The anatomy of crypto failures and investor protection under MiCAR

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Key points

- This article explores the recent collapses of prominent crypto trading and lending firms Voyager and Celsius, investigates the prevailing business models of crypto firms and identifies potential causes of their failure.
- The insolvencies of Voyager and Celsius reveal complex legal problems, particularly concerning the determination and allocation of customer rights in deposited crypto-assets.
- The EU Markets in Crypto-assets Regulation (MiCAR) seeks to protect investors by requiring the safekeeping and segregation of crypto-assets held in custody. Yet it does not necessarily protect those investors who 'lend' their crypto-assets to crypto-lending platforms with the expectation of earning rewards.
- MiCAR lacks a dedicated legal framework for crypto-lending, which suffers from many classic financial sector vulnerabilities. To address this gap, we propose the adoption of a new instrument, MiCAR II.
- Drawing inspiration from existing regulations for financial intermediaries like banks, MiCAR II may incorporate five elements: (i) a large exposures regime, (ii) robust disclosure requirements, (iii) structural and organizational separation of custody and trading/investment activities, (iv) deposit-like guarantees and (v) a dedicated recovery and resolution regime for significant crypto firms.

1. Introduction

In 2022, the cryptocurrency market experienced a significant downturn ('crypto winter'), which coincided with the downfall of several major market players. On 5 July 2022, the crypto trading and lending firm Voyager Digital Holdings, Inc. (Voyager) filed a voluntary Chapter 11 petition in the US Bankruptcy Court for the Southern District of New York.[1] Shortly thereafter, on 13 July 2022, Celsius Network LLC, a leading crypto-lending platform, and its affiliated entities filed for bankruptcy in the same court.[2] Both Voyager and Celsius acted as lenders to one of the world's largest crypto hedge funds, Three Arrows Capital Ltd. (3AC), which since June 2022 is itself subject to the liquidation proceeding in the British Virgin Islands. In November 2022, the cryptocurrency market turmoil reached a critical point when one of the largest crypto exchanges, FTX, and its affiliated crypto

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1 Voyager Digital Holdings, Inc and others, Case Number: 22-10943 (MEW) <https://cases.stretto.com/Voyager/> accessed 15 July 2023.

2 Celsius Network LLC and others, Case Number: 22-10964 (MG) <https://cases.stretto.com/celsius/> accessed 15 July 2023.

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trader, Alameda, collapsed. Given the complexities and ongoing investigations surrounding the cases of FTX and Alameda, we will not address them separately here.[3]

This article analyses the collapses of Voyager and Celsius, examines the likely causes of their demise and explores some of the typical legal issues accompanying crypto failures. It also questions whether the Markets in Crypto-assets Regulation (MiCAR), a recently introduced law aimed at harmonizing the regulation of crypto-asset service providers (CASPs) and crypto-asset services within the European Union (EU), can prevent or at least reduce the damaging effects of crypto failures and ensure sufficient protection of crypto investors.

The article is structured as follows. Section 2 starts with a summary of the key features characterizing crypto failures. It continues with a discussion of a prominent issue observed in most crypto insolvencies, namely the attribution of rights in deposited crypto-assets in insolvency of a CASP. Section 3 introduces MiCAR and its provisions on the safekeeping and segregation of reserve and customer crypto-assets. Section 4 shifts the focus to Voyager and Celsius, examining their business models and addressing the legal challenges associated with crypto-lending more broadly. Section 5 consists of several parts. First, it considers the provisions of MiCAR that directly and indirectly impact the operations of crypto lenders. Second, it draws attention to the differences and similarities between crypto finance and traditional finance. Third, it puts forward several suggestions for future regulation, referred to as MiCAR II. Section 6 concludes.

2. Crypto failures and rights of crypto investors

From Mt.Gox to Voyager and Celsius

Instances of crypto failures are not unprecedented, with one of the most well-known examples being the infamous collapse of the Japanese crypto exchange Mt.Gox in 2014. Other notable cases include the failures of the Italian crypto exchange Bitgrail in 2019 and the New Zealand crypto exchange Cryptopia in 2020. The recent wave of crypto insolvencies raises some familiar questions, including:

- Are crypto-assets objects of property rights?[4]
- Do crypto-assets transferred to a crypto exchange or another CASP become part of the insolvency estate or are they property of customers?[5]
- Can customers choose between re-payment in cash and in-kind (in crypto-assets)?[6]
- What is the date at which the valuation of crypto-assets should take place?[7]
- Can certain transactions involving crypto-assets be avoided, eg, as unfair preferences?[8]

3 See Declaration of John J Ray III in Support of Chapter 11 Petitions and First Day Pleadings, *In re FTX Trading LTD et al*, Case No 22-11068 (JTD) (17 November 2022); *CFTC v Samuel Bankman-Fried and others*, 1:22-cv-10503 (SDNY, 13 December 2022); *SEC v Samuel Bankman-Fried*, 22-cv-10501 (SDNY, 13 December 2022); Interim Reports of John J. Ray III to the Independent Directors, *In re FTX Trading LTD et al*, Case No 22-11068 (JTD) (First Report from 9 April 2023 and Second Report from 26 June 2023).

4 This question arose in cases of Mt.Gox (Japan), Bitgrail (Italy) and Koinz (Netherlands).

5 This question arose in cases of Cryptopia (New Zealand), Bitgrail (Italy), Celsius (USA) and Gatecoin (Hong Kong).

6 This question arose in the case of Mt.Gox (Japan).

7 This question arose in cases of Mt.Gox (Japan), Envion AG (Switzerland), Cred, Inc and Cred (US) LLC (USA), Quadriga (Canada), Torque (BVI) and Bitgrail (Italy). On valuation of crypto-assets in insolvency, see Theodora Kostoula, 'Valuation of Cryptoassets in EU Insolvency: Challenges and Prospects' (2023) 32 Int Insolv Rev 8.

8 This question arose in cases of FTX (USA) and Celsius (USA).

The answers to these questions vary depending on applicable property and insolvency law, as well as organizational, technological and contractual arrangements employed by crypto firms. That said, the crypto insolvencies of 2022 exhibit several distinct characteristics.

First, the domino-like failures of crypto firms demonstrate how closely interconnected market participants (eg, crypto lenders, crypto hedge funds, crypto exchanges) are and how fragile the markets in crypto-assets can be.[9] The impact of a single market player's downfall or the failure of a particular crypto-asset, such as a stablecoin, can have far-reaching consequences, causing other players to suspend their operations, impose withdrawal restrictions, and even declare bankruptcy. This interconnectedness has not manifested itself in the past, at least not to the same degree as now.

Second, since the failure of Mt.Gox, markets in crypto-assets have experienced rapid growth, creating or empowering new functionalities, such as crypto-lending and borrowing. Whereas previous crashes of crypto firms were mostly related to hacks and other idiosyncratic events (eg, Mt.Gox, Gatecoin, Cryptopia, Quadriga), the more recent collapses of Voyager and Celsius can at least partially be attributed to their unsustainable and risk-prone business models. These business models rendered crypto lenders vulnerable to large exposures and industry-wide contagion, liquidity problems and 'bank runs', facilitated by decentralized finance (DeFi) and automated collateral liquidations. In some key respects, the ongoing contagion within crypto markets bears resemblances to the turmoil witnessed during the global financial crisis of 2008 (GFC) when issues such as counterparty risk, plummeted value of collateral, unmet margin calls and bank runs had a significant impact on how the crisis had unfolded.

Third, significant advancements have been made in the regulation of crypto services and crypto firms over the past decade. The bankruptcy of Mt.Gox in Japan raised novel property, financial and insolvency law issues which had to be worked through for the first time in practice.[10] Since then, several countries have implemented tailored regulatory frameworks targeting crypto-assets.[11] The EU also took steps to regulate CASPs and crypto-asset services. This culminated in MiCAR, which will apply from 30 December 2024, with the exception of the rules concerning stablecoins, which will take effect earlier, on 30 June 2024.[12]

9 Douglas Arner and others, *Interdependencies in Crypto Ecosystems: Drivers, Implications and Policy Responses* (Policy 4.0, Report Series on the Crypto Contagion, Report 1) (February 2023).

10 Stacey Steele and Tetsuo Morishita, 'Lessons from Mt Gox: Practical Considerations for a Virtual Currency Insolvency' in Douglas W Arner and others (eds), *Research Handbook on Asian Financial Law* (Cheltenham: Edward Elgar Publishing 2020) 479.

11 See eg Bundesgesetz zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register (Switzerland). Matthias Lehmann, 'National Blockchain Laws as a Threat to Capital Markets Integration' (2021) 26 Unif Law Rev 148.

12 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.

Who owns crypto-assets: three scenarios

Insolvency inevitably serves as a litmus test for measuring investor protection, as it requires a fair distribution of assets and losses among various parties involved.[13] This distribution depends on the type of claim that a crypto investor (user, client, customer) has against an insolvent CASP. In this respect, we identify three possible scenarios, each offering varying degrees of investor protection, ranging from maximum protection (scenario 1) to minimum protection (scenario 3).

In the **first scenario**, a crypto investor exercises a proprietary (*in rem*) right against the debtor and is entitled to reclaim or revendicate his individually identifiable crypto-assets deposited with the debtor. This situation can be compared to opening a safe-deposit box and returning its contents to the customer. Such a scenario offers the highest level of protection (assuming that the box has not been emptied beforehand), because the customer holds priority over creditors who do not have competing proprietary rights, and instead may have personal (non-proprietary or *in personam*) rights.

However, the ability of a customer to revendicate a crypto-asset may depend on two factors. First, whether this specific crypto-asset can be distinguished (individualized) from crypto-assets owned by other customers and the debtor. Second, whether the claimed crypto-asset is in 'possession' or control of the debtor. The fungible nature of many crypto-assets such as Bitcoin (where 'fungible' means mutually interchangeable with things of similar kind, quality and grade), and the use of pooled (omnibus) blockchain addresses for multiple customers complicate the individualization of deposited crypto-assets. In fact, many large CASPs, such as crypto exchanges, manage their customers' cryptocurrency collectively via omnibus or shared blockchain addresses, owing to the distinct operational and economic benefits that such management offers.[14] Segregated custody arrangements, where customer crypto-assets are stored using unique blockchain addresses, are possible but remain rare in practice.[15]

Once crypto-assets are transferred to an omnibus blockchain address controlled by an intermediary, there is a high chance that they will be subsequently reused in transactions involving the same blockchain address. While an off-chain internal ledger (accounting record) maintained by an intermediary will indicate a balance of crypto-assets held for the

13 For discussion of bankruptcies of crypto-exchanges and rights of their customers from the US law perspective, see Adam J Levitin, 'Not Your Keys, Not Your Coins: Unpriced Credit Risk in Cryptocurrency' (2023) 101 Tex L Rev 877.

14 Coinbase User Agreement, Last updated 30 June 2023, para 2.7.4 ('In order to more securely and effectively custody assets, Coinbase may use shared blockchain addresses, controlled by Coinbase, to hold Supported Digital Assets for Digital Asset Wallets on behalf of customers and/or held on behalf of Coinbase'); Voyager Customer Agreement, Updated 7 January 2022, para 5(c) ('Customer understands that Voyager may hold Customer's Cryptocurrency together with the Cryptocurrency of other Voyager customers in omnibus accounts or wallets') and Declaration of Stephen Ehrlich, CEO of the Debtors in Support of Chapter 11 Petitions and First Day Motions, *In re Voyager Digital Holdings, Inc*, No 22-10943 (SDNY 6 July 2022), 13 ('all cryptocurrency assets are commingled on an asset-by-asset basis'); Celsius Terms of Use, Last Revised on 14 April 2022, para 4(B) ('Eligible Digital Assets in a Custody Wallet may be comingled with the Eligible Digital Assets of other Users'). Note that Celsius Terms of Use were revised in September 2022, yet no changes were introduced to the provisions discussed in this article.

15 Custody Agreement of Gemini, Last updated on 22 May 2023 ('Your Custody Account will have one or more associated unique Blockchain Addresses in which your Assets will be (i) segregated from any and all other assets held by us [. . .]'. '[. . .] at a minimum, separate Blockchain Addresses are utilized to segregate your Assets from such other property').

benefit of each client, this does not mean that these assets are the very same assets as those originally deposited.[16] Depending on the frequency and intensity of transactional activity on a blockchain address, the reuse risk can be significant. As a result, a turnover claim might not be available, since the debtor no longer "possesses" the sought cryptocurrency.[17]

The **second scenario** is similar to the first scenario. Yet there is one important distinction. Proprietary rights are not individualized with regards to individual assets. Instead, platform users are treated as co-owners of a specified pool of crypto-assets (eg, specific cryptocurrency or crypto-token) and their rights are determined in proportion to the original deposit made. This was the outcome reached in the New Zealand case of *Ruscoe & Moore v Cryptopia Limited (in liquidation)*.[18] The case concerned the hacked crypto exchange Cryptopia. It was clear that there were insufficient assets to satisfy the claims of all account holders and creditors. Consequently, a dispute arose about the priority over remaining crypto-assets. The account holders contended that their assets were held in trust by Cryptopia, thereby placing them beyond the reach of the debtor's creditors. In contrast, the creditors argued that account holders were merely unsecured creditors and should participate equally (*pari passu*) with everyone else.

The court ruled that digital assets transferred by customers to Cryptopia were held in trust, meaning that they did not form part of the debtor's insolvency estate. Crucially, the court concluded that separate trusts were created for each specific type of crypto-assets, exclusively for the benefit of the customers (account holders) who deposited those specific types of crypto-assets. Hence, Cryptopia's customers could exercise their co-shared property rights with priority over the crypto exchange's creditors.

The **third scenario** occurs where clients of a crypto firm do not have *in rem* (property) rights in transferred crypto-assets and only have *in personam* claims. In this case, the position of such clients appears to be the weakest, as they have to share *pari passu* with the debtor's creditors. Unlike in the first two scenarios, the transferred crypto-assets become part of the insolvency estate. This happened in the insolvencies of Mt.Gox and Bitgrail. In the 2015 judgment involving Mt.Gox, the Japanese court held that cryptocurrency, being an intangible thing, could not be owned, and therefore, a client of the exchange could not reclaim the deposited crypto-assets.[19] Under Japanese law at the time of the judgment, property rights

16 Celsius Terms of Use, Last Revised on 14 April 2022, para 4(B), expressly recognizing that 'Celsius is under no obligation to return the actual Eligible Digital Assets initially transferred by you to a Custody Wallet, but will return Eligible Digital Assets of the identical type reflected in your Celsius Account at the time you request such a return.'

17 For discussion of omnibus and segregated mechanisms of holding crypto-assets, see Matthias Haentjens, Tycho de Graaf and Ilya Kokorin, 'The Failed Hopes of Disintermediation: Crypto-Custodian Insolvency, Legal Risks and How to Avoid Them' (2020) 2020 (2) Singap J Leg Stud 526, arguing that even if cryptocurrency such as bitcoin cannot be commingled at a technical level, reuse of bitcoin by a crypto exchange might bar a revendication claim in case of insolvency.

18 *Ruscoe & Moore v Cryptopia Limited (in liquidation)* [2020] NZHC 728. For the position of English law on the assertion of property rights over consolidated balances of fungible crypto-tokens, see UK Law Commission, *Digital Assets: Final Report* (Law Com No 412, 2023), paras 7.54–7.55. A similar conclusion on beneficial co-ownership was previously reached by English courts with respect to intermediated securities held in commingled accounts. See *Pearson & Ors v Lehman Brothers Finance SA & Ors* [2010] EWHC 2914 (CH).

19 Tokyo District Court, Judgement from 5 August 2015, Reference number 25541521 <https://www.law.ox.ac.uk/sites/files/oxlaw/mtgox_judgment_final.pdf> accessed 15 July 2023.

could only exist with respect to tangible things unless law expressly provided otherwise.[20] As cryptocurrency is not tangible, it was deemed not subject to property rights. This, however, did not prevent the adoption of the rehabilitation plan that allowed creditors to opt for repayment in cash or, in part, in Bitcoin and/or Bitcoin Cash.[21]

In the 2019 judgment concerning the failed crypto exchange Bitgrail, the court in Florence, unlike the Japanese court in the Mt.Gox case, recognized that pursuant to Italian law, cryptocurrency could be the object of property rights, defined as 'digital representation of value'.[22] Yet the court concluded that the deposited crypto-assets became part of Bitgrail's insolvency estate and could not be returned to the customers of the crypto exchange.[23] According to the court's interpretation of Italian law, the relationship between the crypto exchange and its customers was classified as an 'irregular deposit'. Consequently, once the crypto-assets were transferred to a centralized (omnibus) blockchain address controlled by the debtor, they became the property of the debtor. A similar outcome is likely to be reached under Dutch law, albeit for a different reason. Pursuant to Dutch law, unless proven otherwise, a person who possesses an asset is presumed to be its owner.[24] As a result of the commingling of fungible crypto-assets in omnibus blockchain addresses and the ensuing challenge of providing proof of ownership, investors may no longer be able to assert their ownership rights in deposited assets (Table 1).

Table 1. Treatment of crypto-assets in insolvency and levels of investor protection

High level of investor protection	Intermediate level of investor protection	Low level of investor protection
An investor exercises a proprietary (*in rem*) right against a CASP and reclaims (revendicates) individually identified crypto-assets	Property rights in deposited crypto-assets are not determined with regards to individualized assets. Instead, investors are treated as co-owners of a specified pool of crypto-assets and their rights are determined in proportion to the original deposit	A depositor does not have *in rem* (property) rights in transferred crypto-assets and only has an *in personam* unsecured claim. Transferred crypto-assets become part of the insolvency estate

20 The situation with ownership of crypto-assets in Japan changed with the adoption in 2017 of the amendment to the Payment Services Act, which introduced into law the term 'virtual currency'. See Joseph Lee and Marc Van de Looverbosch, 'Property and Data: A Confused Relationship', in Joseph Lee and Aline Darbellay (eds), *Data Governance in AI, FinTech and LegalTech: Law and Regulation in the Financial Sector* (Cheltenham: Edward Elgar Publishing 2022) 110.

21 Information on Repayment Procedures, 6 July 2022 <https://www.mtgox.com/> accessed 15 July 2023.

22 Court of Florence, Bankruptcy Docket Nos 178/2018 and 205/2018, Decision No 17/2019 from 21 January 2019 <https://medium.com/@bitgrailvictims/court-decision-by-the-court-in-florence-jan-21-20-c6d0c3e4247c> accessed 15 July 2023.

23 ibid.

24 This follows from the application of art 3:109 ('Someone who is holding an asset, is presumed to be holding it for himself') and art 3:119 ('The possessor of an asset is presumed to be the proprietor of that asset') of the Dutch Civil Code. See also HR 12 January 1968, *NJ* 1968/274, *JOR* 2022/225, m.nt. W.A.K. Rank (*Teixeira de Mattos*).

Our discussion demonstrates the importance of determining the rights of crypto investors in the event of insolvency, as it directly impacts the priority of these investors in relation to the claims of other creditors. This determination may depend on the organizational and technological arrangements implemented for crypto-assets by a CASP (eg omnibus versus segregated blockchain address). Furthermore, the outcome of a case may vary depending on the applicable law, the underlying principles of property law and whether the legal system recognizes the concept of trust.[25] As property law remains largely unharmonized across EU Member States, it leads to different levels of investor protection within the EU. To address this issue, the EU has taken steps to mitigate such discrepancies through regulations like the Markets in Financial Instruments Directive (MiFID II)[26] and MiCAR.

Terms and conditions, and why they matter in insolvency

Disputes concerning entitlements to crypto-assets arose in more recent insolvencies of Voyager and Celsius. Apart from the operational and technological considerations discussed in the previous section, the resolution of these disputes may also be influenced by the provisions outlined in the agreements between CASPs and their customers. Generally, when opening an account with a crypto platform or otherwise using its services, customers are required to accept an agreement (eg Terms of Use, Customer Agreement, User Agreement).

According to the Declaration of Alex Mashinsky, a founder and ex-CEO of Celsius Network LLC, Celsius' main services included those through which retail and institutional clients could:

- earn rewards on cryptocurrency transferred to Celsius,
- securely store and access cryptocurrency,
- borrow fiat using cryptocurrency as collateral, and
- send and receive cryptocurrency using Celsius' CelPay services.[27]

The Celsius Terms of Use distinguish between 'Custody Services' and 'Earn Services'. The former was launched on 15 April 2022, 89 days prior to the bankruptcy filing, in response to regulatory scrutiny. It entailed storing the customers' crypto-assets in custody wallets accessible through a Celsius account, without any promised reward. As of September 2022, over 58,000 users held crypto-assets via the Custody Services, worth

25 In contrast to the approach under Italian and Dutch law, commingling and resulting impossibility to match specific assets to individual clients is not a bar to the exercise of proprietary claims in at least some common law jurisdictions. In these jurisdictions, commingling of clients' assets does not of itself prevent these assets from remaining the property of a client. For the USA, see Restatement (Third) of Restitution and Unjust Enrichment s 59, dealing with the extent of the claimant's ownership of the commingled fund and introducing tracing rules, initially developed to permit a remedy against a trustee who had misappropriated or commingled trust assets. For English law, see *Pearson & Ors v Lehman Brothers Finance SA & Ors* [2010] EWHC 2914 (CH), already mentioned above.

26 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).

27 Declaration of Alex Mashinsky, *In re Celsius Network LLC, et al*, No 22-10964 (MG) (SDNY 14 July 2022) para 42.

approximately USD 210 million in the aggregate (as of 29 August 2022).[28] Only 4 per cent of the overall assets administered by Celsius were those recorded for users of the Custody Services. The Terms of Use provide that the title to assets held in custody 'shall at all times remain with [customers] and not transfer to Celsius'.[29] It was relatively uncontested that custodial crypto-assets belonged to the customers and not Celsius. In December 2022, the US bankruptcy court ordered the return of certain crypto-assets held in custody, worth approximately USD 44 million, to the customers of the Custody Services.[30]

In contrast, by using the Earn Services the clients 'lend' crypto-assets to Celsius in return of a fee, called 'rewards' in the form of crypto-assets (ie the same crypto-asset as transferred to Celsius or Celsius' own tokens, CEL tokens). Under the Terms of Use, '[o]nce [crypto-assets] are received by Celsius into your Earn balance, they shall be Celsius' property, in every sense and for all purposes'.[31] The difference with the language describing the Custody Services is stark. Based on the Celsius Terms of Use, the court concluded that crypto-assets deposited in the Earn Accounts became Celsius' property and therefore formed part of the debtor's insolvency estate.[32] This means that the users of the Earn Services are treated as general unsecured creditors. At the petition date, Celsius had approximately 600,000 accounts in the Earn Program with crypto-assets valued at around USD 4.2 billion as of 10 July 2022.

Three points should be noted. First, the court explained that the 'issue of ownership of the assets in the Earn Accounts is a contract law issue'.[33] It was the agreement between Celsius and its customers that ultimately determined the outcome of the case. Second, the court dismissed the argument that the use of the word 'loan' or 'lending' contradicts the transfer of ownership to Celsius. It noted that it is 'blackletter law that a loan of money or property to another creates a debtor-creditor relationship'.[34] Third, the court clarified that the creditors maintained their rights with respect to claims based on fraudulent inducement into the contract, fraudulent conveyance, breach of contract, etc. This clarification

28 Debtors' motion-seeking entry of an order authorizing debtors to reopen withdrawals for certain customers with respect to certain assets held in the custody program and withhold accounts, *In re Celsius Network LLC, et al*, No 22-10964 (MG) (SDNY 1 September 2022) para 19.

29 Celsius Terms of Use, Last Revised on 14 April 2022, para 4(B).

30 Order (i) Authorizing the Debtors to Reopen Withdrawals for Certain Customers with Respect to Certain Assets Held in the Custody Program and Withhold Accounts and (ii) Granting Related Relief, *In re Celsius Network LLC, et al*, No 22-10964 (MG) (SDNY 20 December 2022) <https://cases.stretto.com/public/x191/11749/PLEADINGS/1174912202280000000099.pdf> accessed 15 July 2023.

31 Celsius Terms of Use, Last Revised on 14 April 2022, para 4(D).

32 Memorandum Opinion and Order Regarding Ownership of Earn Account Assets, *In re Celsius Network LLC, et al*, No 22-10964 (MG) (SDNY 4 January 2023) <https://cases.stretto.com/public/x191/11749/PLEADINGS/1174901042380000000067.pdf> accessed 15 July 2023.

33 ibid.

34 IBID. The court cited *In re Masterwear Corp*, 229 BR 301, 310 (Bankr SDNY 1999), holding that under 'New York law, a bank and its depositor stand in a debtor-creditor relationship that is contractual in nature. The bank owns the deposit, the depositor has a claim to payment against the bank, and the bank has a corresponding obligation to pay its depositor.' In the footnote, the court also observed that even if the Terms of Use indicated that coins were property of the customers (which they did not), customers would not get back 100 per cent of their coins, since there were not enough coins left.

was given in reply to the creditors citing multiple statements of Alex Mashinsky, reassuring customers that they owned crypto-assets in the Earn Accounts.[35]

The Voyager Customer Agreement is less clear. On the one hand, it refers to crypto-assets deposited with Voyager as 'Customer's Cryptocurrency'.[36] On the other hand, it states that a Customer grants Voyager the right to hold cryptocurrency held in Customer's Account in Voyager's name and to pledge, sell, lend or otherwise transfer or use any amount of such cryptocurrency with all attendant rights of ownership, without retaining a like amount of cryptocurrency.[37] The latter is a general provision that appears to be applicable regardless of the services used by the customers (eg, simple holding of crypto-assets in the account versus participation in the Voyager Rewards Program, similar to the Celsius' Earn Program). In fact, the Customer Agreement states that by entering into it, customers automatically opt into Voyager's Rewards Program.[38] While it is possible to opt out of the Rewards Program,[39] customers remain subject to the aforementioned general provision, allowing Voyager to pledge, repledge, hypothecate, sell, loan, stake or otherwise transfer the deposited crypto-assets.

Interestingly, the agreements of Celsius and Voyager both indicate that the treatment of crypto-assets is unsettled and that it is uncertain how crypto-assets will be dealt with in case of insolvency and what rights customers will have to such assets.[40] In the Form 10-Q, a quarterly report filed with the US Securities and Exchange Commission (SEC) by publicly traded companies, the crypto exchange Coinbase acknowledged that:

> because custodially held crypto assets may be considered to be the property of a bankruptcy estate, in the event of a bankruptcy, the crypto assets we hold in custody on behalf of our customers could be subject to bankruptcy proceedings and such customers could be treated as our general unsecured creditors.[41]

This statement raised concerns among Coinbase's users. In response to them, Coinbase's CEO, Brian Armstrong, took to Twitter and posted a series of tweets, reassuring users that the exchange was not at risk of bankruptcy.[42] He explained that the risk factor mentioned in the Form 10-Q was merely a response to the requirements of the newly issued SEC's Staff Accounting Bulletin.[43] Be it as it may, following the SEC disclosure,

35 Final Report of Shoba Pillay, Examiner, *In re Celsius Network LLC, et al*, No 22-10964 (MG) (30 January 2023) 4 <https://cases.stretto.com/public/x191/11749/PLEADINGS/1174901312380000000039.pdf> accessed 15 July 2023.

36 Voyager Customer Agreement, Updated 7 January 2022, para 5(C).

37 ibid para 5(D), para 10(E).

38 ibid para 10 ('By entering into this Customer Agreement, and subject to clause (F) of this Section 10, Customer understands, acknowledges and agrees that Customer is opting into the Voyager Earn Program').

39 ibid para 10(F) ('Customer may opt-out of the Rewards Program at any time by doing so in the App').

40 Voyager Customer Agreement, Updated 7 January 2022, para 5(c); Celsius Terms of Use, Last Revised on 14 April 2022, para 4(B).

41 Coinbase Global, Inc, Form 10-Q, Quarterly Report Pursuant to s 13 or 15(d) of the Securities Exchange Act of 1934, for the quarterly period ended 31 March 2022.

42 Tweets of Brian Armstrong, 11 May 2022 <https://twitter.com/brian_armstrong/status/1524233480040710144> accessed 15 July 2023.

43 SEC, 'Staff Accounting Bulletin No. 121' (SEC, Effective date 11 April 2022) <https://www.sec.gov/oca/staff-accounting-bulletin-121> accessed 15 July 2023, mentioning in the section on the disclosure regarding safeguarding obligations for crypto-assets

Coinbase amended its User Agreement with US clients and inserted the language, according to which, all digital assets credited to a digital asset wallet should be treated as 'financial assets' under Division 8 California Uniform Commercial Code. Coinbase is referred to as a 'securities intermediary' and the digital asset wallet is termed a 'securities account'.[44] What was the purpose of this amendment?

References to the Uniform Commercial Code (UCC) or its versions adopted by individual state legislatures can be found in the terms of other crypto firms,[45] but remain rare. These references are notable.[46] Under the UCC, a securities intermediary and its customers may agree to treat any property that is held by a securities intermediary for another person as 'financial assets'.[47] Therefore, a financial asset does not have to be a security, as defined under section 8-102 UCC. Crucially, pursuant to section 8-503(a) UCC, '[t]o the extent necessary for a securities intermediary to satisfy all security entitlements with respect to a particular financial asset, all interests in that financial asset [. . .] are held by the securities intermediary for the entitlement holders, *are not property of the securities intermediary, and are not subject to claims of creditors of the securities intermediary*'[48] (emphasis added). This holds true even if financial assets are fungible and have been commingled. In the event of commingling, entitlement holders' property interest is exercised with respect to a specific issue of securities or financial assets.[49] The outcome is similar to the one achieved in the insolvency of Cryptopia (see section above). This is not surprising, given that section 8 UCC is modelled on common law custodian rules.[50] By relying on the UCC language and treating crypto-assets as 'financial assets', CASPs and their clients can assert that these assets should not be included in the insolvency estate.

To conclude, the legal relationship between a customer and a crypto firm may be shaped by the organizational and technological aspects of holding and administering crypto-assets, and also by the contractual arrangements (eg, custody versus lending) between them. The next section examines how MiCAR purports to address the ownership issue.

3. Safekeeping and segregation of crypto-assets under MiCAR

Goals of MiCAR

On 24 September 2020, the European Commission adopted the Digital Finance Package to boost Europe's competitiveness and innovation in the financial sector and to make the EU

held for its platform users: 'discussion of the analysis of the legal ownership of the crypto-assets held for platform users, including whether they would be available to satisfy general creditor claims in the event of a bankruptcy should be considered.'

44 Coinbase User Agreement, Last updated: 30 June 2023, para 2.7.2.

45 See eg, Custodial Services Agreement between wShares Bitcoin Fund and Fidelity Digital Asset Services LLC (11 February 2022) <https://contracts.justia.com/companies/bitcoin-commodity-trust-10756/contract/221920/> accessed 15 July 2023.

46 For detailed analysis see Levitin (n 13).

47 UCC s 8-102(a)(9).

48 UCC s 8-503(a).

49 UCC s 8-503(b).

50 Lodewijk van Setten, *The Law of Institutional Investment Management* (Oxford: OUP 2009) 222.

a global standard-setter.[51] The Digital Finance Package contained a number of legislative proposals, including the Proposal for a Regulation on Markets in Crypto-assets.[52] MiCAR is ambitious, as it strives to build a dedicated and harmonized framework for markets in crypto-assets in the EU. It constitutes the largest piece of supranational legislation targeting crypto-assets that seeks to integrate them into the modern financial system or a core finance franchise.[53] According to the Explanatory Memorandum accompanying the original proposal, MiCAR has four principal objectives: (i) promote legal certainty, (ii) support innovation, (iii) instil appropriate levels of consumer and investor protection and market integrity and (iv) ensure financial stability.[54]

One of the main objectives of MiCAR is to ensure an appropriate level of consumer and investor protection within the cryptocurrency market. To accomplish this, the regulation includes specific provisions targeting crypto-asset service providers. A CASP is defined as 'a legal person or other undertaking whose occupation or business is the provision of one or more crypto-asset services to clients on a professional basis [. . .]'.[55] The scope of crypto-asset services encompasses a broad range of activities, including custody and administration of crypto-assets on behalf of third parties, operation of a trading platform for crypto-assets, exchange of crypto-assets for fiat currency and crypto-assets, execution of orders for crypto-assets, placement of crypto-assets and crypto-asset portfolio management.[56] Separate articles of MiCAR introduce authorization,[57] prudential[58] and governance[59] requirements for CASPs. These requirements are further supported by the provisions that address the safekeeping of clients' crypto-assets,[60] as well as the custody and administration of crypto-assets on behalf of third parties.[61]

Crypto-asset segregation: risks and limitations

Custody of reserve assets

Asset segregation is a widely adopted method aimed at safeguarding the rights of customers whose assets are held by an intermediary. Clear rules on administrative (operational) and legal segregation can help avoid protracted disputes about who owns what, and in this way

51 European Commission, Digital finance package <https://finance.ec.europa.eu/publications/digital-finance-package_en> accessed 15 July 2023.

52 Proposal for a Regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937, COM(2020) 593 final <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX: 52020PC0593> accessed 15 July 2023. Other instruments from the Digital Finance Package include the Digital Operational Resilience Act (DORA) and the DLT Pilot Regime Regulation.

53 Robert C Hockett and Saule T Omarova, 'The Finance Franchise' (2017) 102 Cornell Law Rev 1143, 1202, observing that without 'sustained direct access to the ultimate public resource flowing through [the core finance franchise] system—the public's full faith and credit—alternative finance is not likely to outgrow its present fringe status.'

54 Explanatory Memorandum (24 September 2020) <https://eur-lex.europa.eu/resource.html?uri=cellar : f69f89bb-fe54-11ea-b44f-01aa75ed71a1.0001.02/DOC_1&format=PDF> accessed 15 July 2023.

55 MiCAR, art 3(1)(15).

56 MiCAR, art 3(1)(16).

57 MiCAR, art 59.

58 MiCAR, art 67.

59 MiCAR, art 68.

60 MiCAR, art 70.

61 MiCAR, Article 75.

protect customers from suffering losses if the assets are losing value—by allowing their speedy return.[62] Rules on asset segregation can be found in numerous EU laws that cover a wide range of financial assets and instruments.[63]

MiCAR encompasses both the provisions regarding the segregation and custody of customer assets and the rules concerning the segregation and custody of reserve assets—the basket of assets securing the claim of a stablecoin holder against the issuer of a stablecoin.[64] Let us first examine the latter. Under MiCAR, issuers of asset-referenced tokens[65] and significant electronic-money tokens[66] are obliged to arrange and maintain a reserve of assets.[67] These reserve assets are meant to contribute to the stability of a stablecoin's value and protect stablecoin holders, who have a right of redemption at all times against the issuer.[68] Centralized issuers of stablecoins, such as Circle (USDC) and Paxos (USDP) have reported holding reserves primarily in US treasury securities and cash.[69] In contrast, MakerDAO, one of the largest DeFi lending protocol by total value locked and the issuer of the decentralized stablecoin DAI, claims to have DAI backed by multiple cryptocurrency holdings.[70] It is estimated that as of July 2023, the three largest stablecoins, Tether (USDT), USDC and DAI, comprise approximately 90 per cent of the total market capitalization of stablecoins.[71]

According to MiCAR, the reserve of assets referenced by a stablecoin 'shall be legally segregated from the issuers' estate' and from the reserve assets backing other stablecoins, so that in the event of insolvency, the issuer's creditors have no recourse to the reserve of assets.[72] The reserve of assets must be operationally segregated from the issuer's estate and should be entrusted to a bank, investment firm or CASP, depending on the asset type.[73] For example, reserves consisting of crypto-assets shall be deposited with an authorized CASP or a bank and held 'where applicable, in the form of private cryptographic keys'.[74] It

62 On operational and legal segregation, see Matthias Haentjens and Pim Rank, 'Legal and Operational Segregation of Securities, Derivatives and Cash', in Matthias Haentjens and Bob Wessels (eds), *Research Handbook on Crisis Management in the Banking Sector* (Cheltenham: Edward Elgar Publishing 2015) 366.

63 See eg MiFID II, art 16(8)-(9). For a discussion of custody and asset segregation rules, and a proposal to introduce the presumption of custodial relationships within the crypto ecosystem, see Hossein Nabilou, 'The Law and Macroeconomics of Custody and Asset Segregation Rules: Defining the Perimeters of Crypto-banking' (2022) 2022-09 Amsterdam Law School Research Paper <https://ssrn.com/abstract=4075020> accessed 15 July 2023.

64 MiCAR, art 3(1)(32).

65 An asset-referenced token is 'a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies.' MiCAR, art 3(1)(6).

66 An e-money token is 'a type of crypto-asset that purports to maintain a stable value by referencing the value of one official currency.' MiCAR, art 3(1)(7). Pursuant to MiCAR, issuers of significant e-money tokens are subject to additional requirements. They should comply with some of the same requirements that apply to issuers of asset-referenced tokens with regard to reserve of assets, such as those on custody and investment of the reserve of assets. MiCAR, Recital 71.

67 MiCAR, arts 36–38.

68 MiCAR, art 39.

69 Circle, USDC Attestation Report (May 2023) <https://www.circle.com/en/usdc> accessed 15 July 2023; Paxos, USDP Attestation Report (May 2023) <https://paxos.com/usdp-transparency> accessed 15 July 2023.

70 MakerDAO reserves <https://daistats.com/#/> accessed 15 July 2023.

71 Stablecoins by Market Capitalization, CoinGecko <https://www.coingecko.com/en/categories/stablecoins> accessed 15 July 2023.

72 MiCAR, art 36(2).

73 MiCAR, art 37(3).

74 MiCAR, art 37(6).

is further clarified that the opening of a register of positions in the name of the issuers of stablecoins should suffice, as long as it is possible to identify the assets as belonging to each reserve of assets.[75] This is likely to be achieved if different blockchain addresses are utilized for different asset reserves (ie asset reserves belonging to different stablecoin issuers).

The establishment of clear and harmonized rules for the custody of reserve assets is a step in the right direction. However, it is important to note that some risks may still persist, such as liquidity risks associated with stablecoin holders' redemption rights and concentration risk.[76] An example illustrating the concentration risk is a recent case involving Circle, the issuer of the stablecoin USDC. Circle deposited approximately USD 3.3 billion of its USD 40 billion in USDC reserves at Silicon Valley Bank (SVB).[77] Following the sale of some of its depreciated long-term assets and a bank run, SVB was closed by the California Department of Financial Protection and Innovation on 10 March 2023. The Federal Deposit Insurance Corporation (FDIC) was appointed receiver.[78] On the same day, USDC lost its 1:1 USD peg and was traded at USD 0.87. To prevent further bank runs, on 13 March 2023, the FDIC reassured that all depositors of SVB would regain full access to their funds, leading to USDC's recovery of its peg. This case highlights the concentration risk arising from the stablecoin issuer's reliance on a limited number of custodians. Such risk can impact the value of a stablecoin in the event of disruptions or regulatory actions affecting those custodians.

Custody of customer assets

In addition to the provisions dealing with the custody of reserve assets, MiCAR contains the rules governing the safekeeping and custody of customer assets by CASPs. It stipulates that crypto-asset service providers that hold crypto-assets belonging to clients 'shall make adequate arrangements to safeguard the ownership rights of clients, especially in the event of the crypto-asset service provider's insolvency'.[79] The objective is to guarantee the safety of crypto-assets held in custody and to ensure that the title to these assets does not pass to a custodian. To achieve this objective, MiCAR establishes several rules:

- *No reuse of customer assets*. According to this rule, CASPs that hold crypto-assets belonging to their customers should ensure that those crypto-assets are not pledged or otherwise used for their own account.[80]
- *Operational segregation*. MiCAR prescribes that CASPs maintain a register of positions, opened in the name of each client, corresponding to each client's rights to the crypto-assets.[81]
- *Technological segregation*. MiCAR provides that on the distributed ledger, customers' crypto-assets must be held separately from CASPs' crypto-assets.[82] This can be achieved if different blockchain addresses are used to hold customer and CASP's own crypto-assets.

75 ibid.

76 Both types of risks are recognized in MiCAR. See arts 36(1) and 37(1) MiCAR.

77 Tweets of Circle, 10 March 2023 <https://twitter.com/circle/status/1634391505988206592> accessed 15 July 2023.

78 FDIC Acts to Protect All Depositors of the former Silicon Valley Bank, Santa Clara, California, 13 March 2023 <https://www.fdic.gov/news/press-releases/2023/pr23019.html> accessed 15 July 2023.

79 MiCAR, art 70(1).

80 ibid. See also MiCAR, Recital 83.

81 MiCAR, art 75(2) and (7).

82 MiCAR, art 75(7).

- *Legal segregation*. Custodial crypto-assets shall be legally segregated from the estate of a CASP.[83] The desired effect of this segregation is that in insolvency, creditors of a CASP have no recourse to crypto-assets held in custody.

A striking example demonstrating the consequences of violating segregation and no-reuse rules is the case of FTX, formerly the third largest crypto-exchange. According to the recent report of John J. Ray III, who was appointed as FTX's CEO before the bankruptcy filing, 'from the inception of the FTX.com exchange, the FTX group commingled customer deposits and corporate funds, and misused them with abandon'.[84] The report further observes that the commingled customer and corporate funds were used 'for speculative trading, venture investments, and the purchase of luxury properties, as well as for political and other donations designed to enhance their own power and influence'.[85]

Undoubtedly, no regulation can provide absolute protection against abuse and misappropriation of deposited assets. However, in our view, just like the provisions on the segregation of reserve assets discussed in the previous section, the MiCAR's rules on the custody of customer assets—if followed and effectively enforced—could enhance the protection of customers' rights and mitigate operational risks. That said, MiCAR does not necessarily help those customers of crypto firms, who transfer crypto-assets for reasons other than custody. This was a significant number of Voyager's and Celsius' customers. The following section examines the business models of Voyager and Celsius and explores potential factors that contributed to their eventual downfall.

4. Failures of crypto-lending platforms

Voyager: counterparty risk and large exposures

Voyager is a crypto-lending and trading company. Its business included a cryptocurrency brokerage that allowed customers to buy, sell, trade and store different cryptocurrencies. By depositing crypto-assets with Voyager, customers could also earn rewards. To be able to pay such rewards, Voyager granted loans to third parties, predominantly in the form of crypto-assets. The interest accrued from these loans was used to pay the rewards to the customers (Figure 1).[86]

In March 2022, Voyager entered into a master loan agreement with a cryptocurrency-focused hedge fund, 3AC. Under this agreement, Voyager lent 15,250 bitcoin and USD 350 million to 3AC.[87] This was essentially a USD 650 million unsecured loan. In June 2022,

83 MiCAR, art 75(7).

84 Second Interim Report of John J Ray III to the Independent Directors: The Commingling and Misuse of Customer Deposits at FTX.com, June 2023 <https://restructuring.ra.kroll.com/FTX/Home-DownloadPDF?id1=MTUzNzc0OA%3D%3D&id2=0> accessed 15 July 2023.

85 ibid.

86 Declaration of Stephen Ehrlich (n 14) 3.

87 Disclosure statement relating to the first amended joint plan of reorganization of Voyager Digital Holdings, Inc (SDNY 6 July 2022) 28.

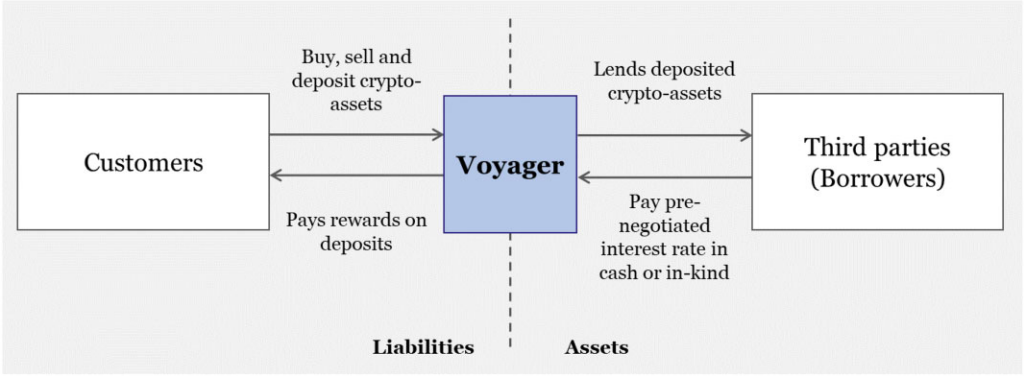

Figure 1. Simplified business model of Voyager.

after the collapse of TerraUSD/Luna,[88] and in view of the financial deterioration of 3AC, Voyager requested repayment of the loan. This request was not met and 3AC went into liquidation in the British Virgin Islands. To secure the necessary liquidity, on 22 June 2022, Voyager entered into a loan agreement with Alameda Ventures Ltd. (now also in bankruptcy) in the amount of USD 200 million in cash and USDC, as well as 15,000 BTC. Despite these efforts, customer confidence did not improve, leading to a surge in withdrawal requests. To curb a 'bank run', on 23 June 2022 Voyager reduced withdrawal limits from USD 25,000 to USD 10,000 per user per day. Nevertheless, the situation escalated, and on 1 July 2022, Voyager froze all customer withdrawals and trading activities.

Alexander distinguishes three main contributors to the risk associated with asset holdings[89]:

- The risk to a particular asset. A notable example of this asset-related risk is the overreliance on the algorithmic stablecoin TerraUSD, one of the key contributors to the failure of 3AC.[90]
- The risk to a particular counterparty.
- The risk of being exposed to a highly correlated industry sector. This risk is manifested if an entity is exposed to a specific market, such as the crypto market. As emphasized in section 'From Mt.Gox to Voyager and Celsius', the crypto winter underscored the interconnected nature of crypto markets, with falling asset prices, collapses of stablecoins and insolvencies of crypto firms. This time, the contagion did not have any discernible impact on traditional financial markets and did not result in any defaults by financial institutions. A situation could change if the latter becomes increasingly involved with crypto-assets.[91]

88 Antonio Briola and others, 'Anatomy of a Stablecoin's Failure: The Terra-Luna Case' (2023) 51 Finance Research Letters. https://www.sciencedirect.com/science/article/pii/S1544612322005359.

89 Kern Alexander, 'The Role of Capital in Supporting Banking Stability', in Niamh Moloney, Eilís Ferran and Jennifer Payne (eds), *The Oxford Handbook of Financial Regulation* (Oxford: OUP 2015) 340–41.

90 Affidavit of Russell Crumpler, one of the two joint liquidators of 3AC (9 July 2022) <https://www.docdroid.net/xKIqrjq/20220709-3ac-bvi-liquidation-recognition-1st-affidavit-of-russell-crumpler-filed-pdf> accessed 15 July 2023.

91 Lieven Hermans and others, *Decrypting Financial Stability Risks in Crypto-asset Markets* (ECB Financial Stability Review, May 2022); Tara Iyer, *Cryptic Connections: Spillovers between Crypto and Equity Markets* (IMF Global Financial Stability Notes, No 2022/01, January 2022); FSB, *Assessment of Risks to Financial Stability from Crypto-assets* (16 February 2022).

The failure of Voyager can be primarily attributed to the second category of risk, namely a risk to a particular counterparty, also referred to as the large exposures risk. The loan book of Voyager was highly concentrated, with 3AC being the largest borrower (approximately 58 per cent of total loan obligations). Thus, Voyager was subject to significant counterparty risk.[92]

The risk of large exposures is not a new category of risk.[93] It is also not specific to crypto-lending. After the GFC, many jurisdictions introduced special regulation that aims to prevent financial institutions, such as banks, from incurring disproportionately large losses as a result of a failure of a single counterparty or of a group of connected counterparties. In the EU, the regulation of large exposures was introduced in the Capital Requirements Regulation of 2013 (CRR),[94] and then amended by the Regulation (EU) 2019/876 (CRR 2).[95] This regulation was implemented to comply with the international standards known as the Basel standards or Basel III framework. This framework was developed by the Basel Committee on Banking Supervision (BCBS), which serves as the primary global standard setter for prudential regulation of banks.

According to the Basel standards, the sum of all exposure values of a bank to a single counterparty or to a group of connected counterparties must not exceed 25 per cent of the bank's Tier 1 capital at all times.[96] For a global systemically important bank's exposure to another global systemically important bank, this limit is further reduced to 15 per cent. The calculation of these exposure limits is made with reference to the bank's capital in view of its loss absorption so that a failure of a client does not endanger the bank's own solvency. The large exposures regime compliments capital requirements by curbing overinvestment and mitigating potential damage arising from risk concentration. Clearly, Voyager exceeded all the mentioned exposure limits.

Celsius: unsustainable and unfulfilled promises

Celsius was founded in 2017 and became one of the largest cryptocurrency-based finance platforms in the world. By the end of 2018, over USD 50 million worth of crypto-assets were transferred to Celsius and by March 2021 this number had grown to more than USD

92 3AC was one of the largest borrowing clients of another US crypto lender, BlockFi. The collapse of 3AC, along with several other borrowers, led to material losses for BlockFi. While it was temporarily aided by a loan from FTX, when the latter collapsed, BlockFi had no choice but to file for bankruptcy on 28 November 2022. Declaration of Mark A. Renzi In Support of Debtors' Chapter 11 Petitions and First-Day Motions, *In re BlockFi Inc*, Case No 22-19361 (MBK) (28 November 2022) <https://assets.bwbx.io/documents/users/iqjWHBFdfxIU/rB6b3dXLT378/v0> accessed 15 July 2023.

93 BCBS, *Measuring and Controlling Large Credit Exposures* (1991), observing that a 'significant portion of major bank failures have been due to credit risk concentration of one kind or another.'

94 Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

95 Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements and Regulation (EU) No 648/2012.

96 Basel Framework, *Large Exposures* (effective as of 1 January 2023) para 20.1. Tier 1 capital is defined as the sum of Common Equity Tier 1 capital (CET1) and Additional Tier 1 capital (AT1), net of the regulatory adjustments. The predominant form of Tier 1 capital is common shares, retained earnings and contingent-convertible securities.

10 billion.[97] By July 2022, Celsius had approximately 1.7 million registered users and approximately 300,000 active users with account balances of more than USD 100, and approximately USD 6 billion in assets.[98]

The founder and ex-CEO of Celsius Alex Mashinsky described the Celsius' business model as follows: 'users could transfer their crypto-assets to Celsius and benefit from the opportunity to borrow fiat, or other digital assets, against those assets or earn rewards on those assets at more favourable rates than traditional banks or cryptocurrency platforms that merely store crypto-assets'.[99] Customers who used the Celsius Earn Services transferred their crypto-assets to Celsius in exchange for attractive rewards. Celsius deployed these crypto-assets through unsecured loans, risky investments or on exchanges, aiming to generate profit.[100] Apart from its deposit-like function, Celsius borrowed funds from centralized crypto lenders like Tether and FTX, as well as DeFi lending protocols such as Compound, Aave and Maker. The platform utilized crypto-assets deposited by customers as collateral to secure these loans, which, in turn, helped cover operational expenses and pay rewards. Celsius also formed and funded Celsius Mining LLC to operate Bitcoin mining rigs. Consequently, its business model showcased a higher degree of complexity and diversification when compared to that of Voyager (Figure 2).

Celsius' insolvency cannot be attributed to a single idiosyncratic event or a sole business mistake. In comparison to Voyager, Celsius had relatively limited exposure to 3AC (appr. USD 30 million) and unlike 3AC, it was not heavily invested in TerraUSD/Luna (appr.

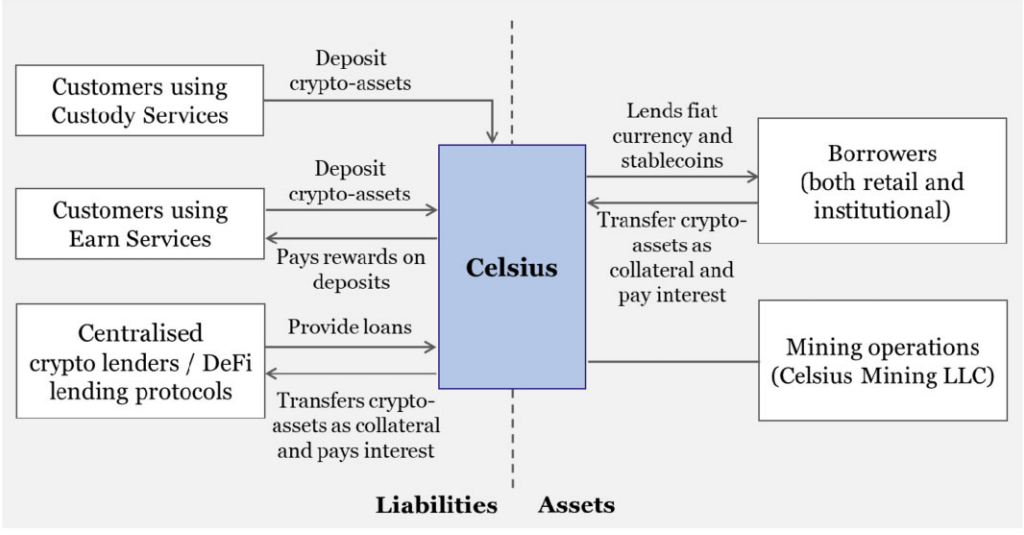

Figure 2. Simplified business model of Celsius.

97 Declaration of Alex Mashinsky (n 27) para 7.
98 ibid para 9.
99 ibid para 4.
100 Final Report of Shoba Pillay (n 35) 4, 16.

USD 15.8 million). Thus, it was neither the risk to a particular asset nor the risk to a particular counterparty that led to the collapse. In the presentation prepared for the court in July 2022, Celsius reported the reduction of its assets by USD 17.8 billion since 30 March 2022, due to, inter alia, user withdrawals (USD 1.9 billion), a decline in the market value of holdings (USD 12.3 billion), and as a result of crypto-assets liquidated by third parties (USD 0.9 billion).[101]

In January 2023, the court-appointed examiner, Shoba Pillay, published a 689-page report, revealing a complex web of problems, inconsistencies and unfulfilled promises related to the Celsius' operations. Among other things, the report highlights substantial concerns related to the buybacks of CEL tokens to drive up their value, significant losses Celsius suffered on some of its crypto-asset deployments in 2021, and the use of customer-deposited assets to purchase crypto-assets necessary to fulfil obligations owed to other customers.[102] Importantly, according to the examiner, there was no correlation between the rewards Celsius paid to customers and the yield generated from investing crypto-assets in the Earn Accounts. The promised rewards, sometimes as high as 17 per cent per week, proved to be unsustainable and far exceeded the revenues generated.[103] As a consequence, from 2018 to June 2022, Celsius accrued reward obligations to its Earn customers of approximately USD 1.36 billion, surpassing the net revenue it could generate. This imbalance resulted in a consistently negative net interest margin.

In the months leading up to the bankruptcy filing, Celsius confronted a series of crypto market challenges, including declining prices of crypto-assets, including CEL tokens, a significant reduction in liquidity, margin calls from lenders, automated collateral liquidations, and a rapid surge in withdrawal requests from clients (ie between 10 June and 12 June 2022, Celsius received USD 428.3 million in withdrawal requests).[104] As a response, on 12 June 2022, Celsius paused all withdrawals, swaps and transfers on its platform. This however did not rectify the asset-liability 'mismatch' and could not change the underlying business model. On 13 July 2022, Celsius filed for bankruptcy.

5. Crypto-lending: the case for MiCAR II

MiCAR and crypto-lending: regulatory gap?

MiCAR does not contain provisions directly and specifically targeting crypto lenders like Voyager and Celsius. Its main focus is on custody services and related obligations of safekeeping and segregation of customer crypto-assets (see Section 3 above). In fact, MiCAR

101 Celsius' Court Presentation (18 July 2022) <https://cases.stretto.com/public/x191/11749/PLEADINGS/1174907182280000000001.pdf> accessed 15 July 2023.

102 Final Report of Shoba Pillay (n 35) 10–13.

103 ibid 14, 297.

104 ibid 308. Pursuant to Celsius Terms of Use, Last Revised on 14 April 2022, para 11, customers could 'demand immediate, complete or partial repayment of any loan at any time' and Celsius undertook to initiate 'the withdrawal process immediately following a withdrawal request when possible'. Under the same provision, 'Celsius initiates the withdrawal process immediately following a withdrawal request when possible; however, we may require up to three (3) days after you submit your withdrawal request to process the withdrawal.'

explicitly states that it 'should not address the lending and borrowing of crypto-assets, including e-money tokens, and therefore should not prejudice applicable national law'.[105] Nevertheless, it may affect the business of crypto lenders at three regulatory layers applicable to crypto-asset service providers:

- Prudential requirements.[106]
- Governance requirements, such as sufficiently good repute and appropriate knowledge, skills and experience of managers.[107]
- Conduct of business and operational requirements.

As an example of the latter, MiCAR substantially limits the possibility of CASPs to interact with or offer services related to privacy coins, such as Monero and Zcash.[108] More impactful, however, are the requirements concerning stablecoins and those who issue them. The extensive regulation of stablecoins is largely driven by (not unsubstantiated) concerns related to the potential economic and monetary implications of global stablecoin initiatives, exemplified by Facebook's Diem (formerly Libra).[109] One of the rules that can have far-reaching consequences for crypto-lending is the rule prohibiting the payment of interest or granting any other benefit by the issuers of stablecoins and CASPs to holders of stablecoins relating to the length of time of such holding. According to Articles 40 and 50 MiCAR, crypto-asset service providers shall not grant interest when providing crypto-asset services related to stablecoins. In this context, interest is broadly defined as any remuneration or any other benefit related to the length of time during which a holder of stablecoins holds them.

The prohibition of interest payments in connection to the holding of stablecoins has been criticized by several authors.[110] This prohibition appears to be driven by policy considerations seeking to reduce the risk that stablecoins are used as a store of value, and to ensure financial stability by reducing competition between traditional bank deposits and stablecoins, particularly in the current environment of low-interest rates.[111] If stablecoins maintain price stability (and promise to do so in the future) and pay relatively high interest,

105 MiCAR, Recital 94. The European Commission is tasked to prepare a report by 30 December 2024, containing an assessment of the necessity and feasibility of regulating lending and borrowing of crypto-assets. See MiCAR, art 142(2)(b).

106 MiCAR, art 67.

107 MiCAR, art 68.

108 MiCAR, art 76(3), stating that the 'operating rules of the trading platform for crypto-assets shall prevent the admission to trading of crypto-assets that have an inbuilt anonymisation function unless the holders of those crypto-assets and their transaction history can be identified by the crypto-asset service providers operating a trading platform for crypto-assets.' Such identification may be impractical by design and is unlikely to happen.

109 For discussion of various risks related to stablecoins, see Dan Awrey, 'Bad Money' (2020) 106 Cornell Law Rev 1; Edoardo D Martino, 'Regulating Stablecoins as Private Money between Liquidity and Safety. The Case of the EU 'Market in Crypto Asset' (MiCA) Regulation' (2022) Amsterdam Law School Research Paper No 2022-27 <https://ssrn.com/abstract=4203885> accessed 15 July 2023.

110 Willem Buiter, Anne Sibert, Nicolaes Tollenaar, 'E-money Tokens, Tokenised Money-market Shares, and Tokenised Bank Deposits' (*Voxeu Column*, 18 August 2022), noting with respect to the ban on paying interest that there is no 'sensible reason for a regulation that appears inefficient and restricts the contractual freedom of issuers to pay or charge interest'. Firat Cengiz, 'What the EU's new MiCA regulation could mean for cryptocurrencies' (*LSE blog*, 5 July 2021), arguing that 'there is no explanation in the regulation as to why this intrusion to financial autonomy [prohibition of interest] is necessary'.

111 Opinion of the European Central Bank of 19 February 2021 on a proposal for a regulation on Markets in Crypto-assets, 2021/C 152/01, para 2.1.1.

they may become a serious competitor to holdings of fiat currency commonly deposited with highly supervised credit institutions. In fact, low-interest rates were named as one of the key drivers of the growing demand for retail investment products in the EU, including investments in crypto-assets.[112] The ban on the payment of interest to holders of stablecoins should in theory stimulate bank deposits in fiat currency, as a preferred and controllable method to store value.

The problem with the rule prohibiting the payment of interest to holders of stablecoins relates to its scope. It is unclear which situations are covered by this rule and what 'holding' and 'holder' of stablecoins mean. At least two interpretations of the said rule are plausible.

According to the first interpretation, payment of interest is prohibited only if a person (eg, a buyer of stablecoins from their issuer or a client of a CASP) remains in full control of stablecoins and receives interest for the period of holding. This is the case of a direct holding, as the person holds a crypto-asset for himself. Should this interpretation be adopted, the rule would likely have a limited impact on modern crypto-lending practices. First, in most cases, customers of crypto lenders do not hold crypto-assets directly. As in the case of Voyager and Celsius, they relinquish control over (ie ability to freely dispose of crypto-assets) and potentially the title to crypto-assets. Second, as to the payment of interest by the issuers of stablecoins, it is noted that typically such issuers do not owe interest on the funds received from stablecoin holders.[113] Some stablecoin issuers, like Tether and Circle, invest reserves backing their stablecoins in various assets. For other issuers, such as Gemini and Binance, stablecoins are integral to a broad portfolio of services they offer.[114]

According to the second interpretation, payment of interest is prohibited even if a person—holder or possessor of a crypto-asset—does not have full or any control over stablecoins, eg, because they are transferred to a CASP. This interpretation covers indirect holding through an intermediary and (potentially) situations where customers lend their crypto-assets to crypto lenders, whether centralized or not. It is noted that in civil law jurisdictions, a possessor may 'hold' an asset through another person.[115] The second interpretation would apply to the business models of crypto lenders because they attract funds and crypto-assets, including stablecoins, from customers and assume a reciprocal obligation to pay certain rewards—interest or other benefits.[116] Should this interpretation be adopted, it could interfere with the operations of crypto lenders, potentially placing their interest-payment activity on deposited stablecoins in a grey area or rendering it illegal.

MiCAR does not define the terms 'holding' or 'holder' of stablecoins. Does 'holding' mean direct holding, indirect holding or both? The Impact Assessment accompanying

112 European Commission, *Disclosure, Inducements, and Suitability Rules for Retail Investors Study. Final report* (July 2022).

113 Kara J Bruce, Christopher K Odinet and Andrea Tosato, 'The Private Law of Stablecoins' (2022) 54 Ariz St LJ 1073, 1100.

114 ibid 1101.

115 Draft UNIDROIT Principles on Digital Assets and Private Law (February 2023) <https://www.unidroit.org/wp-content/uploads/2023/03/W.G.8-Doc.-2-Draft-Principles-and-Commentary-Clean.pdf> accessed 15 July 2023.

116 Eg Celsius Terms of Use, Last Revised on 14 April 2022, para 4(D) ('Our Earn Service allows you to earn a financing fee from Celsius, referred to as "Rewards," [. . .] in exchange for entering into open-ended loans of your Eligible Digital Assets to Celsius under the terms hereof').

MiCAR indicates that the last interpretation ('both') is likely to be the correct one. In explaining the reasoning behind the prohibition of interest, the Impact Assessment observes that some entities collect stablecoins from users for a fee and lend them to other domestic and foreign users. In reality, this is what most crypto lenders do. The European Commission warns that this activity could amount to 'shadow banking'. Therefore, according to it, the prohibition of interest 'may limit the risks of shadow banking, as 'stablecoin' holders would not have any interest in lending their holdings'.[117] It can be argued that when a person lends and transfers title over stablecoins to a crypto lender, this person no longer 'holds', either directly or indirectly, the relevant crypto-assets. As a result, MiCAR's prohibition on interest might be inapplicable. Yet, as shown above, the European Commission seems to want to include crypto-lending within the scope of the interest-prohibition rule. To promote legal certainty, a clarification of this rule's scope is highly desirable.

MiCAR II and the way forward

Crypto finance versus traditional finance

In her testimony before the European Parliament in June 2022, the president of the European Central Bank, Christine Lagarde, suggested that crypto-lending required a separate regulatory response, MiCAR II.[118] What should this regulatory response look like, and which principles or regulatory models should it be based on? These are important questions that touch upon the goals of financial regulation and our general attitude to crypto-assets.

In recent months, there have been an increasing number of calls to treat cryptocurrency trading as gambling.[119] The UK Treasury Committee observed that crypto-assets like Bitcoin 'have no intrinsic value and serve no useful social purpose'.[120] Similarly, Baker pointed out that '[c]rypto trading isn't economically similar to any part of the traditional financial services system and serves none of the productive purposes that define finance'.[121] Commercial banks lend to the real economy and play a pivotal role in a country's payments and monetary systems.[122] This is why a bank failure may produce significant negative

117 Commission Staff Working Document, *Impact Assessment accompanying the document Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets* (24 September 2020, SWD(2020) 380 final) 54.

118 Multimedia Centre of the European Parliament, Committee on Economic and Monetary Affairs (20 June 2002) <https://multimedia.europarl.europa.eu/en/webstreaming/committee-on-economic-and-monetary-affairs_20220620-1500-COMMITTEE-ECON> accessed 15 July 2023.

119 Fabio Panetta, Member of the Executive Board of the ECB, 'Paradise lost? How crypto failed to deliver on its promises and what to do about it' (Speech the 22nd BIS Annual Conference, 23 June 2023) <https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230623_1~80751450e6.en.html> accessed 15 July 2023.

120 UK Treasury Committee, *Regulating Crypto*, Fifteenth Report of Session 2022–23 (17 May 2023) <https://publications.parliament.uk/pa/cm5803/cmselect/cmtreasy/615/report.html> accessed 15 July 2023.

121 Todd H Baker, 'Let's Stop Treating Crypto Trading as If It Were Finance' (*OBLB*, 16 January 2023) <https://blogs.law.ox.ac.uk/blog-post/2023/01/lets-stop-treating-crypto-trading-if-it-were-finance> accessed 15 July 2023.

122 John Armour and others, *Principles of Financial Regulation* (Oxford: OUP 2016) 281; David Humphrey, 'Payments', in Allen N Berger, Philip Molyneux and John O.S. Wilson (eds), *The Oxford Handbook of Banking* (3rd edn, Oxford: OUP 2019) 285; Ben S Bernanke and Mark Gertler, 'Inside the Black Box: The Credit Channel of Monetary Policy Transmission' (1995) 9 J Econ Perspect 27.

externalities, cause economic and social harm and considerable turmoil in various sectors of the economy, as evidenced during the GFC. Conversely, crypto lenders have limited involvement with the real economy,[123] monetary or payment systems. While their insolvencies may cause substantial losses for both professional and retail investors and depositors, the scale of negative externalities generated by such failures is not comparable to those arising from bank failures, at least for the time being. In view of this, one should be reluctant or at least cautious in extending the rules applicable to traditional financial services systems and institutions to crypto-assets and crypto firms. A good example is the favourable treatment of financial collateral under the Financial Collateral Directive (FCD).[124] The question is whether the FCD's approach concerning registration, enforcement and insolvency, and its rationale can,[125] or should be extended to the provision of collateral in the context of crypto-lending. There must be compelling reasons for such an extension.

The outlined differences in the roles, activities and risks should be carefully considered when developing any regulatory responses.[126] With this in mind, it can be observed that the business models of crypto lenders have some similarities with those of traditional players on financial markets, including investment firms, collective investment schemes and credit institutions. Voyager and Celsius attracted customer deposits in fiat currency and crypto-assets, subsequently using them for their own account through lending to third parties. In turn, they promised to pay rewards (interest) to customers who in many cases transferred title over deposited crypto-assets to crypto firms (see Section 4 above). This setup made Voyager and Celsius dependent on a constant inflow of deposits and an ongoing increase in the value of crypto-assets, driving them towards risky lending strategies. It also exposed crypto lenders to problems akin to 'fractional reserve banking', where a firm, such as a bank, holds only a portion of the deposited amounts as reserves and lends out the rest to generate profits.[127] This model dates back centuries and makes financial institutions like banks, and in our case, crypto lenders, inherently risky and insolvency-prone. They are not capable of honouring unanticipated large withdrawal requests—the

123 Sirio Aramonte and others, *DeFi Lending: Intermediation without Information?* (BIS Bulletin No 57, 14 June 2022) 1, observing that '[l]ending platforms are a key part of the decentralised finance (DeFi) ecosystem, but their institutional features mostly facilitate speculation in cryptoassets rather than real economy lending'. See IMF, *World Economic Outlook Update: Gloomy and More Uncertain* (July 2022) 16, noting that losses in crypto investments and failures of algorithmic stablecoins and crypto hedge funds had limited spillovers to the broader financial system.

124 Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements. For analysis of the FCD and its rationale, see Louise Gullifer, 'What Should We Do about Financial Collateral?' (2012) 65 Curr Leg Probl 377.

125 UK Law Commission (n 18) para 8.55, observing that 'crypto-tokens (that is, crypto-tokens denominated in their own notional unit of account) generally do not fall within the scope of the FCARs [Financial Collateral Arrangements (No 2) Regulations 2003] regime. However, for other collateral that might use cryptoassets or mere record/register tokens (including CBDCs, stablecoins, equity and debt securities and credit claims) we think the answer is possibly different.'

126 FSB, *High-level Recommendations for the Regulation, Supervision and Oversight of Crypto-Asset Activities and Markets: Final Report* (17 July 2023), recommending that authorities 'apply comprehensive and effective regulation, supervision, and oversight to crypto-asset activities and markets [. . .] on a functional basis and proportionate to the financial stability risk they pose, or potentially pose, and consistent with authorities' respective mandates in line with the principle "same activity, same risk, same regulation"'.

127 Matthias Haentjens and Pierre De Gioia-Carabellese, *European Banking and Financial Law* (2nd edn, Abingdon: Routledge 2020) s 6.2; Armour (n 122) ch 13; Richard A Werner, 'How do Banks Create Money, and why can other Firms not do the same? An Explanation for the Coexistence of Lending and Deposit-taking' (2014) 36 Int Rev Financial Anal 71.

liquidity risk. This risk is exacerbated when crypto lenders incur obligations (borrow) denominated in one crypto-asset but invest (lend) in another crypto-asset.

The liquidity risk can quickly escalate into an insolvency risk, primarily due to a misalignment between short-term liabilities (deposits) and long-term assets (loans)—known as maturity mismatch. The transformation of illiquid assets into liquid liabilities and the resulting maturity mismatch prompt bank run.[128] A possibility of a bank going bankrupt incentivizes depositors to withdraw their funds as soon as possible, as the first movers may be better off than those who wait and share losses with others. This is very different from a custody model, which entails the preservation of custodial assets and their return to legal owners in the event of the custodian's insolvency.

The crypto-lending model shares some important similarities with the traditional commercial banking model to the extent that both involve attracting deposits from the public in one form or another and granting credit to third parties for own account. Like banks, crypto lenders engage in liquidity and maturity transformations, which make them fragile and vulnerable to bank runs, as demonstrated by the cases of Voyager and Celsius. Another similarity relates to the interconnectedness of financial markets. The GFC saw the rapid spread of contagion in traditional markets, triggered by the falling value of collateral, margin calls and collateral liquidation, and leading to a series of cascading crashes of major financial institutions. The 'crypto winter' revealed similar dynamics in the crypto markets, perhaps logically so, given the high volatility of crypto-assets' prices, their correlation and heavy reliance on stablecoins, extensively used as collateral and for other purposes.

The described similarities do not per se justify an extension of the existing regulatory models to crypto lenders. Yet they cannot be ignored in the process of formulating regulatory responses to promote the objectives of financial regulation, such as market integrity, financial stability and investor protection. This is why the present-day regulation of financial intermediaries can serve as a source of inspiration for the regulation of crypto lenders in the future, under MiCAR II. Outlined below are five elements that such regulation may incorporate. These elements are largely derived from the analysis conducted in the previous sections, focusing on the issues that emerged in the cases of Voyager and Celsius. Therefore, they are not meant to offer a comprehensive regulatory framework for crypto-lending and borrowing.[129]

Five elements of future regulation

Large exposures. As discussed earlier in section 'Voyager: counterparty risk and large exposures', the main objective of the large exposures regime is to prevent a financial institution

128 Douglas W Diamond and Philip H Dybvig, 'Bank Runs, Deposit Insurance, and Liquidity' (1983) 91 J Political Econ 401, showing that the 'transformation' service provided by banks creates an undesirable equilibrium (a bank run) and explaining that bank runs cause real economic problems, leading to failures of healthy banks.

129 For discussion of possible design features for a crypto-asset lending and borrowing regime, see HM Treasury, *Future Finance Services Regulatory Regime for Cryptoassets. Consultation and Call for Evidence* (February 2023) <https://www.gov.uk/government/consultations/future-financial-services-regulatory-regime-for-cryptoassets> accessed 15 July 2023.

from facing disproportionately large losses due to the failure of an individual client or a group of connected clients. This regime aims to ensure continued financial stability, confidence in financial institutions and consumer (depositor) protection.[130] MiCAR does not provide for large exposure restrictions similar to those applicable to financial institutions in the EU.[131] In view of the rapid development of crypto-lending services and the potential risk they pose to customers, large exposure restrictions may be desirable to prevent the Voyager- and BlockFi-like failures.

Robust disclosure requirements. Crypto insolvencies highlight the absence of clear, correct, and comprehensive disclosure to customers of crypto firms. To address this problem, disclosure obligations could be imposed and encompass, inter alia, the status of deposited crypto-assets and specifically whether the title over such assets passes to a crypto lender. Additionally, the disclosure should outline the rights of depositors in the event of insolvency, risk warnings regarding the lack of a deposit guarantee scheme and other similar safeguards, financial situation of a crypto firm, use of deposited crypto-assets by a crypto lender including counterparty and transactions details (eg, risk concentration, collateral composition, dealings with own tokens). Whereas the exact scope of disclosure obligations could be further elaborated, it is clear that proper disclosure is indispensable to ensure investor protection and market integrity. By enforcing robust disclosure requirements, regulators can empower investors with the information they need to make informed decisions, fostering trust and confidence in the crypto-lending sector.

Separation of custody and trading/investment activities. The cases of Celsius and FTX/Alameda demonstrate the difficulties associated with separating custody (low-risk) and investment or trading (high-risk) activities, as well as the fact that a failure in one of them can rapidly spread to the other. Separation of different activities of financial institutions has been embraced by some jurisdictions after the GFC. For instance, the UK's banking sector structural reform of 2019 mandated that core banking services (eg, taking deposits, making payments and providing overdrafts to UK retail customers and small businesses) were made financially, operationally and organizationally separate from investment banking and international banking activities. As a result, retail and investment banking should be provided by separate legal entities.[132] A somewhat similar approach is taken in the USA with the Volcker rule (section 619 of the Dodd–Frank Act), which imposes some group-level restrictions on banks and prohibits groups of companies which include FDIC-insured banks from engaging in proprietary trading.[133] A strategy of corporate, financial and operational 'insulation' of risky crypto-lending and trading activity from relatively low-risk custodial services offered by crypto-asset service providers should be seriously considered.

130 EBA, Large exposures <https://www.eba.europa.eu/regulation-and-policy/large-exposures> accessed 15 July 2023.

131 MiCAR only mentions concentration-related risks in the custody of reserve assets. See MiCAR, article 37(1).

132 Thom Wetzer, 'In Two Minds: The Governance of Ring-Fenced Banks' (2019) 19 J Corp Law Stud 197.

133 John C Coates IV, 'The Volcker Rule as Structural Law: Implications for Cost-benefit Analysis and Administrative Law' (2015) 10 Cap Mark Law J 447.

However, the effectiveness of this strategy will depend on the rigour of the insulation and the regulators' ability to effectively monitor and enforce it.

Deposit-like guarantees. The collapses of Voyager and Celsius were preceded by massive withdrawals, which facilitated their insolvency. This behaviour is well-documented in the banking area, commonly referred to as bank runs. Investment funds can also be subject to increased levels of redemption requests from investors (ie 'run on the fund'), forcing the fund to sell assets quickly, potentially further depressing asset values and leading to the fund's shutdown. Crypto depositors have even stronger incentives to engage in a bank run because they are not protected by deposit guarantee schemes or any other safeguards applicable to traditional lending and borrowing. Deposit guarantees and other compensation schemes were instituted after the GFC to protect depositors, foster depositor confidence, and prevent contagious bank runs. In the EU, such guarantees are available to bank depositors[134] and, to a lesser extent, to investors using the investment services of investment firms.[135] The establishment of similar schemes for the crypto-lending sector may be considered. The details concerning the financing of these schemes and the amounts covered by them might be discussed separately to ensure their effectiveness.

Special resolution regime and increased intervention powers. A special resolution regime with increased intervention powers for public authorities can play a crucial role in addressing the failure of financial institutions that carry significant public interest considerations.[136] In the EU, for example, bank resolution is regulated by the Bank Recovery and Resolution Directive[137] and the Single Resolution Mechanism Regulation.[138] They embrace a proactive and largely administrative-led approach rather than a reactive and court- and creditor-managed process. MiCAR introduces special rules for significant crypto-asset service providers.[139] For significant CASPs, including crypto lenders, whose failure poses a risk to financial stability or causes significant losses, a legal framework inspired by the bank recovery and resolution regime, with greater involvement of public authorities through early intervention powers, could prove suitable.[140]

134 Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes (recast). Deniz Anginer and Asli Demirgüç-Kunt, 'Bank Runs and Moral Hazard: A Review of Deposit Insurance', in Allen N Berger, Philip Molyneux and John OS Wilson (eds), *The Oxford Handbook of Banking* (3rd edn, Oxford: OUP 2019) 685.

135 Directive 97/9/EC of the European Parliament and of the Council of 3 March 1997 on investor-compensation schemes.

136 Ilya Kokorin, 'Insolvency of Significant Non-Financial Enterprises: Lessons from Bank Failures and Bank Resolution' (2021) 32 Eur Bus Law Rev 521.

137 Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms.

138 Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund.

139 MiCAR, art 85.

140 The UK government has recently issued a consultation paper 'Managing the failure of systemic digital settlement asset (including stablecoin) firms', where it proposed to apply a modified Financial Market Infrastructure Special Administration Regime to these firms. See HM Treasury, Managing the failure of systemic Digital Settlement Asset (including stablecoin) firms (31 May 2022) <https://www.gov.uk/government/consultations/managing-the-failure-of-systemic-digital-settlement-asset-including-stablecoin-firms> accessed 15 July 2023.

6. Conclusion

This article examines the newly adopted regime for crypto-assets and crypto-asset service providers in the EU, MiCAR, in light of the recent surge of crypto failures. Insolvency is the ultimate litmus test, evaluating the adequacy of regulation and the application of various doctrines and rules from different areas of law, including property, contract and financial law.

Crypto insolvency is not a new phenomenon. One of the earliest and most well-known cases is the collapse in 2014 of Mt.Gox, which was then the world's largest bitcoin trading exchange. Since then, we have witnessed a wave of crypto failures which intensified in the 'crypto winter'. Whereas some legal problems appear in many crypto insolvencies, others are attributed to a particular business model or a specific type of business activity. Among the former is the determination and allocation of rights over deposited crypto-assets. This article highlights that the answer to the question of 'Who owns what in insolvency, and how should a limited pool of assets be distributed?' may hinge on the organizational and technological arrangements for holding crypto assets, as well as applicable property law and the terms of a contract between a crypto firm and its customers. To protect crypto investors, MiCAR mandates operational and technological segregation of crypto-assets held in custody and prescribes that such assets should be insulated from the estate of CASPs. This is a step in the right direction. Yet it does not necessarily protect those investors who 'lend' their crypto-assets to crypto-platforms with the expectation of earning rewards.

The collapses of Voyager and Celsius expose the fragility of their business models and emphasize the urgency of regulating crypto-lending and borrowing. MiCAR does not aim to produce a comprehensive legal framework for it, instead offering general prudential, governance and conduct of business requirements for service providers. In this article, we argue that a new instrument, MiCAR II, is necessary to establish a set of harmonized rules for crypto-asset lending platforms at the EU level. These rules would decrease the risk of crypto failures, protect investors in the event of crypto insolvency, enable efficient markets in crypto-lending, promote their integration and scaling, and stifle contagion in crypto markets.

This leaves open the question of what approach this new regulation should take. Alex Mashinsky, the founder and ex-CEO of Celsius, used to wear a T-shirt saying: 'Banks are not your friends'. Ironically, the business models of Celsius and Voyager resembled those of traditional financial institutions. While recognizing the important differences between traditional finance and crypto finance (eg, the varying systemic, economic or societal importance of financial institutions like banks compared to crypto lenders), we nevertheless suggest that inspiration could be drawn from the existing regulation of financial intermediaries. Based on the analysis of crypto failures, we identify five possible elements of future regulation: (i) a large exposures regime, (ii) robust disclosure requirements, (iii) structural and organizational separation of custody and trading/investment activities, (iv) deposit-like guarantees and (v) a special recovery and resolution regime for significant crypto firms.