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Crypto Disputes: The Valuation Challenge

Elizabeth Chan, Nicole Tang and Edward Taylor*

Introduction

Early 2022 saw the advent of a ‘crypto winter’, the cryptoasset equivalent of an equities’ bear market, with cryptoassets plummeting in value by up to US\$2tn. Many participants in the crypto sector suffered significant losses as the Luna/Terra ecosystem collapsed and major crypto businesses, including Celsius, Voyager, Three Arrows Capital, FTX, BlockFi and Genesis, fell into bankruptcy-related proceedings.

This sustained period of crypto market volatility has prompted an increase in disputes related to cryptoassets and businesses as impacted parties seek to claw back their losses. More than 200 individual and class action lawsuits related to the crypto sector were filed in US courts in the opening months of 2022 alone.¹ Arbitrations linked to the crypto sector also increased, with several major cases publicly reported in 2022. Even if the financial outlook for crypto markets improves in 2023, this upward trend in the number of crypto disputes heading to litigation and arbitration looks set to continue, since the adverse effects of the crypto winter will continue to be felt for some time.

A notable consequence of this uptick in crypto disputes is that national courts and arbitral tribunals will face a wave of complex and novel valuation

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1 Farshad Ghodoosi, ‘Crypto Litigation: An Empirical View’ (2022), Yale Journal on Regulation, Vol 40, 87, available at www.yalejreg.com/bulletin/crypto-litigation-an-empirical-view [accessed 3 March 2023].

issues over the coming months and years, including in the context of quantifying damages for highly volatile cryptoassets. These valuation challenges reflect, among other things, the relative youth and complexity of the crypto sector, the extreme volatility of crypto markets, the ambiguity of the regulatory environment in which many cryptoassets exist and crypto businesses operate, as well as the sheer scale of the losses suffered by market participants during the crypto winter.

First, this article puts these valuation challenges into context by providing an overview of the crypto sector and the types of disputes arising out of the crypto winter. It then identifies valuation challenges that can arise when applying traditional valuation methods. Finally, it concludes with practical suggestions to help parties navigate these challenges and resolve their crypto disputes in this fast-developing area of business, law and practice.

An overview of the crypto sector

Bitcoin, perhaps the best-known cryptoasset, was only created approximately 15 years ago. The crypto sector is, therefore, still young compared to traditional finance and other multi-billion dollar sectors of the global economy. This section provides an overview of the vibrant and occasionally bewildering array of cryptoassets and crypto businesses that have emerged since bitcoin's creation, as well as the ambiguous regulatory environment in which they exist.

Cryptoassets

In 2008, the pseudonymous Satoshi Nakamoto published a white paper proposing a new electronic payment system based on cryptographic proof, with digital tokens (ie, bitcoins) taking the place of traditional fiat money, such as US dollars, issued by governments.² The innovative decentralised structure envisaged in the white paper would avoid the need for traditional financial institutions (eg, banks) to process payment transactions. Advantages of this approach for day-to-day transactions include, in theory, eliminating or significantly reducing processing fees and enabling transactions to be rapidly completed.

The first bitcoin, a cryptoasset, was created in January 2009 and initially attracted little mainstream attention. A wide variety of other cryptoassets emerged in the period following bitcoin's creation, but it was only in the five years preceding 2022's crypto winter that cryptoassets exploded in popularity,

² UK Jurisdiction Taskforce, 'Legal statement on cryptoassets and smart contracts', (November 2019), <https://cms.lawtechuk.io/uploads/4.-Cryptoasset-and-Smart-Contract-Statement.pdf> [accessed 3 March 2023], para 24.

with the global market cap for cryptocurrencies rising from around US\$15bn to over US\$3tn at its peak in November 2021.

Despite the public's newfound awareness of cryptoassets, with bitcoin and ether becoming household names, cryptoassets remain elusive when it comes to definition. As the UK Jurisdiction Taskforce (the 'Taskforce') observed in 2019, cryptoassets are represented digitally within systems incorporating cryptographic techniques.³ But it is challenging to come up with a comprehensive definition given the variety of systems in use and the kinds of assets represented, the many different use cases for cryptoassets and the rapidly developing technology underlying their operation.⁴ Indeed, constant innovation and evolution are hallmarks of the cryptoasset space.

There is, nevertheless, an emerging consensus on the critical characteristics of cryptoassets, which is increasingly reflected in national legislation and global standards.⁵ In line with this consensus, cryptoassets may be broadly defined as:

'any cryptographically secured digital representation of value or contractual rights that (a) can be transferred, stored or traded electronically, and (b) that uses technology supporting the recording or storage of data (which may include distributed ledger technology)'.⁶

Annex 1 identifies the cryptoasset definitions adopted across several different jurisdictions. Five examples of cryptoassets are described below to give a sense of the variety within the cryptoasset space.⁷

First, there are cryptocurrencies, such as bitcoin. Cryptocurrencies were designed to be a medium of exchange (eg, for the sale and purchase of goods and services) and, thereby, operate as an alternative to traditional fiat currencies. But, in practice, cryptocurrencies can display characteristics rendering them ill-suited to this purpose, including abrupt and unexpected price movements.⁸ This volatility has contributed to cryptocurrencies' emergence as a popular form of investment among both retail and professional investors. Highly speculative cryptocurrencies include 'Dogecoin', which was initially created as a joke but yet achieved a market capitalisation of over US\$80bn.⁹

³ *Ibid*, paras 25–26.

⁴ *Ibid*, para 26. The Taskforce identified key characteristics at para 31.

⁵ HM Treasury, 'Future financial services regulatory regime for cryptoassets: Consultation and call for evidence' (2023).

⁶ *Ibid*.

⁷ Wirex Team, 'The 8 Different Types of Crypto Assets', Wirex (10 November 2021), <https://wirexapp.com/blog/post/the-8-different-types-of-crypto-assets-0471> [accessed 3 March 2023].

⁸ Coinbase Global Inc, 'Annual Report for the fiscal year ended December 31, 2021' (2022), 54.

⁹ Avi Salzman, 'Dogecoin Started as a Joke. Now It's Too Important to Laugh Off', *Barron's*, (5 May 2021), www.barrons.com/articles/dogecoin-started-as-a-joke-now-its-too-important-to-laugh-off-51620229273 [accessed 3 March 2023].

Other cryptocurrencies serve specific purposes. For example, ether is the native cryptocurrency of the blockchain ecosystem of Ethereum, a smart contract and decentralised application platform.¹⁰ Stablecoins, such as USD Coin (USDC), are fixed-price cryptocurrencies whose market value is tied to an external reference, such as another currency (eg, US dollars) or commodity (eg, gold), so they are less volatile and, thus, better suited to operating as a medium of exchange and store of value.

Secondly, non-fungible tokens (NFTs) are cryptographic tokens, but unlike cryptocurrencies, they are not mutually interchangeable. They are often associated with a specific digital file and can be used to certify ownership. For example, the artist, Beeple, sold an NFT comprising a digital collage of 5,000 images for US\$69m at Christie's in 2021.¹¹ NFT collections that were extensively traded and attracted significant multi-million US Dollar sale prices before the crypto winter included CryptoPunks and the Bored Ape Yacht Club, which feature cartoon images and were built on the Ethereum blockchain.

Thirdly, security tokens, which represent ownership or other rights in an asset. From bonds to art, almost every asset class can be tokenised – whether real or virtual.¹² Tokenisation refers to converting the ownership rights in an asset into a digital token, which is a number assigned to data stored within the blockchain.¹³ For example, tokenisation of a litigation finance investment vehicle would involve issuing digital membership interests in a holding company that owns the litigation finance asset.¹⁴ Tokenisation could potentially accelerate the growth of the litigation funding market.¹⁵

10 For completeness, the UK Law Commission's (LC) recent report acknowledged that their use of 'cryptoasset' and 'crypto token' as distinct terms was not entirely aligned with the Taskforce's approach. The LRC nevertheless emphasised that they did not intend for their descriptions to be either exhaustive or determinative. See Law Commission, 'Digital Assets: Consultation Paper' (Law Com No 256, 2022), paras 10.3 and 10.5.

11 Jacob Kastrenakes, 'Beeple sold an NFT for \$69 million', *The Verge* (11 March 2021), www.theverge.com/2021/3/11/22325054/beeple-christies-nft-sale-cost-everydays-69-million [accessed 3 March 2023].

12 Akash Takyar, 'Asset Tokenization - Real Assets on the Blockchain', *LeewayHertz* (26 September 2022), www.leewayhertz.com/what-is-asset-tokenization [accessed 3 March 2023].

13 Christina Majaski, 'Cryptocurrency Security Token: Definition, Forms, Investing In', *Investopedia* (27 May 2022), www.investopedia.com/terms/s/security-token.asp [accessed 3 March 2023].

14 Ledger Insights, 'LawCoin introduces tokenization for litigation finance' (4 December 2019), www.ledgerinsights.com/lawcoin-tokenization-litigation-finance-blockchain/ [accessed 3 March 2023].

15 HKU FinTech, 'Regulatory Ramblings Briefs: Tokenised Litigation Funding', *LinkedIn* (1 February 2023), www.linkedin.com/video/live/urn:li:ugcPost:7026398712335671296/ [accessed 3 March 2023].

Fourthly, utility coins are a distinct type of cryptoasset that serve a specific purpose within a crypto project's ecosystem.¹⁶ For example, Dash 2 Trade's native token D2T enables token-holders to access its analytics platform through a monthly subscription. The term 'utility coins' is subjective but can be used to distinguish coins with real-world use cases from other cryptoassets that may be traded for speculative investment purposes.¹⁷

Fifthly, there are central bank digital currencies (CBDC). These are similar to stablecoins, in the sense that they are tied to a fiat currency, but are digitally issued by a country's national bank and are, therefore, subject to centralised control. Individuals may use them for retail purposes (eg, retail CBDCs) or financial institutions may use them to settle trades (eg, wholesale CBDCs). Several countries have already launched, and many others are actively exploring the potential for, CBDCs.¹⁸

Crypto businesses

Cryptoassets' growth in popularity before the crypto winter was facilitated by a broad spectrum of crypto businesses.¹⁹ These businesses included crypto exchanges, such as Binance, Coinbase and (before its spectacular collapse) FTX²⁰, which enabled various cryptoassets to be traded online by retail and professional investors and, in some cases, provided access to specialist crypto investment products. To give a sense of the scale, spot trading volumes on Binance stood at US\$5.29 trillion in 2022 alone, having fallen 45.3 per cent since 2021.²¹

16 WorldCoin, 'What Is a Utility Token?' (30 November 2022), <https://worldcoin.org/articles/what-is-a-utility-token> [accessed 3 March 2023].

17 Kane Pepi, '13 Best Utility Tokens to Invest in 2022', *Cryptoneus* (17 November 2022), <https://cryptoneus.com/news/best-utility-tokens.htm#:~:text=What%20is%20a%20utility%20token,purchased%20for%20speculative%20reasons%20only> [accessed 3 March 2023].

18 For example, 114 countries, representing over 95 per cent of global GDP, are exploring a CBDC. Eleven countries have fully launched a digital currency, and China's pilot, which reaches 260 million people, is set to expand to most of the country in 2023. See Atlantic Council, 'Central Bank Digital Currency Tracker', <https://www.atlanticcouncil.org/cbdctracker/> [accessed 3 March 2023].

19 This article uses the term 'crypto business' to describe the broad spectrum of businesses that operate in the crypto sector.

20 Forbes, 'The Collapse Of FTX', www.forbes.com/sites/forbesstaff/article/the-fall-of-ftx/?sh=76434f1e7d0c [accessed 3 March 2023].

21 Lyllah Ledesma, 'Binance Led in Market Share in 2022 as Volume on Centralized Exchanges Fell', *CoinDesk* (4 January 2023), www.coindesk.com/markets/2023/01/04/binance-led-market-share-in-2022-despite-overall-decline-in-cex-volumes/ [accessed 3 March 2023].

Other prominent crypto businesses include cryptocurrency lending platforms, such as the now-bankrupt Celsius Network, where customers could deposit cryptocurrencies and earn interest in return; ‘crypto miners’, such as Riot Blockchain, which mine bitcoins using large computer networks; crypto investment funds such as the now-bankrupt Three Arrows Capital; and blockchain technology companies, cryptoasset custody and payment platforms and cryptoasset wallet service and custody providers.

Regulation of the crypto sector

The crypto sector is presently subject to a confusing, and sometimes inconsistent, patchwork of national regulations.²² At one end of the spectrum, in 2021, El Salvador became the first country to make bitcoin legal tender.²³ Switzerland, among other countries, has adopted cryptoasset-friendly regulations to recognise their potential positive economic contribution.²⁴ At the other end, mainland China, Russia and Qatar, among others, have prohibited or heavily restricted activities involving cryptoassets, including mining and trading.²⁵

In most countries, cryptoassets and businesses exist in a legal no man’s land without express regulation. This regulatory vacuum can create significant confusion about what legal restrictions and safeguards apply. One complicating factor in this regard is how to legally classify cryptoassets (eg, as a commodity, property, currency or security), which is considered further below, since this will determine what, if any, of a country’s existing regulations apply to their use.

Regulation is a controversial topic in the crypto sector since cryptocurrencies were initially invented to operate in a decentralised manner without the need for institutional intermediaries (eg, banks) and, consequently, government interference. But following the crypto winter, it is increasingly difficult to resist arguments against greater regulation, given the sheer financial scale of the crypto sector and the widespread criticisms of the failure of major crypto businesses, such as FTX, to implement

22 Countries issuing CDBCs will issue regulations concerning their use but such regulations may not extend to cryptoassets more generally.

23 Laurent Belsie, ‘El Salvador’s Experiment with bitcoin as Legal Tender’, *National Bureau of Economic Research* (July 2022), www.nber.org/digest/202207/el-salvadors-experiment-bitcoin-legal-tender [accessed 3 March 2023].

24 Homburger, ‘Blockchain & Cryptocurrency Laws and Regulations 2023 – Switzerland’, *Global Legal Insights* (27 October 2022), www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/switzerland [accessed 3 March 2023].

25 Andrey Sergeenkov, ‘China Crypto Bans: A Complete History’, *CoinDesk* (10 March 2022), www.coindesk.com/learn/china-crypto-bans-a-complete-history/ [accessed 3 March 2023].

effective corporate governance standards and appropriate internal controls or safeguard retail investors from significant losses.²⁶ Looking forward, the crypto winter will likely prompt jurisdictions to more actively regulate the crypto sector, including through express regulations and increased regulatory enforcement actions.²⁷

The crypto winter's impact on crypto disputes

The crypto winter

Following a significant increase in the value of cryptoassets and associated businesses in 2021, early 2022 saw the onset of the crypto winter. Cryptoassets rapidly lost approximately US\$2tn from their 2021 peak.²⁸ This fall has prompted an increase in disputes involving cryptoassets and associated businesses, including claims relating to breach of contract, tortious acts and regulatory violations.

While crypto markets have always been volatile, 2022 stands out due to the sheer scale of losses. For example, bitcoin's value plummeted to a two-year low of US\$15,480 in November 2022.²⁹ This fall represented a 78.2 per cent decrease in bitcoin's value compared to its all-time high of nearly US\$71,000 in November 2021.³⁰ Other cryptoassets also experienced sharp corrections. According to *Bloomberg*, the NFT trading volume dropped by 97 per cent, falling from US\$1bn in value at the start

26 Neil Hodge, 'Cryptocurrencies: FTX collapse erodes sector's 'credibility and trustworthiness'', *International Bar Association*, (1 December 2022), www.ibanet.org/Cryptocurrencies-FTX-collapse-erodes-sector-credibility [accessed 3 March 2023].

27 Tom Singleton, 'Government promises robust crypto regulation', *BBC* (2 February 2023), www.bbc.com/news/technology-64468617 [accessed 3 March 2023].

28 For example, see Ruth Strachan, 'Can bitcoin miners recover from the 2022 crypto crash?', *Investment Monitor* (3 August 2022), www.investmentmonitor.ai/crypto/bitcoin-miners-recover-crypto-crash-2022/#:~:text=The%20crypto%20markets%20are%20collapsing,18%2C976%20on%201%20August%202022 [accessed 3 March 2023]; Rahul Jain and Aashika Jain, 'A Basic Guide To Commodity Trading' *Forbes Advisor* (17 May 2022) www.forbes.com/advisor/in/investing/a-basic-guide-to-commodity-trading/ [accessed 3 March 2023]; and Medha Singh, 'Crypto assets shed \$800 billion in market value in a month', *Reuters* (11 May 2022), <https://tinyurl.com/3nz7xccc> [accessed 3 March 2023].

29 Khristopher Brooks, 'Bitcoin slumps as FTX meltdown triggers fears of contagion', *CBS News* (22 November 2022), www.cbsnews.com/news/bitcoin-price-fall-ftx-bankruptcy-cryptocurrency [accessed 3 March 2023].

30 Billy Bambrough, 'JPMorgan Reveals Shock 'Cascade' Bitcoin Price Prediction After Stunning FTX Meltdown' *Forbes* (13 November 2022), <https://www.reuters.com/business/finance/crypto-assets-shed-800-bln-market-value-month-2022-05-10/> [accessed 3 March 2023].

of 2022 to only US\$466m in September 2022.³¹

Mirroring the decline in cryptoasset prices, the financial outlook for many crypto businesses sharply deteriorated during the crypto winter. Key casualties of the crypto winter included major crypto projects, which collapsed, as well as bankruptcies of leading crypto businesses. For example, the Luna/Terra ecosystem, a high-profile US\$40bn ‘stable’ cryptocurrency project, imploded in May 2022. The next month saw liquidators appointed in respect of Three Arrows Capital, a multi-billion USD crypto hedge fund incorporated in the British Virgin Islands with operations in Singapore. Shortly thereafter, in July 2022, the crypto exchange CoinFLEX filed for restructuring in a Seychelles court. In the same month, the cryptocurrency lender, Celsius Network, filed for Chapter 11 bankruptcy under the US Bankruptcy Code (11 USC) in what has been described as a ‘Lehman Brothers moment’ for cryptoassets.³²

Last but not least, in November 2022, documents showing the precarious financial position of Alameda Research, a cryptocurrency trading business associated with Sam Bankman-Fried (‘Bankman-Fried’), FTX’s high-profile CEO, were leaked. The furore that followed saw Bankman-Fried resign as CEO and FTX, once valued at over US\$30bn, enter Chapter 11 bankruptcy protection in the United States. Bitcoin’s value once again crashed following the FTX meltdown and the subsequent freezing of assets held by the Bahamas subsidiary of FTX.³³

Crypto disputes

Amidst the financial chaos wrought by the crypto winter, crypto disputes have increased. As of May 2022, more than 200 individual and class action lawsuits were filed in United States courts, representing an increase of 50 per cent since the start of 2020.³⁴ These proceedings comprised tort actions for negligent misrepresentation and fraud, as well as alleged violations of securities regulations (eg, allegations that cryptoassets comprised

31 Sidhartha Shukla, ‘NFT Trading Volumes Collapse 97% From January Peak’ *Bloomberg* (28 September 2022), www.bloomberg.com/news/articles/2022-09-28/nft-volumes-tumble-97-from-2022-highs-as-frenzy-fades-chart?leadSource=uverify%20wall [accessed 3 March 2023].

32 MacKenzie Sigalos, ‘From \$25 billion to \$167 million: How a major crypto lender collapsed and dragged many investors down with it’ *CNBC* (17 July 2022), www.cnbc.com/2022/07/17/how-the-fall-of-celsius-dragged-down-crypto-investors.html [accessed 6 March 2023].

33 See n 30 above and Dan Milmo, ‘FTX assets frozen by Bahamas regulator as crypto exchange fights for survival’ *The Guardian* (11 November 2022), www.theguardian.com/technology/2022/nov/11/ftx-assets-frozen-bahamas-regulator-crypto-exchange-bankman-fried [accessed 6 March 2023].

34 See n 1 above.

unregistered securities) and consumer protection statutes.³⁵ FTX's collapse has prompted a further wave of lawsuits.³⁶

While arbitral proceedings are generally confidential, several major crypto disputes related to the crypto winter were publicly reported as heading to arbitration in 2022.³⁷ CoinFLEX, for example, initiated a US\$84m Hong Kong International Arbitration Centre (HKIAC) claim against an individual known as 'bitcoin Jesus' in June 2022 for an allegedly unpaid debt arising from a margin call.³⁸ A Singapore-based affiliate of Genesis, a cryptocurrency lender, filed a US\$2.4bn International Centre for Dispute Resolution (ICDR) arbitration claim against Three Arrows Capital in July 2022 concerning loans and parallel emergency arbitration proceedings requesting that unsecured funds be placed in escrow.³⁹ There have also been reports of class action arbitration claims against Coinbase and Gemini for security failings and fraud, respectively.⁴⁰

This proliferation of crypto disputes is explained not only by the sharp decline in cryptoasset values but also that, in the lead up to the crypto winter, major crypto businesses became increasingly interconnected, with complex financial relationships, increased lending of cryptoassets and greater use of leverage. The collapse of key crypto businesses described above prompted financial contagion to spread across the crypto sector, leading to further disputes.

Looking forward, disputes emanating from the crypto winter are likely to fall into various categories. Several key examples are described below.⁴¹

³⁵ *Ibid.*

³⁶ *Ibid.*

³⁷ Arbitration refers here to traditional ad hoc or institutional arbitration as opposed to decentralised blockchain-based 'arbitration' services, such as Kleros (<https://kleros.io/>). It will be interesting to see whether Kleros and similar offerings are able to gain traction with respect to resolving crypto disputes in the future.

³⁸ Edward Taylor and Helen Wang, 'Crypto winter disputes: Navigating the intersection of crypto, arbitration and insolvency' International Bar Association (21 October 2022), www.ibanet.org/crypto-winter-disputes [accessed 6 March 2023].

³⁹ Oliver Knight, 'Genesis Files \$1.2B Claim Against Three Arrows Capital', *CoinDesk* (19 July 2022), www.coindesk.com/business/2022/07/18/genesis-global-issued-236b-in-undercollateralized-loans-to-three-arrows-capital/ [accessed 6 March 2023].

⁴⁰ Jack Ballantyne, 'Crypto platform faces claim over "wallet-draining" scam', *Global Arbitration Review* (21 October 2022), <https://globalarbitrationreview.com/article/crypto-platform-faces-claim-over-wallet-draining-scam> [accessed 6 March 2023] and Tom Jones, 'Crypto investors lodge class action fraud claim', *Global Arbitration Review* (5 January 2023), <https://globalarbitrationreview.com/article/crypto-investors-lodge-class-action-fraud-claim> [accessed 6 March 2023].

⁴¹ Additional examples of crypto disputes are listed in Annex 2.

Firstly, fraud and misselling disputes have long been a feature of the crypto sector. These disputes can concern ‘rug pulls’, for example, where developers promote cryptoasset projects and disappear with investors’ money without delivering the project.⁴² Following the heavy losses suffered by retail investors in cryptoassets during the crypto winter, fraud and misselling disputes have increased significantly and will continue to do so. For example, for failed ‘stablecoin’ projects like Luna/Terra, investors have already alleged that fraudulent misrepresentations were made concerning the stability and safety of the stablecoin.⁴³

Secondly, given the financial outlook for the crypto sector fell sharply during the crypto winter, disputes relating to investments, corporate transactions and joint ventures concerning crypto businesses will rise. Disputes may arise, for example, where an investment fund seeks to rely on a contractual right to exit a poorly performing investment in a crypto business (eg, by exercising a put option requiring the crypto business to refund the investment by repurchasing its share) but the crypto business fails to comply.

Disputes can similarly arise from aborted merger and acquisition (M&A) transactions. Buyers may be reluctant to finalise transactions where the target crypto business is performing poorly or otherwise fails to comply with the conditions precedent to closing. For example, in August 2022, Galaxy Digital, a digital asset merchant bank, backed out of its US\$1.2bn merger with BitGo (a cryptowallet provider) following an alleged failure to deliver certain audited financial statements in contravention of the acquisition agreement.⁴⁴

There may be other disputes arising from commercial transactions and arrangements between crypto businesses. These types of disputes can relate to collateral, which may be in the form of cryptoassets or traditional assets. For example, BlockFi Inc (a digital asset lender) sued Emergent Fidelity Technologies Ltd (a vehicle linked with Bankman-Fried) in the US courts seeking to seize Bankman-Fried’s shares in the online trading company Robinhood, which Bankman-Fried had allegedly pledged as collateral just days before the FTX collapse.⁴⁵

42 Rosie Perper, ‘What Is a Rug Pull? How to Protect Yourself From Getting “Rugged”’, *CoinDesk* (30 August 2022) www.coindesk.com/learn/what-is-a-rug-pull-how-to-protect-yourself-from-getting-rugged/ [accessed 6 March 2023].

43 Jessie Lim, ‘Terra co-founder Do Kwon faces \$79.8m lawsuit in Singapore after crypto crash’, *The Straits Times* (9 November 2022), www.straitstimes.com/singapore/courts-crime/terra-co-founder-do-kwon-faces-798m-lawsuit-in-singapore-after-crypto-crash [accessed 6 March 2023].

44 KYT, ‘Galaxy Digital backs out of \$1.2B acquisition deal for cryptowallet provider BitGo’, *Silicon Angle* (15 August 2022), <https://siliconangle.com/2022/08/15/galaxy-digital-backs-1-2b-acquisition-deal-bitgo/> [accessed 6 March 2023].

45 Kadhim Shubber, Antoine Gara and Alexandra Scaggs, ‘BlockFi sues Sam Bankman-Fried over Robinhood shares’, *Financial Times* (29 November 2022) www.ft.com/content/1719e122-3b50-4d86-9a30-9fe72f2286fe [accessed 6 March 2023].

Thirdly, there are disputes linked to existing or new crypto regulations. As mentioned above, there is growing pressure in several jurisdictions such as the United States, to impose greater regulatory oversight on the crypto sector. Since sudden changes in regulatory regimes often lead to disputes, this may drive future crypto disputes, including regulatory enforcement proceedings. Indeed, regulators in the United States have recently targeted crypto companies for offering crypto ‘staking’ products and have also pursued paid influencers who have marketed NFTs and other crypto projects.⁴⁶ Other disputes arising from regulatory changes could include investment treaty claims by crypto investors against states since, for example, arbitrary or discriminatory regulatory action can support claims for breach of fair and equitable treatment.⁴⁷

Alongside disputes arising directly from the crypto winter, other types of crypto disputes will continue. For example, disputes relating to security hacks on crypto platforms, such as the crypto security hack that saw US\$615m stolen from the Ronin Network (which powers the popular mobile game, Axie),⁴⁸ as well as disputes relating to crypto platform outages.⁴⁹

For completeness, crypto disputes will inevitably also arise from the insolvency and bankruptcy of crypto businesses. This raises a number of specific legal considerations, including the extent to which moratoriums are in place preventing parties from bringing claims against bankrupt entities, which are considered elsewhere.⁵⁰

46 In February 2022, crypto exchange Kraken agreed to shut down its cryptocurrency staking service and pay US\$30m in penalties to settle US Securities and Exchange Commission charges that it failed to register the programme. See Hannah Lang, ‘U.S. SEC targets crypto “staking” with Kraken crackdown’, *Reuters* (10 February 2023), <https://www.reuters.com/technology/crypto-exchange-kraken-shut-down-staking-service-pay-30-mln-settlement-with-us-2023-02-09/> [accessed 6 March 2023]. An example of the crackdowns on influencers includes the US Securities and Exchange Commission charges against Kim Kardashian, who ultimately paid a US\$1.26m penalty for ‘touting on social media a crypto asset security offered and sold by EthereumMax without disclosing the payment she received for the promotion’. See US Securities and Exchange Commission, ‘SEC Charges Kim Kardashian for Unlawfully Touting Crypto Security’ (3 October 2022), www.sec.gov/news/press-release/2022-183 [accessed 6 March 2023].

47 Aveek Chakravarty, ‘Challenges to the Assessment of Damages Claims involving Crypto-Assets in Investment Arbitration’ (2020) 20(2) *Global Jurist*, <https://doi.org/10.1515/gj-2019-0044> [accessed 6 March 2023].

48 Joe Tidy, ‘Ronin Network: What a \$600m hack says about the state of crypto’, *BBC* (30 March 2022) www.bbc.com/news/technology-60933174 [accessed 6 March 2023].

49 For example, a HKIAC collective action has been commenced against cryptocurrency exchange Binance for losses suffered when Binance trading accounts were frozen on a day bitcoin rapidly dropped in value. See Binance Claim, <https://binanceclaim.com> and Joshua Oliver and Laurence Fletcher, ‘Binance crypto traders line up \$5m for legal challenge’, *Financial Times* (19 August 2021), www.ft.com/content/d442936e-8805-4091-8276-130b403a3313 [accessed 6 March 2023].

50 See n 38 above and Shearman & Sterling, ‘Cryptoassets & Insolvency: Legal, Regulatory and Practical Considerations’ (September 2022), <https://digital.shearman.com/i/1479657-crypto-and-insolvency-brochure/> [accessed 6 March 2023].

Crypto valuation challenges

Valuation sits at an important crossroads for crypto disputes. The value of a cryptoasset or business will help inform a party's decision on what causes of action and remedies to pursue in a crypto dispute and, therefore, impact the overall dispute strategy.⁵¹ In particular, a party may face a choice between claiming for delivery of a cryptoasset, or shares in a crypto business (eg, specific performance), versus damages quantified in fiat currency. Since the relative value of these remedies can vary significantly over time given the volatility of crypto markets, parties need to carefully consider valuation from the outset of a dispute to maximise the likelihood of achieving a successful outcome.

In this section, we address legal considerations that may impact valuation and, therefore, a party's choice of remedies, in crypto disputes before considering key valuation challenges in respect of cryptoassets and crypto businesses.

Legal considerations

A foundational issue for any crypto dispute is the applicable law. If the dispute concerns a contract with an express governing law provision, determining the applicable law may be straightforward. Absent a specific choice, the decentralised nature of cryptoassets can create difficulties given the potential for multiple assertions of applicable law.⁵² For example, it may be difficult to identify the jurisdictions in which a cryptoasset is located if it is hosted on a decentralised distributed ledger. We consider several potential implications of the applicable law below.

First, the applicable law will, among other things, determine how a cryptoasset is categorised legally. Whether a cryptoasset is a commodity, property, currency or security remains unclear in many jurisdictions given the absence of express regulation.⁵³ This uncertainty is unfortunate since the legal remedies available to a party can vary significantly depending on this categorisation.

The impact that categorisation can have is exemplified by a recent Delaware Superior Court judgment concerning a party's failure to transfer 12,500,000 coins of a new cryptocurrency to the counterparty in breach of contract.⁵⁴

51 Another important consideration, given the spate of bankruptcies following the crypto winter, will be whether the counterparty is financially capable of satisfying an award or judgment in respect of the relief sought.

52 Law Commission, 'Digital assets: which law, which court?' www.lawcom.gov.uk/project/digital-assets-which-law-which-court [accessed 6 March 2023].

53 See 'Regulation of the Crypto Sector' above.

54 *Diamond Fortress Technologies, Inc. v EverID, Inc.*, C A No N21C-05-048 (Del Super Ct 14 April 2022).

The Court, having observed that ‘the lack of regulatory policing of cryptocurrency is not without its problems and is on full display in the instant litigation’, first faced the task of classifying the cryptocurrency in the absence of cryptoasset regulation. Upon determining the cryptocurrency to be a security, damages were assessed at US\$25,125,000 using a securities framework to quantify the damages. The 12,500,000 coins were multiplied by the highest market value of that coin in the three-month period after the breach of contract.⁵⁵

By comparison, the claimant would have been in a significantly worse financial position if the Court had concluded that the cryptocurrency coins were a commodity, rather than a security. In that scenario, the claimant would likely have only been entitled to delivery of the 12,500,000 coins, which had fallen in value to only US\$2m at the date of the judgment.⁵⁶

Indeed, since volatility is a hallmark of the crypto market, the date at which a valuation is performed, or a cryptoasset is delivered, will play a significant role in the financial benefit a claimant stands to receive from pursuing a claim. This is an essential issue for parties to consider at the outset of a dispute.

Secondly, problems can arise where the applicable law heavily regulates or prohibits cryptoassets, as in mainland China or Russia. For example, in an arbitration seeking damages for breach of contract regarding the defendant’s failure to return a cryptoasset, the defendant may try to frustrate such claims by arguing that the contract, or arbitration agreement therein, is void or unenforceable for illegality.

Thirdly, and similarly, defendants may try to resist the enforcement of arbitral awards concerning crypto disputes in jurisdictions that prohibit or restrict cryptoassets. For example, a Greek appellate court has confirmed that an award denominated in bitcoin could not be enforced on public policy grounds.⁵⁷ A party will need to consider whether these types of risks will be reduced under the relevant applicable law if it requests damages quantified in fiat currency as opposed to delivery of a cryptoasset or

55 The Court considered the website ‘CoinMarketCap’ to be a ‘reliable valuation tool’ for determining the US dollar market value of cryptocurrency tokens: see *Diamond Fortress Technologies, Inc v EverID, Inc*, C A No N21C-05-048 (Del Super Ct. April 14, 2022) at 31 and 38. Determining the market value of cryptoassets is considered further below at ‘Crypto valuation challenges’.

56 Taft, ‘Delaware Defines Damages in Deals Involving Cryptocurrency’ (22 April 2022), <https://www.taftlaw.com/news-events/law-bulletins/delaware-defines-damages-in-deals-involving-cryptocurrency> [accessed 6 March 2023].

57 Edward Taylor, Jennifer Wu and Zach Li, ‘Crypto Arbitration: A Survival Guide’, Kluwer Arbitration Blog (29 September 2022), <https://arbitrationblog.kluwerarbitration.com/2022/09/29/crypto-arbitration-a-survival-guide/> [accessed 6 March 2023].

damages quantified in cryptoassets.⁵⁸ There may be situations where a party decides to pursue a potentially less valuable remedy because it increases the likelihood of obtaining an enforceable award or judgment.

Valuation challenges for cryptoassets and businesses

The quantification of damages generally requires a determination of the sum of money that would be required to put the claimant back in the position it would have otherwise occupied but for the breach. The complexity of this process can be significantly amplified in the cryptoasset marketplace.

Valuation exercises that frequently arise in the context of crypto disputes include valuing a cryptoasset or business on a specific date and quantifying the change in value of a cryptoasset or business attributable to a specific cause (eg, a counterparty's breach of contract), while excluding other causes (eg, volatility associated with the crypto winter), in order to determine the damages due.

In this section, we consider criticisms of applying traditional valuation methodologies to crypto disputes, before turning to particular challenges to valuing cryptoassets and crypto businesses.

TRADITIONAL VALUATION METHODS

Two standard valuation methods for 'traditional' assets and businesses are the market approach and the income approach. Whereas the market approach focuses on the selling price of the same or similar asset (eg, the price of a publicly-listed stock),⁵⁹ the income approach estimates the asset's expected future economic benefit.⁶⁰ Valuation experts frequently rely on both methodologies in litigations and arbitrations to quantify damages for traditional assets.

Whether such methodologies are well suited to valuing cryptoassets is debated.⁶¹ One criticism is that cryptoassets do not necessarily share the

⁵⁸ However, whether this will be effective depends on the jurisdiction. At least one court has ordered an arbitral award be set aside on the ground that awarding damages in US dollars in lieu of crypto is against the public interest. See (2018) Yue 03 Min Te No 719, as discussed by Herbert Smith Freehills, 'PRC court sets aside cryptocurrency award on public interest grounds' (5 March 2021), <https://hsfnnotes.com/arbitration/2021/03/05/prc-court-sets-aside-cryptocurrency-award-on-public-interest-grounds/> [accessed 6 March 2023].

⁵⁹ Jason Fernando, 'Market Approach: Definition and How It Works to Value an Asset', *Investopedia* (30 March 2020), <https://www.investopedia.com/terms/m/market-approach.asp> [accessed 6 March 2023].

⁶⁰ Amanda Page, 'What Is the Income Approach?' *The Balance* (18 December 2021), <https://www.thebalancemoney.com/what-is-the-income-approach-5204319> [accessed 6 March 2023].

⁶¹ For example, see EY FS Insights, 'The valuation of crypto-assets', Ernst & Young (7 March 2019), www.ey.com/en_qa/financial-services-emeia-insights/the-valuation-of-crypto-assets [accessed 6 March 2023] and n 47 above.

same characteristics, including purpose, use and ownership rights, as traditional assets like equities and bonds, which may render traditional valuation methodologies inapplicable or inaccurate.⁶² Reflecting these criticisms, efforts have been made to develop alternative valuation methods⁶³ or, indeed, highlight issues unique to cryptoassets that need to be taken into account when applying traditional valuation methods.⁶⁴

For the time being at least, traditional valuation methods will likely be used to quantify damages in crypto disputes. Indeed, national courts have been willing to value cryptoassets as they would other volatile asset classes. For example, in the context of a dispute concerning bitcoin in Singapore, a judge observed that ‘[c]ourts are accustomed to assess[ing] damages in relation to volatile assets and this case will be no different’.⁶⁵

The following sections identify challenges when applying these methodologies to cryptoassets and businesses.

VALUING CRYPTOASSETS

SUITABILITY OF THE MARKET APPROACH

Quoted prices for cryptocurrencies, like bitcoin and ether, are readily available online. The US courts have identified the website CoinMarketCap as a reliable and publicly available cryptocurrency valuation tool.⁶⁶ It provides current and historical pricing information in US dollars for several thousand cryptocurrencies based on prices derived from multiple crypto exchanges. Given the availability of accurate pricing data, quantifying damages based on a market approach may be relatively straightforward for

⁶² See n 47 above.

⁶³ Shearman & Sterling, ‘Crypto Winter: The Asia Pacific’s Shifting Crypto Dispute Landscape’ Webinar at the Seoul Alternative Dispute Resolution (ADR) Festival, available on LinkedIn (8 November 2022), www.linkedin.com/posts/edward-m-taylor-5576ba24_shearmanlaw-arbitration-crypto-activity-6993391562013483009_hzl/?utm_source=share&utm_medium=member_desktop [accessed 6 March 2023]. See also Tara Singh and Tylar St John, ‘Decrypting Crypto: An Introduction to Cryptoassets and a Study of Select Valuation Approaches’ (2019) Journal of Business Valuation (Sponsored Research Supplement), <https://cbvinstitute.com/wp-content/uploads/2019/12/DecryptingCrypto-Final-DIGITAL-VERSION.pdf> [accessed 6 March 2023]. This paper discusses parallels between the valuation of cryptoassets and intellectual property, given neither has physical substance but still grants rights and benefits to their owners.

⁶⁴ Kary Bheemaiah and Alexis Collomb, ‘Cryptoasset valuation – Identifying the variables of analysis’, Blockchain Perspectives Joint Research Initiative (October 2018), <https://www.louisbachelier.org/wp-content/uploads/2018/10/cryptovaluationreport-v20181016-vf.pdf> [accessed 6 March 2023].

⁶⁵ *B2C2 Ltd v Quoine Pte Ltd* [2019] SGHC(I) 03, [255].

⁶⁶ See n 55 above at 31.

many cryptocurrencies.⁶⁷ However, complexities can still arise in at least four respects.

First, cryptocurrencies can sometimes attract different prices in different geographical markets. For example, cryptocurrency prices can be higher in South Korea than elsewhere due to the impact of capital controls and anti-money laundering legislation.⁶⁸ The premium in cryptocurrency prices observed between South Korea and elsewhere is commonly referred to by market participants as the ‘kimchi premium’. Bankman-Fried allegedly profited from large arbitrage premia in different cryptomarkets early in his career.⁶⁹ Whether such differences are relevant to quantifying damages will depend upon the nature of the dispute.

Secondly, valuation challenges also arise involving thinly traded cryptocurrencies with small market capitalisations. Given the absence of crypto regulation, cryptocurrencies with these characteristics are susceptible to market manipulation. ‘Pump and dump’ schemes, front running, wash trading and spoofing can artificially manipulate market prices.⁷⁰ In these scenarios, parties may face resistance in persuading a judge or tribunal to quantify damages based on a ‘rigged’ market.

Thirdly, difficulties can arise in respect of a cryptocurrency’s bid-ask spread. The bid-ask spread is the price differential between a cryptocurrency’s bid price (ie, the highest price a buyer will pay to buy at any given time) and the asking price (ie, the price at which something is offered for sale). While this spread is typically small on cryptoexchanges when cryptocurrencies are heavily traded, it can be significant for cryptoassets with lower trading volumes.

Assume a situation where a party seeks damages quantified on the basis of the replacement cost of a cryptocurrency, and the quantity of cryptocurrency in dispute is significant compared to normal trading volumes. Here, the spot bid price (ie, maximum bid price the bidder is willing to pay for the spot instance) may not properly reflect the cost to the party of replacing the cryptocurrency.

Fourthly, the market approach may be more difficult to apply to cryptoassets other than cryptocurrencies. For example, while pricing

67 Prices for future contracts in respect of certain cryptoassets may also be available, which could allow estimates to be made in respect of future prices for those cryptoassets.

68 Bybit Learn, ‘Kimchi Premium: How Traders Exploit Markets For Profits’ (3 August 2022), <https://learn.bybit.com/trading/what-is-kimchi-premium/> [accessed 6 March 2023] and n 63 above

69 Nicholas Pongratz, ‘Sam Bankman Fried Explains His Arbitrage Techniques’, *Yahoo! Finance* (9 April 2021), <https://finance.yahoo.com/news/sam-bankman-fried-explains-arbitrage-132901181.html> [accessed 6 March 2023].

70 See n 64 above.

information about an NFT series may be available on websites like CoinMarketCap, this information will not necessarily enable the price of a specific NFT within that series to be readily determined. The reason is because, unlike a cryptocurrency such as bitcoin, whose units are interchangeable from a valuation perspective, each NFT in a series typically features unique characteristics and, thus, attracts a distinct valuation. For example, Bored Ape Yacht Club is an Ethereum-based NFT project comprising 10,000 Ape NFTs. Each Ape features a unique combination of over 170 traits and attributes, some of which are significantly rarer than others and therefore impact its value.⁷¹

However, it may still be possible to value a specific NFT using market data by, for example, comparing it to NFTs with similar traits or similar rarity sold at, or close to, the relevant valuation date. Parties may further attempt to persuade a judge or arbitrator to accept as evidence the valuation derived from one of the many websites that purport to value NFTs based on their particular traits and market information.⁷²

On the other hand, other types of cryptoassets may lack any readily identifiable market or comparable asset. For example, a utility token generally reflects a bespoke design and function. This means that finding other assets that have the same mix of features can be difficult (or impossible). This can limit or prevent the use of the market approach.

SUITABILITY OF THE INCOME APPROACH

The income approach has been proposed to be ‘conceptually the best approach from the perspective of assessing fundamental value’.⁷³ It has also been considered useful in ‘informing investment decisions where market prices are heavily influenced by inefficiencies, sentiment and speculation’.⁷⁴ But the income method may be of limited assistance when it comes to valuing most cryptoassets.

Generally, the income approach is based on future cash flows that an asset can generate and, in effect, converts expected future economic benefits into a single present value amount. Income method valuations are commonly determined using the discounted cash flow (DCF) method, which involves calculating the present value of expected future net cash flows by applying a discount at a rate reflecting the time value of money and the risks attributable to these cash flows. But many cryptoassets do not

71 Kraken, ‘What is Bored Ape Yacht Club?’ www.kraken.com/learn/what-is-bored-ape-yacht-club [accessed 6 March 2023].

72 NFTValueTool, <https://nftvalueestimator.com/> [accessed 6 March 2023].

73 See n 61 above.

74 *Ibid.*

generate cash flows, which is an essential element of the DCF calculation. Accordingly, with few exceptions, the income method is unlikely to be applicable in valuing cryptoassets.⁷⁵

Where both the market and income approach are inapplicable, a party may need to consider whether to claim for the amount initially invested in the cryptoasset. Indeed, where the market and income approach demonstrate that the value of the cryptoasset has fallen significantly by the valuation date, it may be financially advantageous for a party to quantify its damages as the amount initially invested in the cryptoasset.

VALUING CRYPTO BUSINESSES

SUITABILITY OF THE MARKET APPROACH

Crypto businesses can pose a challenge for market-based valuations, given the difficulty of obtaining robust financial information concerning comparable companies. This difficulty arises because very few crypto companies are listed on stock exchanges. For example, the only major publicly listed crypto exchange is Coinbase and market-observed pricing data only goes back to its initial public offering (IPO) on 14 April 2021. Whether Coinbase's financials would be a valid comparable to another crypto exchange is further open to doubt given the breadth of services and investment products offered by different crypto exchanges.

While there has been substantial M&A and investment activity in the crypto space, detailed financial information about such transactions is rarely publicly available since they generally concern privately owned companies. Even where this information is publicly available for a comparable company, its utility may be limited unless the valuation date is close in time to when the transaction occurred. The reason is that the significant volatility of crypto markets and pace of innovation in the crypto sector can quickly render valuations out of date.

SUITABILITY OF THE INCOME APPROACH

Crypto businesses can also pose challenges for income-based valuations. A foundational problem arises when the crypto business lacks reliable internal financial records on which a valuation can be based. This information gap with respect to reliable financial records may occur more often in the crypto sector than in other traditional sectors for several reasons.

The first explanation for this is the absence of recognised accounting standards for cryptoassets as well as a dearth of accounting firms with sufficient

⁷⁵ Security tokens are a type of cryptoasset that are expected to generate future economic benefits.

crypto experience to rigorously audit crypto businesses.⁷⁶ Problems that crypto businesses and accountants may face include how to properly account for the ‘fair value’ of cryptoassets and transactions in which cryptoassets have been lent to another company.⁷⁷ Fortunately, accounting reforms are on the horizon that may help to remedy these sorts of issues.⁷⁸

Another possible cause of information gaps is where crypto companies are incorporated in offshore jurisdictions that offer limited publicly available filings and company records. Even where such records are accessible to a claimant, information on the cryptoassets, for example, that the company held may be out of date, given the ease with which such assets can be transferred. While certain information about cryptoassets may be discernible from the relevant blockchain (eg, transactions), this is not always the case and will often not suffice to provide a complete financial picture of a company’s financial status.

Document production and discovery requests can be a powerful tool for obtaining information that will assist in performing a valuation. Where it is necessary to value the counterparty’s business, it may be possible to obtain disclosure of valuations, forecasts and management reports either created by the business itself or third parties (eg, in the context of external investment or financing). Document production nevertheless has limits. To take an extreme example, FTX has been heavily criticised for its ‘complete absence of trustworthy financial information’ and the ‘absence of lasting records of decision-making’, such that disclosed documents may be of limited utility.⁷⁹

Another major challenge that can arise in the context of income-based valuations is demonstrating that key inputs for a DCF model, such as future revenues, are not unduly speculative.⁸⁰ This problem arises for several reasons. First, crypto businesses often use innovative business models, which do not have a track record of success and may be difficult for those operating outside the crypto sector to evaluate. The level of adoption of

⁷⁶ Jennifer Hull, ‘Accounting for Crypto Assets: Key Concerns and Practical Guidance’, *Thinkset* (31 January 2022), <https://thinksetmag.com/insights/hull-accounting-for-crypto-assets> [accessed 6 March 2023].

⁷⁷ *Ibid.*

⁷⁸ In February 2023, the Financial Accounting Standards Board took a step towards introducing new rules on cryptocurrency accounting and disclosure. See Financial Accounting Standards Board, ‘Accounting for and Disclosure of Crypto Assets (formerly known as Accounting for and Disclosure of Digital Assets)’, (5 January 2023), www.fasb.org/Page/ProjectPage?metadata=fasb-Accounting-for-and-Disclosure-of-Crypto-Assets [accessed 6 March 2023].

⁷⁹ Decl of John J Ray III in Supp of Chapter 11 Pet and First Day Pleadings, [5], [71], *FTX Trading Ltd, et al*, No.2211068 (JTD), 17 November 2022.

⁸⁰ Global Arbitration Review, ‘Overview of Principles Reducing Damages’ in Craig Miles and David Weiss (eds), *The Guide to Damages in International Arbitration - Fifth Edition* (GAR, 2022).

the product or service offered by the business may be low, particularly where the business is at an early stage of development, and the disruptive capability of the business may be unclear.

Secondly, crypto businesses operate in a sector that is still young, constantly evolving, competitive and characterised by significant market volatility. This volatility can significantly impact financial results and make it difficult to predict future results. For example, Coinbase realised a net loss of US\$30.4m in 2019 but a net income of US\$322.3m in 2020.⁸¹ The future development and growth of the crypto sector, and crypto businesses operating within it, is difficult to predict and evaluate.⁸² A valuation expert may nevertheless attempt such an exercise using, for example, market commentaries and, if available, cryptoasset futures prices derived from crypto exchanges.

Thirdly, crypto businesses operate within an uncertain regulatory environment. Regulatory issues that could have a significant impact on valuations remain unclear in many jurisdictions. In addition, as mentioned above, new crypto regulations are likely to be introduced in several jurisdictions, given concerns about the financial stability risks posed by crypto markets. Such regulations could significantly impact the viability of certain crypto businesses and, consequently, their valuation.

Finally, income-based valuations can also be complicated by the complex, opaque and sometimes novel corporate structures and commercial arrangements used by certain crypto businesses. These can create additional uncertainty about where and how revenues are generated and assets held.

Practical solutions to crypto valuation challenges

We now address practical steps that parties and counsel should consider for crypto disputes to overcome the valuation and other challenges identified in the previous sections. We begin by discussing pre-dispute matters, followed by considerations impacting a party's decision as to whether and how to bring a claim.

Pre-dispute considerations

Perhaps reflecting the youth of the crypto sector and the absence of industry-accepted standard contracts, contracts for crypto transactions do not always adequately address the specific challenges that may arise from

⁸¹ See n 8 above, 44.

⁸² *Ibid*, 19.

cryptoassets and crypto businesses.⁸³ This uncertainty can significantly increase the cost of resolving crypto disputes and, in extreme instances, even deny the claimant a remedy. Parties entering into contracts in the crypto sector, as well as their legal advisers, should consider how to tailor the contract to help avoid crypto disputes and, failing this, simplify their future resolution.

One solution may be to identify the consequences of a breach of contract expressly. For example, the parties could agree that certain breaches will trigger an obligation to transfer specified cryptoassets held in a designated custody service or pay liquidated damages.⁸⁴ Or the parties could specify a date at which the assets should be valued, a range of prices to be used, or a methodology to be employed.

Depending on the nature of the transaction, it may be appropriate to include more complex valuation mechanisms tailored to the specific disputes that may arise. A failure to take such steps may leave the judge or arbitrator with significant discretion in awarding remedies, given the novel nature of crypto disputes and the absence of comprehensive judicial precedent and regulation.⁸⁵

Parties should also carefully characterise the legal relationship in respect of cryptoassets that are the subject of the contract. For example, if one party transfers cryptoassets to another party, it should be clear from the contract whether the transferor remains the legal owner of those cryptoassets. These matters can have significant implications if the transferee becomes bankrupt, among other things.⁸⁶

Parties also need to ensure that the contract expressly identifies the applicable law, for the reasons described above, and agree on the dispute resolution method. Absent an express dispute clause, the decentralised nature of cryptoassets may complicate the question of which forum has jurisdiction.⁸⁷ If the parties select arbitration, they should consider a seat where the law is 'friendly' to crypto transactions or, at the very least, does not expressly prohibit the type of crypto arrangement covered by the contract.⁸⁸

⁸³ Contract is used here to refer to traditional contracts rather than smart contracts.

⁸⁴ See n 10 above, paras 19.17: 'Similarly, parties could contractually agree that, if a certain obligation is breached, the defaulting party will be required to transfer a certain amount of crypto-tokens to the innocent party'.

⁸⁵ See n 56 above.

⁸⁶ Jessica Liou and John Marinelli, 'Crypto Bankruptcies Shed Light on Who Owns Assets for Recovery', *Bloomberg Law* (27 January 2023), <https://news.bloomberglaw.com/us-law-week/crypto-bankruptcies-shed-light-on-who-owns-assets-for-recovery> [accessed 6 March 2023].

⁸⁷ See n 52 above.

⁸⁸ See 'Identifying the appropriate forum for resolving disputes' below for a potential complicating factor in situations where crypto platforms are contracting with consumers.

Parties may wish to consider selecting international arbitration given the potential for the dispute resolution procedure to reflect the specific nature of the dispute. For example, the UK Digital Dispute Resolution Rules are designed for disputes involving digital assets. Parties to crypto transactions may prefer these Rules because of specific procedural features, for example, they allow the parties to remain anonymous vis-à-vis each other.⁸⁹ While many institutional arbitral rules now provide for joinder and consolidation, it may still be helpful to include bespoke provisions in arbitration agreements to ensure consolidated proceedings are available for a multi-contract, multi-party dispute.

Pursuing a crypto dispute

Parties faced with crypto disputes will need to consider a range of factors to determine whether and, if so, how to pursue a crypto dispute. Five factors are identified below.

1. IDENTIFYING THE APPROPRIATE DEFENDANT

There may be little point in bringing a claim unless there is an identifiable defendant (with sufficient resources to satisfy the ultimate award or judgment). This issue can arise in the crypto context for several different reasons.

Perpetrators may take advantage of crypto's decentralised and pseudonymous nature to conceal their identities (eg, individuals who have misappropriated cryptoassets). National courts have shown admirable flexibility in dealing with these types of issues. For example, claimants may be able to serve legal proceedings on defendants via NFT or airdropping service tokens to an online crypto wallet.

⁸⁹ UK Jurisdiction Taskforce, 'Digital Dispute Resolution Rules' (Version 1.0 (2021), <https://cms.lawtechuk.io/uploads/UKJT-Digital-Dispute-Rules.pdf> [accessed 6 March 2023], Clause 13 (Optional Anonymity): 'The claimant and each respondent must provide details and evidence of their identity to the reasonable satisfaction of the tribunal. If the incorporating text allows for anonymous dispute resolution, or the parties agree, then a claimant or respondent may provide identity details confidentially to the tribunal alone and need not include them in a notice of claim or initial response. In that case the tribunal shall not disclose the identity details unless disclosure is necessary for the fair resolution of the dispute, for the enforcement of any decision or award, for the protection of the tribunal's own interests, or if required by any law or regulation or court order.'

Where the defendant's identity is unknown or cannot be precisely identified, the claimant may still be able to apply for interim orders.⁹⁰ For example, the Singapore High Court in *Janesh s/o Rajkumar v Unknown Person* remarked in the context of an NFT dispute that strict compliance with formality requirements under Singaporean law to name the defendant in a precise manner would restrict access to justice. The Court was willing to grant an interim order against an unknown defendant who had received the NFT at issue since he could be sufficiently identified using his Twitter handle, Discord account and cryptocurrency wallet address messaging function.⁹¹

If the dispute arises from a contract, the claimant may still be faced with a choice of defendants. The terms of service of crypto exchanges, for example, have been known to contain open-ended definitions whereby the claimant has a choice of defendants, including all legal persons, unincorporated organisations and teams involved in the operation of that crypto exchange.⁹²

2. IDENTIFYING THE APPROPRIATE FORUM FOR RESOLVING DISPUTES

Where a dispute arises under a contract that identifies a dispute resolution forum, the dispute will generally fall to be determined in that forum. However, this is not always the case in the crypto context. Recent judgments show that retail customers of crypto businesses may be able to avoid dispute resolution provisions in certain circumstances.

The English High Court in *Chechetkin v Payward Ltd and others* decided that an arbitration clause in the terms and conditions of a crypto exchange, which referred disputes to JAMS arbitration in San Francisco, did not preclude the English courts' jurisdiction.⁹³ This was because the dispute, which concerned substantial trading losses in respect of cryptocurrencies, was a 'consumer contract' with a UK-domiciled consumer and therefore fell within section 15B of the Civil Jurisdiction and Judgments Act 1982, which permits claims in respect of consumer contracts to be brought before the English courts. This issue of whether users of crypto platforms are compelled to arbitrate by the applicable terms and conditions has also arisen in other jurisdictions, including the United States.⁹⁴

90 See also *LMN v Bitflyer Holdings Inc and others* [2022] EWHC 2954 (Comm), where the claimant was unable to identify the precise legal entity which held the information sought by it to enable them to trace the stolen cryptocurrency. The English High Court permitted the addition of an eighth defendant, as 'Persons Unknown', being the individuals or companies or other entities who are identified in the Binance.com platform's terms and conditions as 'Binance Operators.'

91 *Janesh s/o Rajkumar v Unknown Person* [2022] SGHC 264 [38], [41].

92 See n 57 above.

93 *Chechetkin v Payward Ltd and others* [2022] EWHC 3057 (Ch).

94 Jessica Lee and David Weinstein, 'Stop scrolling and read the Ts and Cs: Arbitration agreements in crypto disputes', International Bar Association (13 December 2022), www.ibanet.org/stop-scrolling-read-Ts-Cs-arbitration-agreements-in-crypto-disputes [accessed 6 March 2023].

The choice of dispute resolution forum can be important for any number of reasons, including cost. Institutional arbitrations can be expensive for individuals, particularly where the amount in dispute is relatively small. Where there are multiple potential claimants (eg, disputes in relation to a loss caused by a crypto exchange outage), parties and counsel should consider options for collective redress, whether in litigation or arbitration. Collective action may offer significant cost savings for claimants given efficiencies of scale. Examples of collective actions in the crypto sector already exist across both litigation⁹⁵ and arbitration.⁹⁶

3. IDENTIFYING THE CAUSE OF ACTION AND REMEDY

Identifying the appropriate cause of action and remedy at the outset of the dispute is essential. However, this process may not be straightforward since the types of claims possible in crypto disputes are still being clarified.⁹⁷

Where the applicable law allows the party a choice between delivery of the cryptoasset (eg, specific performance) or damages, a party will need to

⁹⁵ For example, in the US, numerous class actions have been filed with respect to token sales in initial coin offerings or other sales and exchanges of tokens being unregistered security offerings facilitated by unlicensed securities dealers. See Baker & Hostetler LLP, 'Recent Securities Class Actions Targeting ICOs Riase Variety of Complex Legal Issues', *Lexology* (6 August 2020), www.lexology.com/library/detail.aspx?g=b396d8fa-a0de-4949-a41f-2a4fea4ada9e [accessed 6 March 2023]. In Singapore, TerraForm Labs' co-founder, Do Kwon, is facing a US\$56.9m representative action for fraudulent misrepresentations relating to the stability of the cryptocurrency, TerraUSD. See n 43 above. In the UK, a claim was brought before the UK's Competition Appeal Tribunal on behalf of an estimated 240,000 investors against bitcoin Satoshi Visio (BSV), who allegedly suffered losses as a result of the delisting of BSV by certain crypto exchanges and the conversion of BSV into other cryptocurrencies without the consent of the investors. See Competition Policy International, 'UK Launches First Crypto Competition Class Action Claim' (4 August 2022), www.competitionpolicyinternational.com/uk-launches-first-crypto-competition-class-action-claim/ [accessed 6 March 2023].

⁹⁶ While known collective actions in international arbitrations are rarer, there are at least three known collective actions in international arbitrations involving crypto exchanges. These include: (a) an American Arbitration Association (AAA) arbitration launched by over 100 investors against cryptocurrency exchange Coinbase for an alleged security flaw that allowed scammers to drain more than US\$21m from their accounts (see n 40 above); (b) a class action claim brought by the AAA against cryptocurrency lender, Genesis Global Capital and its parent company, Digital Currency Group, for an alleged billion-dollar sham transaction to conceal its insolvency (see n 40 above); and (c) a HKIAC collective action against cryptocurrency exchange Binance for losses suffered when Binance trading accounts were frozen on a day bitcoin rapidly dropped in value (see n 49 above).

⁹⁷ For example, the English High Court in *Tulip Trading Limited (a Seychelles company) and Wladimir Jasper van der Laan and others* [2023] EWCA Civ 83 recently decided that foreign cryptoasset software developers responsible for the operation of the bitcoin network may owe fiduciary and/or tortious duties to the true owners of the bitcoin, including assisting in the recovery of stolen bitcoin. The Court found that this was a serious issue to be tried.

carefully consider the valuation date(s) used for quantifying the damages, compared to the likely value of the cryptoasset at the anticipated date of the award or judgment.⁹⁸ For example, assume that a party failed to comply with its obligation to supply bitcoins at a time when bitcoins had a high market price, and that price has subsequently fallen. Here, it may be advantageous for the claimant to pursue damages valued at the date of the breach rather than the specific performance to obtain the bitcoins.⁹⁹

Given the volatility of crypto markets and other challenges to undertaking valuations in respect of cryptoassets and businesses described in ‘Crypto valuation challenges’ above, parties will often benefit from involving valuation experts early in the dispute who understand the relevant part of the crypto sector at issue in the dispute. Selecting appropriate valuation experts has heightened importance in crypto disputes where the judges or arbitrators may not have prior experience with crypto disputes and, therefore, rely on the valuation experts for guidance.

4. IDENTIFYING AND PRESERVING CRYPTOASSETS FOR ENFORCEMENT PURPOSES

Practically, obtaining an award or judgment may mean little unless there are assets against which it can be enforced. Accordingly, once a dispute has arisen, parties should assess whether there are cryptoassets against which a judgment or award could ultimately be enforced.

Cryptocurrency forensics experts may be able to assist with implementing a coordinated and comprehensive plan for tracing cryptoassets.¹⁰⁰ Tracing can help to evidence a fact pattern that proves or defends the claims, as well as identify the final destination of the cryptoassets so that they can be the subject of enforcement.¹⁰¹

Cryptoassets may still be held on an exchange or the proceeds thereof transferred to a bank account.¹⁰² Crypto exchanges may also be able to

⁹⁸ See n 10 above, paras 19.16 and 19.24.

⁹⁹ This assumes that, by the time the judgment or award is issued, the price of bitcoin remains below the price at the breach of contract. The fact that significant time can elapse between a claim being initiated and its ultimate determination is another factor that should be considered, including in the context of interim relief.

¹⁰⁰ See, for example, Hudson Intelligence, ‘Cryptocurrency forensics’, www.fraudinvestigation.net/cryptocurrency/tracing [accessed 6 March 2023].

¹⁰¹ Michael Redman, Salina Brindle and Emily Tillett, ‘Litigation in the cryptosphere: a roundtable on trends in cryptocurrency and insolvency (Issue No 4)’ *Burford* (2022), www.burfordcapital.com/burford-quarterly/2022-issue-4/cryptocurrency-insolvency-litigation-trends/?utm_source=sm&utm_medium=li&utm_content=quarterly&utm_campaign=2022-issue-4 [accessed 6 March 2023].

¹⁰² Syedur Rahman, ‘Cryptocurrency fraud and asset recovery’, ICLG.com (31 March 2022), <https://iclg.com/cdr-essential-intelligence/1238-cdr-fraud-asset-tracing-and-recovery-2022/3-cryptocurrency-fraud-and-asset-recovery> [accessed 6 March 2023].

provide information about the perpetrators' identity, where they are based and where the stolen funds are now.¹⁰³ Blockchain intelligence tools and investigative techniques, like Crystal Block Explorer,¹⁰⁴ the GreyList Trace¹⁰⁵ and Chainalysis,¹⁰⁶ can also be used to help map fund flows and wallet attribution.¹⁰⁷

Judicial mechanisms can also assist with procuring information. Parties may be able to seek court assistance for disclosure, for example, through obtaining interim relief or court orders to obtain necessary information on assets and/or their value.¹⁰⁸ On occasion, cryptoassets and/or missing information have been identified through documents produced pursuant to discovery orders.¹⁰⁹ Whether these types of avenues are available, or cost-effective, to pursue at the outset of a dispute will depend upon the particular situation.

Depending on the jurisdiction, courts may be prepared to grant proprietary orders, such as freezing injunctions, to protect and preserve

¹⁰³*Ibid.*

¹⁰⁴The Crystal Block Explorer allows users to 'obtain different pieces of information on the blockchain', including 'visualising transactions and address interactions, check[ing] an address and its owners, check[ing] its riskiness'. See Bitfury Crystal, 'A Guide to Crystal's New Open Blockchain Explorer: Crystal Block Explorer', Crystal Block Explorer, https://crystalblockchain.com/licuvar/uploads/2021/08/A_GUIDE_TO_CRYSTALS_NEW_OPEN_BLOCKCHAIN_EXPLORER.pdf [accessed 6 March 2023].

¹⁰⁵GreyList Trace uses artificial intelligence to identify potential relationships between a person's email address and crypto exchanges. See GreyList Trace, www.greylolisttrace.com [accessed 6 March 2023].

¹⁰⁶Chainalysis, a blockchain analytics company that allows users to 'quickly trace out a financial investigation in crypto, visualize any structuring that may have been used to try and obscure the trace and see where funds ended up'. Chainalysis has also 'developed the ability to 'de-mix' transactions after they have been through a tumbling service and trace funds across blockchains after they have been moved from one kind of digital asset into another (chain hopping)'. See n 101 above.

¹⁰⁷See n 101 and 102 above.

¹⁰⁸For example, see *Nico Constantijn Antonius Samara v Stive Jean-Paul Dan* [2022] HKCFI 1254 [37].

¹⁰⁹In *LMN v Bitflyer Holdings Inc and others* [2022] EWHC 2954 (Comm), the English High Court granted novel information orders – being Norwich Pharmacal orders and Bankers Trust orders – against foreign cryptocurrency exchanges, requiring the disclosure of information that would otherwise have been impossible to obtain. This included confidential customer information of the individuals/entities behind the cryptoasset transactions in question. See Shearman & Sterling, 'Show Me the Cryptocurrency: English High Court Grants Novel Information Orders against CryptoExchanges' (14 December 2022), www.shearman.com/en/perspectives/2022/12/show-me-the-cryptocurrency [accessed 6 March 2023].

cryptoassets from being misappropriated or dissipated.¹¹⁰ Practically, the chances of recovering misappropriated cryptoassets located in a segregated, hosted wallet (ie, a digital account hosted by a third party, such as an exchange) may be better than for unhosted wallets.¹¹¹ This is because legal mechanisms, such as freezing orders, can be effectively used against crypto exchanges to freeze assets held in a hosted wallet, whereas these mechanisms are often less useful for unhosted wallets where the owner of the wallet may be unknown.¹¹²

5. SELECTING APPROPRIATE PROCEDURES AND CASE MANAGEMENT

Once a party has decided to pursue a crypto dispute, parties and their lawyers should consider what procedural steps and case management strategies will maximise the likelihood of obtaining a favourable award or judgment.

In arbitration, parties often have significant flexibility to play an active role in shaping the dispute resolution process. An important choice is the arbitrator. Indeed, the ability to select an arbitrator with relevant expertise is seen as a key advantage of arbitration over other forms of

¹¹⁰See, for example, *Constantijn Antonius Samara v Stive Jean Paul Dan* [2022] HKCFI 1254 (where the Hong Kong High Court granted both a Mareva injunction to freeze the fraudulent agent's assets and a proprietary injunction to freeze the relevant bitcoins and sale proceeds); *Yan Yu Ying v Leung Wing Hei* [2022] HKCFI 1660 (where the Hong Kong High Court granted a proprietary injunction in respect to the bitcoins transferred by the plaintiff to the wallet in question); *Quoine Pte Ltd v B2C2 Ltd* [2020] 2 SLR 20, *CLM v CLN* [2022] SGHC 46 (where in each case the Singapore High Court recognised that cryptocurrencies satisfy the definition of a 'property right' and are capable of giving rise to proprietary rights which can be protected by a proprietary injunction); *Ruscoe v Cryptopia Ltd (in liq)* [2020] 2 NZLR (where the New Zealand Court found that cryptocurrencies satisfy the definition of a 'property right', ie that it must be definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability); *Osbourne v Persons Unknown and Ozone* [2022] EWHC 1021 (Comm) (where the English High Court found there is 'at least a realistically arguable case' that NFTs are capable of being treated as legal property under the law of England and Wales'); *Ion Science Ltd v Persons Unknown* (unreported, 28 January 2022) (which confirms that cryptoassets may be capable of being traced and enforced against, similar to other classes of property under English law).

¹¹¹See n 102 above.

¹¹²*Ibid.*

dispute resolution.¹¹³ The arbitrators' technical expertise may be essential in crypto disputes where computer code or complex issues relating to the functioning of crypto systems are at issue. Several arbitrators have made significant efforts to establish themselves in the crypto field. In situations where the tribunal is empowered to modify, transfer or otherwise deal with the cryptoasset in question (as is the case under the UK Digital Dispute Resolution Rules), relevant experience may be essential.¹¹⁴

Arbitral institutions and other organisations have also started to offer lists of arbitrators with technological expertise to assist parties in identifying candidates with relevant knowledge and experience.¹¹⁵

¹¹³The 2016 Queen Mary University of London survey reported that 92 per cent of respondents indicated that international arbitration is 'well suited' for technology, media and telecoms disputes, with the attractive features being, among other things, the 'expertise of the decision maker'. See Queen Mary University of London School of International Arbitration and Pinsent Masons, 'Pre-empting and Resolving Technology, Media and Telecoms Disputes: International Dispute Resolution Survey' (November 2016), p 7. Similarly, the 2017 Global Technology Dispute Resolution Council and the Silicon Valley Arbitration and Mediation Centre survey reported that 76 per cent of survey respondents listed having specialised or expert decision-making as one of the top three benefits of international arbitration. See Gary Benton, Chris Compton and Les Schiefelbein, 'Cost is the Top Tech Litigation Problem: Survey Shows', Silicon Valley Arbitration & Mediation Center (2017), <https://svamc.org/wp-content/uploads/SVAMC-2017-Survey-Report.pdf> [accessed 6 March 2023].

¹¹⁴See n 89 above, Clause 11 (Power in relation to digital assets): 'The tribunal shall have the power at any time to operate, modify, sign or cancel any digital asset relevant to the dispute using any digital signature, cryptographic key, password or other digital access or control mechanism available to it. The tribunal shall also have the power to direct any interested party to do any of those things.'

¹¹⁵For example: (a) the American Arbitration Association has a page titled 'Technology Dispute Capabilities', noting that its panel of arbitrators and mediators have 'exceptional subject-matter expertise': see American Arbitration Association, 'AAA-ICDR Technology Services' www.adr.org/TechnologyServices/technology-dispute-capabilities [accessed 6 March 2023]; (b) the HKIAC Panel and List of Arbitrators has an 'area of expertise' filter for information technology, as well as technology, media and telecommunications: see HKIAC, 'HKIAC Panel and List of Arbitrators' www.hkiac.org/arbitration/arbitrators/panel-and-list-of-arbitrators [accessed 6 March 2023]; (c) ITechLaw has an Arbitrator/Mediator Roster to 'enable prospective parties to an arbitration or mediation the ability to identify potential candidates with technology experience relevant to their dispute': see ITechLaw, 'Arbitrator/Mediator Roster' www.itechlaw.org/arbitrators-mediators [accessed 6 March 2023]; (d) the Silicon Valley Arbitration & Mediation Centre has a 'List of the World's Leading Technology Neutrals', which is 'peer-vetted and limited to exceptionally qualified arbitrators and mediators known globally for their experience and skill in crafting business-practical legal solutions in the technology sector': see Silicon Valley Arbitration & Mediation Centre, 'About the Tech List' <https://svamc.org/tech-list/> [accessed 6 March 2023].

Such institutions have also launched initiatives to enhance the arbitration process's suitability for resolving blockchain and crypto disputes.¹¹⁶

Parties should consider what case management techniques would be appropriate for the tribunal to deploy. Where complex valuation issues are likely to arise, a party may apply to bifurcate the quantum phase of the arbitration. As for valuation expert evidence, mechanisms such as asking experts to issue joint reports explaining any differences between their opinions and 'hot tubbing' (ie, where experts give evidence simultaneously and where the tribunal chairs the discussion between them¹¹⁷) may be helpful in resolving contested valuation issues.

Conclusion

In the aftermath of the crypto winter, crypto disputes will raise a number of valuation challenges that will fall to national courts and arbitral tribunals to determine. To maximise the likelihood of achieving a successful outcome, parties should carefully consider how to address such challenges at the outset of crypto disputes.

An optimal dispute strategy should account for the particular characteristics of the cryptoasset or business in dispute, the applicable law, the dispute resolution forum, and any information gaps, among other matters described in this article. Involving counsel, valuation experts and crypto industry experts at an early stage in disputes will often greatly assist parties to present a compelling damages case by avoiding the many valuation pitfalls that can arise in the crypto sphere.

¹¹⁶For example, the Vienna International Arbitration Center (VIAC) has a Legal Tech Think Tank, which aims to bring together arbitration practitioners across different jurisdictions with expertise in technology disputes to consider how arbitration can be more relevant for such disputes, including specifically blockchain and crypto. The VIAC recognised the importance of, firstly, understanding the needs and requirements of technology companies to facilitate mutual collaboration and, secondly, engaging with experts with sufficient technical knowledge and expertise for effective and efficient dispute resolution. See Vienna International Arbitral Centre, 'VIAC getting tech savvy – VIAC launches Legal Tech Think Tank' www.viac.eu/en/news/viac-getting-tech-savvy-viac-launches-legal-tech-think-tank [accessed 6 March 2023].

¹¹⁷Practical Law, 'Hot tubbing' <https://uk.practicallaw.thomsonreuters.com/7-528-7847> [accessed 6 March 2023].

ANNEX 1

Jurisdiction	Authority	Definition of cryptoasset
Australia	The Australian Taxation Office (ATO)	The ATO describes crypto assets as 'a digital representation of value that you can transfer, store or trade electronically' and as 'a subset of digital assets that use cryptography to protect digital data and distributed ledger technology to recording transactions'. ¹¹⁸
International	The Financial Stability Board (FSB)	The FSB defines crypto assets as 'a type of private sector digital asset that depends primarily on cryptography and distributed ledger or similar technology'. ¹¹⁹
United Kingdom	The government's Cryptoassets Taskforce	The taskforce uses the term cryptoasset to refer generally to an asset that is 'represented digitally' within systems. It identifies the principal novel and characteristic features of cryptoassets as being: (1) intangibility; (2) cryptographic authentication; (3) use of a distributed transaction ledger; (4) decentralisation; and (5) rule by consensus. ¹²⁰ The UK government has proposed the following definition to be included in the Financial Services Markets Act 2000: 'cryptoasset' means any cryptographically secured digital representation of value or contractual rights that: (a) can be transferred, stored or traded electronically, and (b) that uses technology supporting the recording or storage of data (which may include distributed ledger technology). ¹²¹

118 Australian Government, Australian Taxation Office, 'What are cryptoassets?' (19 August 2022), <https://www.ato.gov.au/individuals/Investments-and-assets/crypto-asset-investments/what-are-crypto-assets/> [accessed 6 March 2023].

119 Financial Stability Board, 'Crypto-assets and Global "Stablecoins"' <https://tinyurl.com/2s8cx34k> [accessed 6 March 2023].

120 See n 2 above, 31.

121 See n 5 above.

Jurisdiction	Authority	Definition of cryptoasset
Japan	Financial Services Authority (FSA)	The term cryptoassets is defined under the Payment Services Act to mean any of the following (subject to certain exceptions): (1) property value (limited to that which is recorded on an electronic device or any other object by electronic means, and excluding the Japanese currency, foreign currencies, and currency denominated assets) which can be used in relation to unspecified persons for the purpose of paying consideration for the purchase or leasing of goods or the receipt of provision of services and can also be purchased from and sold to unspecified persons acting as counterparties, and which can be transferred by means of an electronic data processing system; and (2) property value which can be mutually exchanged with what is set forth in the preceding item with unspecified persons acting as counterparties, and which can be transferred by means of an electronic data processing system. ¹²²
Nigeria	Central Bank of Nigeria (CBN) Securities and Exchange Commission, Nigeria (SECN)	In the CBN's Response to Regulatory Directive on Cryptocurrencies dated 7 February 2021, the CBN defined cryptocurrencies as 'digital or virtual currencies issued by largely anonymous entities and secured by cryptography.' ¹²³ The SECN defines cryptoasset to mean 'a digital representation of value that can be digitally traded and functions as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value, but does not have legal tender status in any jurisdiction.' In addition, a cryptoasset is 'neither issued nor guaranteed by any jurisdiction, and fulfils the above functions only by agreement within the community of users of the cryptoasset; and is distinguished from Fiat Currency and E-money.' ¹²⁴
Dubai	Dubai Virtual Assets Regulatory Authority	Law No (4) of 2022, Regulating Virtual Assets in the Emirate of Dubai, defines virtual assets 'a digital representation of value that may be digitally traded, transferred, or used as an exchange or payment tool, or for investment purposes.' ¹²⁵

¹²²Payment Services Act (Act No 59 of June 24, 2009), Art 2(5).

¹²³Central Bank of Nigeria, 'Response to Regulatory Directive on Cryptocurrencies' (7 February 2021), www.cbn.gov.ng/Out/2021/CCD/CBN%20Press%20Release%20Crypto%2007022021.pdf [accessed 6 March 2023].

¹²⁴Securities and Exchange Commission, Nigeria, 'Statement On Digital Assets And Their Classification And Treatment' (14 September 2020), <https://sec.gov.ng/statement-on-digital-assets-and-their-classification-and-treatment/> [accessed 6 March 2023].

¹²⁵Law No (4) of 2022, Regulating Virtual Assets in the Emirate of Dubai.

Jurisdiction	Authority	Definition of cryptoasset
Turkey	Central Bank of the Republic of Turkey	The Regulation on the Disuse of Crypto Assets in Payments defines cryptoassets as 'intangible assets that are created virtually using distributed ledger technology or a similar technology and distributed via digital networks, but are not classed as fiat money, deposit money, electronic money, payment instrument, securities, or other capital market instruments'. ¹²⁶
United States	Internal Revenue Service (IRS) Uniform Law Commission	There is generally no uniform definition of cryptocurrency. Different agencies in the US (whether at the federal or state level) have proposed different interpretations, guidance and/or laws. For example, the IRS defines cryptocurrencies as 'a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value'. ¹²⁷ Further, the Uniform Commercial Code (UCC) governs 'controllable electronic records', which includes cryptoassets. ¹²⁸ Some states have already adopted this version of the UCC. ¹²⁹
Argentina	Financial Information Unit of the Argentine Republic (UIF) Central Bank of Argentina National Securities Commission (Comisión Nacional de Valores) (CNV)	The UIF defines virtual currencies such as bitcoin as a 'digital representation of value that can be digitally traded and functions as a medium of exchange; and/or a unit of account; and/or a store of value but does not have legal tender status in any jurisdiction and is neither issued nor guaranteed by any government or jurisdiction'. ¹³⁰ The ACB and CNV, in a joint press release which warned users about the risks and implications of using and investing in cryptoassets, defined a cryptoasset as 'a digital representation of value or rights' that are 'transferred or stored electronically by using DLT or other similar technology'. ¹³¹

¹²⁶Central Bank of Republic of Turkey, Regulation On The Disuse Of Crypto Assets In Payments, 30 April 2021 (Legal Gazette No 31456).

¹²⁷Internal Revenue Service, 'Digital Assets' (30 January 2023), www.irs.gov/businesses/small-businesses-self-employed/digital-assets [accessed 6 March 2023].

¹²⁸Cleary Gottlieb, 'UCC Digital Asset Amendments Finalized' (21 July 2022) www.clearygottlieb.com/news-and-insights/publication-listing/ucc-digital-asset-amendments-finalized [accessed 6 March 2023].

¹²⁹Holland & Knight LLP, 'Blockchain & Cryptocurrency Laws and Regulations 2023 – USA', *Global Legal Insights* (27 October 2022) <https://www.globallegalinsights.com/index.php> [accessed 6 March 2023].

¹³⁰UIF Regulation No 300/2014.

¹³¹Banco Central de la Republica Argentina, 'BCRA and CNV Warn about Risks and Implications of CryptoAssets' (20 May 2021), www.bcra.gob.ar/noticias/alerta-sobre-riesgos-implicancias-criptoactivos-i.asp [accessed 6 March 2023].

ANNEX 2

Description of potential claims/disputes	Example
Disputes arising out of M&A transactions	Bolt Financial (a US online checkout technology company) backed out of their US\$1.5bn acquisition of Wyre (crypto infrastructure provider). ¹³²
	Coinbase (a crypto exchange) backed out of a proposed acquisition of 2TM (a Brazilian crypto firm). ¹³³
	Prime Blockchain Inc (a crypto firm) mutually agreed to terminate a proposed merger, worth around US\$1.25bn, with 10X Capital. ¹³⁴
	eToro's (a trading platform) planned public listing through a US\$10.4bn merger with FinTech Acquisition Corp V failed, reportedly on the basis that the transaction had been rendered impracticable due to circumstances outside either party's control. ¹³⁵
Disputes arising from security hacks on crypto platforms	A crypto security hack in which US\$615m was stolen from the Ronin Network (which powers the popular mobile game, Axie). ¹³⁶
	Wormhole (a cryptocurrency platform) lost over US\$300m in a cyber-attack, which reportedly 'allowed attackers to steal 120,000 wrapped Ethereum (wETH), a token used to convert Ethereum into other cryptocurrencies that maintains the same value'. ¹³⁷
	Beanstalk (a decentralised finance project) lost US\$182m in a 'flash loan attack', after 'the unknown threat actor secured the project voting rights necessary to transfer reserve funds away from the project's liquidity pools'. ¹³⁸
	Hackers reportedly stole US\$100m in cryptocurrency from Horizon (a 'so-called blockchain bridge developed by crypto startup, Harmony'). ¹³⁹

¹³²CryptoUpline, 'Payments Firm Bolt Scraps \$1.5B Proposed Acquisition of CryptoFirm Wyre' (10 September 2022), www.bcr.gov.ar/noticias/alerta-sobre-riesgos-implicancias-criptoactivos-i.asp [accessed 6 March 2023].

¹³³Turner Wright, 'Coinbase's plans to purchase firm behind Mercado bitcoin fall through: Report', *Cointelegraph* (4 May 2022), <https://cointelegraph.com/news/coinbase-s-plans-to-purchase-firm-behind-mercado-bitcoin-fall-through-report> [accessed 6 March 2023].

¹³⁴Elaine Briseno, 'PrimeBlock and SPAC Agree to Terminate \$1.25b merger', *Law360* (15 August 2022) www.law360.com/articles/1520972/primeblock-and-spac-agree-to-terminate-1-25b-merger [accessed 6 March 2023].

¹³⁵Jamie Crawley, 'EToro SPAC Deal for Public Listing Canceled as Transaction Becomes "Impracticable"', *Yahoo!Finance* (5 July 2022) <https://nz.finance.yahoo.com/news/etoro-spac-deal-public-listing-134928209.html> [accessed 6 March 2023].

¹³⁶See n 48 above.

¹³⁷Alexander Culafi, 'Cryptocurrency platform Wormhole loses \$320M after attack', *TechTarget* (3 February 2022), www.techtarget.com/searchsecurity/news/252512957/Cryptocurrency-platform-Wormhole-loses-320M-after-attack [accessed 6 March 2023].

¹³⁸Charlie Osbourne, 'Beanstalk DeFi project robbed of \$182 million in flash loan attack', *ZDNet* (21 April 2022), www.zdnet.com/article/beanstalk-defi-project-robbed-of-182-million-in-flash-loan-attack [accessed 6 March 2023].

¹³⁹Ryan Browne, '\$100 million worth of crypto has been stolen in another major hack' *CNBC* (24 June 2022), www.cnn.com/2022/06/24/hackers-steal-100-million-in-crypto-from-harmonys-horizon-bridge.html [accessed 6 March 2023].

Description of potential claims/disputes	Example
	<p>The token associated with PokeMoney suddenly crashed in price when around US\$3.5m worth of it was pulled out of the project, in what has been termed a 'rug pull'. The project creators claimed that it was a hack.¹⁴⁰</p> <p>Crypto.com admitted that around 400 customer accounts had been compromised in a hack. Multiple Crypto.com users alleged that their funds had been stolen.¹⁴¹</p> <p>A phishing scam reportedly 'offering a fraudulent airdrop managed to rob Uniswap users of nearly \$8 million in funds'. Reportedly, 'The phishing scam promised a free airdrop of 400 UNI tokens (worth approximately \$2,200). Users were asked to connect their crypto wallets and sign the transaction to claim the malicious airdrop. Upon connection, the unknown hacker grabbed user funds through a malicious smart contract.'¹⁴²</p>
	<p>The Bored Ape Yacht Club Discord server was reportedly hacked, 'with the attacker making off with 200 ETH (\$360,000) worth of NFTs'.¹⁴³</p> <p>Feed Every Gorilla (FEG) reportedly suffered two flash loan attacks causing losses of approximately US\$1.9m. Reportedly, 'The attacker transferred the stolen funds through Tornado Cash, a mixer that can obfuscate digital trails. An attack on FEG's Ethereum smart contract also caused a loss of about \$590,000, bringing total losses of up to \$1.9m in assets.'¹⁴⁴</p> <p>Thousands of cryptoaccounts related to the Solana blockchain were reportedly 'drained' as a result of an apparent hack on the Solana blockchain and several other platforms linked to that blockchain, which affected almost 7,770 digital wallets.¹⁴⁵</p> <p>An individual NFT-holder brought a US lawsuit against OpenSea (an NFT marketplace) for negligence in respect of a security hack resulting in the theft of the NFT.¹⁴⁶</p>

140Web3 is Going Just Great, 'PokeMoney blockchain game rug pulls for \$3.5 million' (27 May 2022), <https://web3isgoinggreat.com/?id=pokemoney-blockchain-game-rug-pulls-for-3-5-million> [accessed 6 March 2023].

141Anita Ramaswamy, 'Crypto.com CEO admits hundreds of customer accounts were hacked', *TechCrunch* (20 January 2022), <https://techcrunch.com/2022/01/19/crypto-com-ceo-admits-hundreds-of-customer-accounts-were-hacked/?guccounter=1> [accessed 6 March 2023].

142Sujith Somraaj, 'Hackers Nab \$8M in Ethereum via Uniswap Phishing Attack', *Decrypt* (12 July 2022), <https://decrypt.co/104916/hackers-nab-8m-ethereum-uniswap-phishing-attack> [accessed 6 March 2023].

143Eli Tan and CoinDesk, 'Bored Ape Yacht Club's Discord server was hacked, with \$360,000 in NFTs stolen. Who's to blame is debated', *Fortune* (5 June 2022), <https://fortune.com/2022/06/04/bored-ape-yacht-clubs-discord-server-was-hacked-with-360000-in-nfts-stolen-blame-debated/> [accessed 6 March 2023].

144Chung Yee, 'FEG Token Endures Exploit, Peck Shield Supports Aftermath', *BSC News* (19 May 2022) www.bsc.news/post/feg-token-endures-exploit-peck-shield-supports-aftermath [accessed 6 March 2023].

145Scott Chipolina, 'Solana wallets "drained" in blow to crypto network', *Financial Times* (3 August 2022), www.ft.com/content/65e5829f-8107-48a8-a5d0-f7a8c8f79df3 [accessed 6 March 2023].

146Shanti Escalante-De Mattei, 'Bored Ape NFT Owners Sue OpenSea Over Stolen Assets', *ArtNews*, 11 April 2022), www.artnews.com/art-news/news/bored-ape-owners-sue-opensea-1234624875 [accessed 6 March 2023].