to regulate a system disconnected from any intermediaries, especially financial institutions. Such changes, although minor at first glance, could mean that a significant shift is beginning to happen – controlling new developments in the financial sector – thereby blurring the lines between centralised and decentralised finance.

As is the case in the EU, the US legal system has started a period of intensive regulatory activity aimed at setting out a framework for DeFi and crypto assets. US regulators have significant experience in monitoring new developments, which is reflected in the rapid response by regulators to try and establish competence for regulating this area. In comparison with the EU, the US has decided to go for a much more direct approach – one which regulates DeFi as a whole, whether through amending and enforcing existing (not tailor-made) regulation, or by proposing new bills which do not contain exemptions for fully decentralised DeFi protocols. This type of approach places much more emphasis on the consumer protection aspect, but affects the financial services industry in a major way, with some arguing that such regulation will drive DeFi out of the US. For example, the SEC's push to amend the Exchange Act so that decentralised exchanges are considered as exchanges under this act also resulted in a major pushback by stakeholders, with many of them finding such attempts detrimental both to DeFi's further development and to the development of the US financial services industry in general. Generally speaking, there has been progress – in the US, the Senate has proposed the Crypto-Asset National Security Enhancement Act of 2023, which seems to tackle some of the most prevalent issues relating to DeFi; in the EU, attempts at ensuring the effective enforcement of MiCA in third countries via multi-jurisdictional cooperation are currently ongoing.

DeFi protocols, although rapidly on the rise, still do not provide the basis for the provision of the majority of financial services. In these early stages, DeFi can contribute to the development of the financial services sector only if the wider population is willing to adopt it. Indeed, DeFi is currently used mainly by a narrow circle of tech-savvy users and institutional investors, but with the right regulatory framework – ie one which ensures the smooth performance of services, with strong safeguards in place – this number could rise exponentially. Existing DeFi platforms and services may very well quickly gain market share if compliance with the legal framework that is in place reduces the scale of

externalised CASP activities.<sup>109</sup> These are the steps which are necessary for creating a thorough legal framework – the involvement of all market participants and the concretising of generic obligations. Including stakeholders in the regulatory process, especially for a risky environment such as DeFi, is a prerequisite for contributing to the wider adoption of DeFi and, therefore, the development of the financial services sector as a whole through the use of DeFi's potential benefits.

While it remains relatively still not as prevalent, DeFi's shortcomings, which stem from a lack of proper legal regulation, cannot be perceived as a threat to the development of financial services. The same can be said if bad regulation is adopted – this will prevent the adoption of DeFi by the wider population, whether due to the low level of legal protection and lack of efficient remedies, or because certain jurisdictions will be made unattractive for DeFi developers, thereby preventing end users from ever easily accessing DeFi in the first place. Although it would be unfavourable for the development of financial services if DeFi does not catch on, it would still not result in major damage to the existing financial services industry. On the other hand, by adopting clear and precise rules, many disadvantages of DeFi could be diminished. The undisputed benefits of DeFi – its speed, cost-effectiveness, and accessibility – could then be fully taken advantage of. This could shift the financial services industry from being an elitist, traditional, and often incomprehensible system to a readily approachable one, in which all stakeholders could cooperate much more easily. To put it simply, a good regulatory framework may catalyse the development of financial services, but a bad one would not significantly hurt it either – it would simply be a case of missed opportunity.

In conclusion, regulating DeFi is a complex task, which involves the balancing of many different conflicting interests and values: the protection of privacy on one hand and AML/CFT obligations on the other, and effective and speedy financial transactions versus the traditional safeguards for identifying and preventing scams. Cooperation and coordination between regulatory bodies and market participants on the global level is necessary to achieve the goal of creating a balanced set of rules, providing both legal certainty and a stimulating environment for further technological developments. In addition, it is to be expected that stakeholders from different sectors will try to use their influence to secure the adoption of regulation which is beneficial to them. It is up to lawmakers and regulators to strike a balance which is beneficial for all.

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<sup>109</sup> Furthermore, CASPs may also decide not to offer their services in the EU, which could result in DeFi platforms taking over their role, at least to some extent. For more, see ESRB (n 29) 45.

## List of abbreviations

*AML – anti-money laundering*

*Bill – Crypto-Asset National Security Enhancement Act of 2023*

*BIS – Bank for International Settlements*

*CFT – combating the financing of terrorism*

*DAO – decentralised autonomous organisation*

*DeFi – decentralised finance*

*EBA – European Banking Authority*

*ECB – European Central Bank*

*EIOPA – European Insurance and Occupational Pensions Authority*

*ESMA – European Securities Market Agency*

*ESRB – European Systemic Risk Board*

*FSB – Financial Stability Board*

*IIJA – Infrastructure Investment and Jobs Act*

*IOSCO – International Organization of Securities Commissions*

*KYC – know your client*

*MiCA – Markets in Crypto-Assets Regulation*

*MiFID – Markets in Financial Instruments Directive*

*NFT – non-fungible token*

*5AMLD – Fifth Anti-Money Laundering Directive*

*6AMLD – Sixth Anti-Money Laundering Directive*



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