

I. NAVIGATING CRYPTO EXCHANGE BANKRUPTCIES: A PRACTICAL GUIDE TO ASSET SEGREGATION AND VALUATION

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ABSTRACT

This paper advances the discourse on cryptocurrency exchange bankruptcies beyond the foundational question of whether crypto assets qualify for bankruptcy proceedings - a matter now settled affirmatively across jurisdictions. The authors offer practical guidance for crypto investors navigating exchange bankruptcies, focusing on asset segregation and recovery strategies. Through analysis of emerging global jurisprudence, the authors identify two competing approaches to establishing trust relationships for asset segregation that are the “segregation test” and the “intention test,” predicting the latter's likely prevalence due to its grounding in common law principles. The paper provides actionable insights for investors in selecting crypto exchanges and managing their investments to maximize asset recovery prospects in bankruptcy scenarios. The authors also address the complex challenge of crypto asset valuation in bankruptcy proceedings, evaluating the KO model and blockage method while proposing in-specie distribution as a potential solution. This comprehensive analysis fills a critical gap in existing literature by moving beyond theoretical frameworks to provide practical strategies for investor protection and asset recovery in crypto exchange bankruptcies. The findings contribute significantly to the evolving jurisprudence and regulatory framework surrounding cryptocurrency bankruptcies while providing practical guidance for stakeholders in the crypto ecosystem.

Keywords: Asset Segregation, Crypto Assets Valuation, Crypto Exchange Bankruptcy

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I. INTRODUCTION

A. Trading in the Crypto Market

There exist two different ways in which a trader may opt to trade in a crypto market and exchange currencies. The trader may opt for a peer-to-peer direct transaction with his counterpart executing a transaction while keeping the private key of the traded currency safe in his own custody, or for the sake of convenience, he may hop on to an intermediary-based exchange like CoinDCX or WazirX, creating a wallet to store money. This mode of exchange involves a third party to whom the customer puts a request of trade, upon which the exchange executes the said transaction, buying the cryptocurrencies and then holding them and the associated keys in its custody for safekeeping

and convenience. The first protocol is what we call a decentralized exchange, whereas the latter intermediary third-party protocol is known as a centralized exchange.

B. Crypto Winters: The Collapse of Centralized Crypto Exchanges

In recent times, such crypto exchanges offering intermediary services in the trade of cryptocurrencies have encountered twin difficulties, resulting in bankruptcy proceedings being filed against them. The first issue is the prevalence of cryptocurrency hacking. Recent instances of crypto exchanges like WazirX, BitGrail, etc. subject to cyberattacks and consequential loss of crypto assets from their custody have led to the opening of bankruptcy proceedings against such exchanges.¹ Second have been the cases where such crypto exchanges have been unable to return the crypto assets under their custody owing to mismanagement and loss owing to poor business management. Such instances include the crypto exchanges such as FTX and Voyager cases.² Consequently, either of the two factors has led to the inability of the crypto exchanges to pay out their users, traders, creditors, etc. and results in initiation of bankruptcy proceedings. The bankruptcy courts faces the novel issues in these crypto exchange cases with respect to segregation of the crypto assets, valuation issues, treatment of users/investors/customers etc.

While there has been substantial academic discourse about whether cryptocurrency qualifies as an asset or object of ownership to be subjected

¹ Adam J. Letivin, 'Not Your Keys, Not Your Coins: Unpriced Credit Risk in Cryptocurrency' (2023) 101 Texas Law Review 877; Information Society Project (ISP), Yale Law School '*The Death of Cryptocurrency: The Case for Regulation*' (2022).

² Thomas Conlon *et al*, 'The collapse of the FTX exchange: The end of cryptocurrency's age of innocence' (2023) British Accounting Review 101,277; *See also* Jonathan C. Lipson and David Skeel, 'FTX'd: Conflicting Public and Private Interests in Chapter 11' (forthcoming 2025) 77 Stan. L. Rev.

under bankruptcy proceedings.³ The discourse has culminated in the affirmative findings of the global jurisprudence alike that cryptocurrency qualifies as an asset and is a valid subject of ownership.⁴ Thus, the authors in writing this paper build on this legal position that cryptocurrency qualifies as an asset and therefore will qualify to be part of the debtor's estate in the event of a bankruptcy proceeding, which has been accepted by courts of respective jurisdictions while deciding this question.⁵

C. High-Stakes Questions: Segregation and Valuation of Crypto Assets

It is submitted that the literature attempting to study cryptocurrency and insolvency has been majorly restricted on the question of how and should the crypto assets will qualify as assets and therefore be subject to bankruptcy proceedings. The authors, thus, in this paper attempt a novel analysis forward to this already discussed and sufficiently settled position. The authors will attempt to critically analyse the nature of relationships between investors/users/customers and the crypto exchanges and what implication this determination of relationship has on the bankruptcy proceeding of the exchange. The authors prefer to make this analysis from the trader's/user's/customer's perspective and comment on how segregation claims can be made by them to recover their crypto assets before they are made debtor's pooled estate and thus how satisfaction of their claim can be done without diminution in their claim during liquidation proceedings where they

³ Renato Mangano, 'Blockchain Securities, Insolvency Law and the Sandbox Approach' (2018) 19 *Eur. Bus. Org. L. Rev.* 715; Renato Mangano, 'Cryptocurrencies, Cybersecurity and Bankruptcy Law: How Global Issues Are Globalizing National Remedies' (2020) 27 *U. Miami Int'l & Comp. L. Rev.* 355; Douglas W. Arner *et al*, 'The Financialization of Crypto: Lessons from FTX and the Crypto Winter of 2022-2023' (2023) *UNSWLRS* 31.

⁴ *AA v. Persons Unknown* [2020] EWHC 3556 (QBD); *ReQuadriga Fintech Solutions Corp.* [2019] *NSSC* 65; *Quoine Ptd Ltd v. B2C2 Ltd* [2020] *SGCA(I)* 02; *Re Voyager Digital Holdings, Inc* [2023] *US Bankruptcy Court NY*; *Re Celsius Network LLC* [2024] *US Bankruptcy Court NY*.

⁵ *ibid.*

will only participate as unsecured creditors. In the alternative, authors analyse that if such segregation claims fail, how the bankruptcy courts must decide the valuation issues associated with the crypto assets. In doing so, authors analyse various models of valuation that may be employed in the liquidation of crypto assets and suggest a workable model for the same.

II. TRUST OR NO TRUST: IMPLICATIONS OF THE NATURE OF THE CLAIM

It is pertinent to ascertain that whether in the event of bankruptcy proceedings opening against a crypto exchange, a crypto-investor's claim against a crypto exchange will qualify as a contractual one or that emanating from a trust relationship. By a trust relationship, it is meant qualification as a property law claim that the ownership of the assets (crypto coins) rests with the investors or users of crypto exchange and the exchange is merely custodian of the assets. This relationship in the nature of a trust will permit the right of segregation to be exercised by the investors, as property held in trust by the debtor does not form part of the debtor's estate in the event of bankruptcy and accordingly is not distributed amongst the creditors,⁶ but the investor can claim repossession or delivery of the cryptocurrency from the debtor.⁷

A contractual relationship, on the contrary, will reduce the status of the investors or users of crypto-exchange to unsecured creditors, and their claim would rank *pari passu* with the crypto-exchange's other unsecured debt. Accordingly, the crypto coins of the investors or users be pooled in for distribution during restructuring or liquidation as it shall form a constituent of the insolvency estate of the debtor.

⁶ Insolvency & Bankruptcy Code 2016, s 34(3).

⁷ Bankruptcy Act 2004, art 62.

Thus, it can be conclusively said that from the investor's perspective, a relationship in the nature of trust with the crypto exchange is both favourable and desirable, as in the event of bankruptcy. The investors will be able to segregate their crypto coins without having to claim them/their value from the debtor's estate as unsecured creditors. Needless to say, such categorization as unsecured creditor is least preferred in the hierarchy of claims and that the claims are ordinarily satisfied with a heavy deduction in the original amount of the claim. Contrary to this, the right to segregation will accord delivery of the entire asset without any diminution on account of bankruptcy of the crypto exchange.

In cases involving bankruptcy of crypto exchanges, the customers of the exchange have advanced that their relationship qualifies that of a trust. The end goal behind such contention was of course exercising the right to segregation with respect to their crypto coins. Thus, majorly the cases have been contested on two approaches whether there was a trust relationship (that the investors contend) or a contractual one (that the exchange contend) and accordingly whether right to segregate crypto coins can be exercised. However, there is also a third approach preferred by the investors as evident in the case of *Zettai Pte. Ltd. in re*⁸ wherein the investors contended for establishing trust relationship between WazirX (the crypto exchange) and the investors but did not claim any right to segregation.⁹ Instead, the investors sought to establish themselves in the rank of secured creditors in the bankruptcy proceeding. In such a scenario, though the crypto coins will form part of the debtor's estate, the investors will have priority right in their distribution. However, there seems no practicality in adopting such an

⁸ *Re Zettai Pte Ltd* [2024] SGHC.

⁹ *ibid.*

approach by the investors, as they chose to forgo the right of segregation even while arguing a trust relationship. Needless to say, that in any probability the amount of realisation will be higher in segregation through recovery of the crypto coin itself.

A. Establishing the trust relationship

In the *MtGox* case,¹⁰ the plaintiff, who was a user of an online bitcoin exchange, brought a claim of segregation against the defendant, which was an online bitcoin exchange. When the bankruptcy proceedings were instituted against the bitcoin exchange, the plaintiff, *inter alia*, claimed the return of its bitcoins in the exchange's possession. The plaintiff sought such transfer under the right of segregation provided by the Bankruptcy Act of Japan. Article 62 of that legislation provided: "The commencement of bankruptcy proceedings shall not affect a right to segregate property from the bankruptcy estate that does not belong to the bankrupt." Though the request was denied owing to the court's decision that bitcoin cannot be the object of ownership and hence the right of segregation cannot be exercised over bitcoin, which the law does not recognize as a subject matter of ownership. However, in the aftermath of the judgment, amendments were introduced in the Payment Services Act of Japan, which defined cryptocurrency as proprietary value.¹¹ Therefore, cryptocurrencies such as bitcoin can now validly be claimed as object of ownership. The authors in the subsequent part of this part of the paper further analyse that if the bitcoin was recognized as an object of ownership, what could be the determination of such a right to segregation as claimed by the plaintiff in *MtGox*.

¹⁰ *Re MtGox Co. Ltd* [2015] Tokyo DC.

¹¹ Payment Services Act 2009, art 2(5).

The right to segregate cryptocurrency coins from the estate of a crypto exchange was first authoritatively decided by the Court of Florence in the *BitGrail* case,¹² as the court was conclusive on the point that cryptocurrency does form an object of ownership and decided the segregation claim. In a sequence of events, BitGrail, an online crypto exchange platform, lost seventeen million Nanos (cryptocurrency traded on the platform) due to a cyberattack. Subsequently, bankruptcy proceedings were opened against the exchange. Customers moved an application to segregate their crypto coins from the overall estate of the exchange. Their application contended that BitGrail held the cryptocurrency on behalf of its customers and the ownership always rested with the customers; accordingly, the application was justified in requesting that BitGrail return the possession of Nano coins owned by customers and that they do not form part of its estate.

In effect, the customers claimed that the relationship between them and the exchange was that of a trust, and the exchange held their crypto coins custodian with no transfer of ownership. The court, however, answered in negative. It was explained that once the user's crypto coins were directed towards the exchange, they no longer bore distinctive elements and they became interchangeable goods. This can be explained through the following illustration: User A purchases a Nano coin bearing the unique ID ABCXYZ; however, when this coin is submitted to BitGrail, A will own the value of the Nano coin and not a specified Nano coin with a unique ID. Therefore, A's account balance on BitGrail will reflect the value of a Nano coin but he does not own a particular Nanocoin. Accordingly, when he wishes to withdraw or transfer a Nano coin, BitGrail will exchange any Nano coin with any unique ID number and not necessarily the one that A bought or submitted to it. Simply

¹² Eirik Ulseroy v. Firano Franceso, [2019] Court of Florence.

put, BitGrail is obligated to return items of the same type, quantity, and quality (*tantundem eiusdem generis*), rather than individualized items, back to the user.

In such kind of deposits, where the deposited assets do not bear distinctive elements associated with ownership by a single user but the own value of the assets so deposited (such as user X owns the current market value of Nano coin and not a particular Nano coin itself), the ownership of crypto coins gets transferred to the exchange.¹³ Therefore, investors only own value of their crypto coin and not a specific crypto coin. Accordingly, since the users do not own the crypto assets themselves, there cannot be a case for the subsisting of a trust relationship between the exchange and the users. Therefore, there cannot be a claim for segregation as there are no particular assets segregated against the name of a particular user.

B. The ‘Segregation Test’

It is conclusive to say that when the crypto exchange holds individualised crypto coins (identified through a unique key, etc.) attributed to specific investors, there will exist a trust relationship between the exchange and the investors as per the ratio laid out in *BitGrail*. Since the basis of determination of trust relationship is segregation of crypto coins,¹⁴ it is hereinafter referred to by the authors as ‘segregation test’.

Although the court did not rule on the segregation application in the case of *MtGox*, as previously mentioned in this document. However, the claim was likely to fail if the court were to apply the segregation test in this case. The deposit of crypto coins in the case was held fungibly by the bankrupt

¹³ *ibid* 2.7.

¹⁴ *ibid*.

company, that is, deposited together with other commingled assets. Simply put, in the arrangement, crypto investors deposited crypto coins of the same kind, and the exchange stored these by mixing the coins together and not as individualised assets.

C. Failure of segregation claims: Divergent approaches

It flows from the cases of *MtGox* and *BitGrail* that the test for establishing a trust-like relationship between platform and customers is whether the crypto assets have been segregated and each customer owns a specified coin (identified through a unique key or code, etc.). The authors in this section will analyse the segregation test against the evolving jurisprudence in the world, particularly in the jurisdictions of Singapore and Hong Kong, which have applied the common law principles of creation of trust and adopt divergent approaches.

The case of *Quoine Ptd Ltd v. B2C2 Ltd*¹⁵ ('Quoine') has seemingly contrasted and discarded the segregation test. In the facts of the case, crypto coins were held separately as assets of an individual user of the platform. Thus, the users owned specified assets rather than the mere value of assets in their portfolio. Accordingly, it was advanced that there existed a trust between the platform and its users. If the court was to apply the segregation test as applied elsewhere, it was to conclude the existence of a trust. However, the court held, "*The mere fact that Quoine's assets were segregated from its customers cannot in and of itself lead to the conclusion that there was a trust.*"¹⁶

To analyse the reasoning in *BitGrail*, segregation of crypto assets would ipso facto lead to the determination of trust relationships. In *Quoine*,

¹⁵ *Quoine Ptd Ltd v. B2C2 Ltd* [2020] SGCA(I) 02.

¹⁶ *ibid* 145.

however, the court distinguished the concepts of segregation of assets and trust. It relied on *Vintage Bullion DMCC v. Chay Fook Yuen*¹⁷ to hold that “...segregation is a necessary but not a sufficient condition to give rise to an express trust over the Sums in favour of the Customers. What is further required is to establish that the Company had the requisite certainty of intention for the funds to be held on trust ...” (emphasis supplied).¹⁸ Thus, it was the intention of parties along with segregation of crypto coins that were held to be decisive factors. Since, the contract between the platform and users did not make clear any such relationship between parties in express terms, the claim of trust relationship was accordingly rejected.

There seems to be a growing acceptability to the criteria of ‘intention’ in determination whether the platforms held the crypto coins in trust or not. For example, in *Re Gatecoin Ltd.*,¹⁹ the court of first instance endorsed the ‘*Three Certainties*,’ a common law principle for the creation of a trust, which necessitates the satisfaction of threefold conditions: certainty of subject matter, of object, and of intention.²⁰ The court held that there was indeed certainty of subject matter, which could be derived from a claim to share of the undivided bulk (value of crypto coins reflected in the platform’s ledger).²¹ This needs to be contrasted with the jurisprudence in the *BitGrail* case, where it was held that there existed no certainty of subject matter as the customers only held value in their portfolio without holding any specific coin, and accordingly the relation in the sense of trust was not accepted.²² Thus, the test

¹⁷ *Vintage Bullion DMCC v. Chay Fook Yuen* [2016] 4 SLR 1248.

¹⁸ *Quoine* (n 15) [145].

¹⁹ *Re Gatecoin Ltd* [2023] 2 HKLRD 1079.

²⁰ *ibid* 60-65.

²¹ *ibid* 62.

²² *Bitgrail* (n 12).

in the *BitGrail* case was that of “*certainty of subject matter*,” and it was considered the sole factor for establishing the trust relationship.

However, the court in *Gatecoin* did not hold the relationship to be that of a trust even after accepting certainty of subject matter.²³ The determinative factor in *Gatecoin* was that of intention between parties, as flowing from the terms and conditions agreed between them.²⁴ Thus, since the contract did not postulate relation as that of a trust and accordingly no claim for segregation, customers will be categorized as unsecured creditors, and the allocation was to be done between them by the *pari passu* method from the debtor’s pooled estate.

D. Probable trend: Primacy to the Intention test

It needs to be emphasized that in arriving at the conclusions and giving conclusive effect to the ‘intention’ of parties as flowing from contract to determine whether trust relationship exists or not, the courts in *Gatecoin* and *Quoine* have relied on common law jurisprudence²⁵, which *inter alia* gives primacy to intention.²⁶ In the facts of the case, since the contract in clear terms did not envisage such a relationship, the claims were denied. This, in the opinion of the authors, is a restrictive approach, as the gauge of the intention of parties has been the cornerstone of express terms agreed in the contract, and the *de facto* treatment of crypto coins has been of no significance. For example, an attempt to establish a trust relationship through inferential creation of trust based on the circumstances of the case was rejected in *Ruscoe*

²³ *Gatecoin* (n 19).

²⁴ *ibid* 66-75.

²⁵ *Gatecoin* (n 19); *Quoine* (n 15)

²⁶ John Mcghee and Steven Elliott, *Snell’s Equity* (34th edn, Sweet & Maxwell 2019) [22-012]; *R v Clowes* [1994] 2 All ER 316 [326d].

*v. Cryptopia Limited*²⁷ on the ground that the contract did not stipulate such a relationship. Safe to conclude, thus that since such an outcome of the cases is directly attributable to reliance on the widely accepted common law principle of ‘*Three certainties*’ by the courts, the intention test will likely prevail over the segregation test.

III. SEGREGATION CLAIMS UNDER INSOLVENCY AND BANKRUPTCY CODE, 2016

In accordance with section 155(2)(b) of the Insolvency and Bankruptcy Code, 2016 (‘IBC’), the bankrupt’s estate does not include “property held by the bankrupt on trust for any other person.” Similarly, section 36(4) of the IBC provides that “assets owned by a third party which are in possession of the corporate debtor, including—(i) assets held in trust for any third party; (ii) bailment contracts,” will not be included in the liquidation estate and shall not be used for recovery in liquidation. Further, the explanation to section 18 also precludes “assets owned by a third party in possession of the corporate debtor held under trust or under contractual arrangements including bailment” from the definition of the “assets” of the debtor. Thus, the framework envisaged under IBC precludes from the debtor’s estate any property held in trust or under bailment in event of its bankruptcy.²⁸ Logically, therefore, the right to segregation accrues to the owner of the property whose property is held by the debtor in trust or under bailment from these provisions of the IBC.

The authors submit that the jurisprudence analysed in the preceding parts of this paper will be relevant and serve as guiding principles for adjudicating authority when it faces the question of establishing the nature of

²⁷ *Ruscoe vs. Cryptopia Limited* [2020] NZHC 728.

²⁸ *Insolvency & Bankruptcy Code 2016*, s 158(3).

relationship between crypto exchange and crypto investors, which the later will contend as trust and denied by the other. An inquiry, however, needs to be made into segregation claims arising from the relationship in the nature of bailment between crypto investors and crypto exchanges, as bailment under IBC gives rise to segregation claims.

It needs to be emphasised that in the cases analysed in the preceding sections, the relevant statutory framework did not envisage relationships in the nature of bailment to qualify for making a claim of segregation.²⁹ For example, Article 1782 of the Italian Civil Code defines irregular deposit as “the deposit ... of an amount of money or other fungible things, which the depository is authorised to make use,” similar to the definition of the bailment under Indian Contract Act. However, in the event of bankruptcy, segregation claims cannot be allowed for such irregular deposits (bailment). Logically, thus, the investors couched their claims as trust relationships, and consequently, various approaches were laid by courts.

The term “bailment” is not defined in IBC but in the ICA, 1872, which defines it as “bailment” is the delivery of goods by one person to another for some purpose, upon a contract that they shall, when the purpose is accomplished, be returned or otherwise disposed of according to the directions of the person delivering them.”³⁰ The authors submit that the adjudicating authority in all likelihood will apply the segregation test even in segregation claims based out of bailment as “*It is the duty of the bailee to return, or deliver according to the bailor’s directions, the goods bailed*” (emphasis supplied).³¹ Thus, for segregation claims to be successful even in the contractual

²⁹ Bankruptcy Act 2004, art 62; Insolvency, Restructuring and Dissolution Act 2018, s 64.

³⁰ The Indian Contract Act 1872, s 145.

³¹ *ibid* s 160.

arrangement in the nature of bailment, the crypto exchanges must be obligated to return individualised crypto coins. Accordingly, in line with the global jurisprudence that deposit of crypto coins of the same kind and quality where crypto exchange stores these by mixing the things together does not merit segregation claim, the position of India will in all likelihood be the same.

IV. GUIDE TO INVESTORS: EVALUATING THE OUTCOME OF SEGREGATION CLAIMS

A. An overview of the potential outcomes

Summarily, based on the analysis of the relevant jurisprudence, the following is the probable list of outcomes based on different permutations and combinations of facts and circumstances:

	Segregation of crypto assets	Ownership	Trust	Result	Comment
Case I:	No	The value of crypto coins.	No	No segregation claim	
Case II:	Yes	Specific crypto coins.	Yes	The segregation claim will be successful.	Additional requirement: establish intention of creating a trust as per agreed terms and conditions.

Case III:	No	The value of crypto coins.	Yes	Secured creditor	See <i>Zettai Pte Ltd.</i>
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Clearly, the users or traders of crypto assets enjoy the highest amount of protection in Case II scenarios where they can successfully pursue segregation claims. Case III scenario offers them an opportunity to claim value of their asset in liquidation proceeding as secured creditors—a less favourable case scenario than Case II. Finally, Case I scenario is the least favourable outcome, as the claims will rank *pari passu* with other unsecured debt of the crypto exchange.

B. Impact of Crypto Asset Fungibility

Ordinarily, crypto exchanges provide the users an opportunity to earn reward points or other benefits by depositing or transferring their crypto assets to the exchange. It is in such a scenario that the crypto assets become ‘fungible’ as between the users/traders and the exchange, i.e., the exchange will continue to owe them the value of their asset but not a specific crypto asset. In such a deposit or transfer, the exchange pools the crypto assets of its users and uses them for various purposes, such as investing in hedge funds, lending, etc. This can be illustrated by an insolvency case against Celsius (a US crypto exchange). In the case of *Celsius*,³² by using the ‘Earn Services’ feature, the clients could ‘lend’ crypto-assets to Celsius in return of a fee, called ‘rewards’ in the form of crypto-assets. Celsius terms and conditions also provided that “*once [crypto assets] are received by Celsius into your Earn*

³² Celsius n 2.

balance, they shall be Celsius' property, in every sense and for all purposes."³³

Similarly, even in the case of *Voyager*,³⁴ the contract provided that by depositing the crypto assets with the exchange in return for a reward, the customers grant Voyager the right to hold cryptocurrency held in the 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. Therefore, the customers will only have the right to value their crypto asset and not an individualised asset.

Thus, by subscribing to the rewards program of crypto exchanges, the users and traders effectively forego their right to bring a segregation claim in the event of the exchange's bankruptcy owing to the treatment of crypto assets (which are then pooled and utilised by the exchange, therefore no segregation). In the aforementioned case of *Celsius*, segregation claims of the users against the exchange were allowed for the users who did not subscribe to the 'Earn Services' feature, as their assets were not pooled but kept segregated. Contrary to their treatment, users opting for the 'Earn Services' feature were only able to pursue their claims as unsecured creditors of the exchange.

C. Best Practices for Investors: Protect Your Crypto Assets

Thus, users or traders may want to avoid using such features offered on the crypto exchanges to ensure full recovery of their claims by successful segregation of their crypto assets in the event of the crypto exchange's bankruptcy. Secondly, users or traders of crypto assets may wish to choose a platform which through its terms and conditions, establishes a trust

³³ *ibid.*

³⁴ *Voyager n 2.*

relationship with respect to custody of crypto assets. For example, the custody agreement of Gemini provides to its users, “*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.*”³⁵ Thus, pursuing crypto transactions on such platforms offers security of recovery of crypto assets in event of the exchange’s bankruptcy. Further, traders transacting in huge volumes of crypto assets may wish to negotiate terms of contract with the crypto exchange for such clauses safeguarding their right to segregation with respect to their crypto asset.

V. REALIZATION OF VALUE: THE TIMING AND VALUE CONUNDRUM

In the event of the crypto exchange’s bankruptcy, first the investors will try to segregate their crypto coins from the possession of the crypto exchange. However, if such segregation claims are unsuccessful, the coins will form part of the exchange’s estate and consequently pooled together with other assets of the exchange (debtor) for distribution amongst the exchange’s creditors. At the cost of repetition, it is again emphasised that crypto investors will inevitably be classified as unsecured creditors, placing them lower in the creditor hierarchy when it comes to the distribution of the exchange’s assets.

In this scenario, the problem faced by the crypto investors is the realization of their claims considering the issues associated with the valuation of their claim against the debtor. Valuation issues emerge because jurisdictions have consistently mandated the distribution of assets under

³⁵ ‘Custody Agreement’ (*Gemini*, 31 July 2013), <<https://www.gemini.com/legal/custody-agreement#section-introduction>> accessed 10 October 2024.

insolvency in their native currencies as opposed to in-specie payment.³⁶ Thus, the distribution from the debtor's estate will be made in the domestic currency of the jurisdiction, and therefore the investment into cryptocurrency by investors needs to be valued for the distribution of the debtor's estate.

Concerning the valuation issue of their claims, it is difficult to ascertain the market value of crypto currencies at any point in time. This issue arises from the fact that there exists no objective value to these tokens; they have a certain value because people perceive their value to be such. Their market faith, not their physical state or economic value, determines their value.³⁷ Appropriately explained by Mohamed Faizal J., these have “*value for being valuable*,” as these have no intrinsic value.³⁸

A. Points of determination

Numerous crypto exchanges consider a myriad of factors to come at different values for the same currency at the same point in time. This crypto valuation problem is caused by great volatility and a lack of backing with such currencies. Thus, there is a seismic gap between the actual economic value and the perceived value of the cryptocurrencies. Therefore, there are two points of determination in the context of insolvency proceedings³⁹: (i) The

³⁶ Harish Natarajan, Andres F. Martinez and Maksym Iavorskyi, ‘Fear, uncertainty and doubt: Global regulatory challenges of crypto insolvencies’ (*World Bank*, 23 February 2023) <<https://blogs.worldbank.org/en/psd/fear-uncertainty-and-doubt-global-regulatory-challenges-crypto-insolvencies>> accessed 11 October 2024.

³⁷ *ByBit FinTech Limited v. Ho Kai Xin & Others* [2023] 5 SLR 1748 [32].

³⁸ *Fantom Foundation Ltd v. Multichain Foundation Ltd* [2024] SGHC 173 [39].

³⁹ UK Jurisdiction Taskforce, ‘Legal Statement on Digital Assets and English Insolvency Law’ [98] (UKJT, 17 April 2024) <<https://27221500.fs1.hubspotusercontent-eu1.net/hubfs/27221500/LawtechUK%20archive%20reports/UKJT%20Legal%20Statement%20on%20Digital%20Assets%20and%20English%20Insolvency%20Law.pdf>> accessed 10 October 2024 (UK Taskforce).

time at which the valuation concerning crypto currency is to be made and (ii) how such valuation is to be made.

B. Timing of valuation

To answer the first issue, case laws point out two essential dates, relevant to the present context, on which the bankruptcy court could determine the asset value. These are (i) the date when the resolution professional brings the recovery action or (ii) the date of the bankruptcy petition.⁴⁰ The timing of valuation critically affects the value of crypto assets, particularly given their volatile nature and sensitivity to market sentiment. If valuation is determined on the date of the bankruptcy petition, it reflects the market value of the assets at the moment the proceedings are initiated. This approach provides a fixed reference point, safeguarding creditors from the unpredictable fluctuations that might occur later. However, the mere initiation of bankruptcy proceedings often erodes market confidence, leading to a depreciation in the value of crypto assets. As a result, petition-date valuation might preserve the higher, pre-collapse value of the assets before the adverse effects of the bankruptcy announcement fully materializes. On the other hand, if valuation is determined at the later date of the recovery action by the resolution professional, it reflects the market value closer to the time of realization. While this approach allows creditors to benefit from any potential market recovery, it also risks capturing the diminished value caused by prolonged proceedings and reduced market trust. Thus, petition-date valuation is often more advantageous in preventing creditors from being affected by the negative market sentiment triggered by the bankruptcy process itself, whereas recovery-action valuation aligns with the actual liquidation value but could reflect the fallout of the proceedings.

⁴⁰ *Re Falcon Prods Inc.*, [2024] US Bankruptcy Court NY.

These considerations highlight the importance of carefully choosing the timing of valuation to ensure equitable outcomes for all stakeholders.

Some literature holds that the timing depends upon how the particular jurisdiction sees the crypto assets, arguing that if the same is considered currency, then the valuation at the petition date is appropriate; however, if these are considered commodities, then the same is to be done at the date of recovery action.⁴¹ However, with the exception of El Salvador⁴² and the Central African Republic⁴³, no country has granted the status of legal tender or currency to crypto coins. Thus, the crypto coins are treated like commodities across jurisdictions, with the International Monetary Fund also advising the member countries not to give crypto coins legal tender status.⁴⁴ Accordingly, therefore, since crypto coins are commodities, the valuation must be done at the date of recovery action.

C. Method of valuation

The second issue of valuation is not straightforward and has not been dealt with conclusively by the courts. The literature on it though has flagged the issue but has not engaged with the issue to suggest any particular procedure

⁴¹ Joanne Molinaro and Susan Poll Klaessy, 'Bitcoin as a "Commodity" and the Resulting Impact on Bankruptcy Proceedings' (*American Bar Association*, 5 March 2019) <<https://perma.cc/KW9E-9MAW>> accessed 12 October 2024.

⁴² Fernando Alvarez, David Argente and Diana Van Patten, 'Are cryptocurrencies currencies? Bitcoin as legal tender in El Salvador' (2023) 382 *Science* 6677, 2844.

⁴³ 'Central African Republic adopts bitcoin as an official currency' (*Reuters*, 28 April 2022) <<https://www.reuters.com/world/africa/central-african-republic-adopts-bitcoin-an-official-currency-2022-04-27/>> accessed 13 October 2024.

⁴⁴ International Monetary Fund, 'Elements of Effective Policies for Crypto Assets' (IMF Policy Paper, February 2023) <<https://www.imf.org/en/Publications/Policy-Papers/Issues/2023/02/23/Elements-of-Effective-Policies-for-Crypto-Assets-530092?cid=pr-com-PPEA2023004>> accessed 10 October 2024.

or methodology.⁴⁵ It is clear that the established asset valuation mechanisms, established through practice and solidified in international instruments are the (a) cost or asset approach, (b) income approach, or (c) market approach⁴⁶, which are not fit per se to account for the various peculiarities inherent in the crypto assets (as explained earlier in this part)⁴⁷, and as such, their principle-based approach must be adopted to tweak them to accommodate the advent of new technologies.

The authors analyse two methods of valuation of the crypto assets considered: (i) the KO Model (the transaction cost model) and (ii) the blockage method (gradual volume liquidation model), which also formed part of the discussion in the *FTX trading*⁴⁸ case.

D. KO Model

It is important to note that since the distribution to the creditors and investors is to be done in the native currency, the crypto currency will have to be traded in the market, leading to their increased liquidity and thus causing a huge fluctuation in the market. Against the backdrop of the idea that when a large position in an asset is being liquidated into the market, the price takes a huge dip. In such a scenario, the exercise of asset liquidation discounting is resorted to. The KO model takes majorly into account the downward pressure this liquidation may exert by calculating the “price impact cost” and the “bid-

⁴⁵ UK Taskforce (n 39); Janis Sarra and Louise Gullifer, ‘Crypto-Claimants and Bitcoin Bankruptcy: Challenges for Recognition and Realization’ (2019) 28 Int’l Insolvency Rev. 233.

⁴⁶ International Valuation Standards Council, ‘IVS 105: Valuation Approaches and Methods’ <<https://www.ivsc.org/wp-content/uploads/2021/10/IVS105ValuationApproaches.pdf>> accessed 12 October 2024; International Financial Reporting Standards, ‘13 Fair Value Measurement’ <<https://www.ifrs.org/issued-standards/list-of-standards/ifrs-13-fair-value-measurement/>> accessed 11 October 2024.

⁴⁷ T Kostoula, ‘Valuation of cryptoassets in EU insolvency: Challenges and prospects’ (2023) 32 International Insolvency Review 8.

⁴⁸ *Re FTX Trading Ltd.* [2024]US Bankruptcy Court Delaware.

ask spread cost,” which are together called the “transactional cost.” This transactional cost is then assimilated through the discounting of the current prevailing pricing in the market to get the original price in the market as of the date of the petition.⁴⁹ Simply put, the KO model envisages adjustments to the valuation price of cryptocurrency to adjust the negative effect on their price owing to the sale of such assets in the market.

Therefore, in the event that the prevailing market price is not the correct parameter to value crypto assets, the KO model, better described as the ‘discounting method’, aims to restore the value of the assets by discounting various risk factors like the volatility or liquidity of the asset in the market.

E. Blockage method

The blockage method takes a distinct approach based on the underpinning idea that the liquidation of the holdings may be done without affecting the prices significantly in the market if the same is done gradually with the proper volume of assets per day. Thus, the blockage study includes the determination of the appropriate volume that would be appropriate to trade by comparing similar tokens in the market. This is later followed by the estimation of the value, after the gradual liquidation, with respect to the petition date by taking out the average of the values of discounting calculated by the Chaffe⁵⁰ and Finnerty⁵¹ calculations.

The blockage method suffers from two significant deficiencies: (a) in case of bankruptcy against the debtor owning a huge amount of crypto assets,

⁴⁹ Albert S. Kyle and Anna A. Obizhaeva, ‘Market Microstructure Invariance: Empirical Hypotheses’ (2016) 84 *Econometrica* 1345.

⁵⁰ David B. Chaffe, ‘Option Pricing as a Proxy for Discount for Lack of Marketability in Private Company Valuations’ (1993) 12 *Business Valuation Review* 182-88.

⁵¹ John D. Finnerty, ‘An Average-Strike Put Option Model of the Marketability Discount’ (2012) 19 (4) *The Journal of Derivatives* 53-69.

a gradual offer of such assets in the market will significantly delay the liquidation of such assets and consequent recovery to the creditors and investors; and (b) by the very event of opening a bankruptcy proceeding against the debtor (crypto exchange), the value of cryptocurrencies will automatically decrease in the market, thus even a gradual sale of such assets in the market will not reflect the correct valuation of the assets. Therefore, the KO model may seem preferable in the sense that it is less susceptible to market fluctuations and brings forth the true valuation of the crypto assets through robust mathematical and statistical analysis, which sets off any impact of the market fluctuations on the valuation so achieved.

It is suggested that the valuation of the assets be done taking into consideration the facts of the case at hand and the peculiar nature of the assets at issue, thereby a best-fitted valuation approach considering all the proposed models must be devised in each case. However, it is suggested that the simple solution to all these problems is to just stay away from going into all these intricacies of valuation and allow for an in-specie distribution of asset⁵², i.e., the distribution be done not in the fiat native currency but rather in the same digital currency in which the claim lies. This shall save the court from non-precise calculations and also from the frustration of the restorative goals of any bankruptcy law that could occur in case of strong appreciation or depreciation of the value of the asset. However, this shall mandate a change of law in the domestic statutes, which prefer liquidation of assets in domestic currency (as also provided earlier in this part of the paper). The authors suggest that an exception on this line be deliberated that claim involving liquidation

⁵² Alan Rosenberg & Ross Hartog, 'Creditor Considerations in Crypto Cases' (2024) 40 Emory Bankr Dev J 435.

of crypto assets be satisfied through in-specie distribution of these crypto assets themselves.

V. CONCLUSION

This paper contributes to the existing literature by analysing the treatment of crypto assets in bankruptcy proceedings and addresses the resultant issues related to their valuation. While much of the current scholarship focuses on the debate surrounding the inclusion of these assets in bankruptcy frameworks—which has been concluded in the affirmative across various jurisdictions⁵³—this paper shifts the discourse towards the treatment of these crypto assets and the complexities of valuing crypto assets within these proceedings, thereby filling a critical gap in the literature.

In conclusion, this paper critically analyses the unique challenges posed by cryptocurrency exchanges in bankruptcy proceedings, particularly regarding the nature of claims by investors and the treatment of crypto assets. The paper has underscored that users' or traders' success in claiming segregation of their crypto assets in the event of a crypto exchange's bankruptcy hinges on the establishment of a trust-like relationship, while highlighting the divergent judicial perspectives that were categorised as the "segregation test" and the "intention test," with the authors predicting that the latter shall gain more recognition owing to it being premised upon common law principles. The authors have provided a practical guide to investors in choosing the appropriate crypto exchanges and deciding to opt-out of the reward program of the crypto exchanges offered against the deposit of their assets and how the choice shall have material bearing on the outcome of

⁵³ n 4.

segregation claims and realisation of users' or traders' claims in the event of the crypto exchange's bankruptcy.

Additionally, the paper addresses the complexities of crypto asset valuation in bankruptcy by proposing alternative models, like the KO model and the blockage method, to account for the inherent volatility of cryptocurrencies. Ultimately, the authors advocate for a potential shift towards in-specie distribution of crypto assets to resolve valuation issues and better align with the objectives of bankruptcy law. The paper thus offers a comprehensive guide for navigating the evolving landscape of cryptocurrency insolvency.