Untethered: what next for stablecoins?

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Introduction

On 4 April 2022, the UK Treasury published its response to the consultation and call for evidence on the UK regulatory approach to, amongst others, stablecoins[1]. It confirmed that, given certain stablecoins' capacity to become a widespread means of payment, and the potential risks to consumers, market integrity and the stability of the financial system that could arise as a result, the UK government's intention was to bring certain activities related to stablecoins into the UK regulatory perimeter[2].

Just one month later, we saw the spectacular collapse of one of the then-largest stablecoins[3], TerraUSD ("**UST**")[4], as well as its counterpart crypto-asset, Terra ("**LUNA**")[5].

This article takes a deep dive into the nature of stablecoins, their associated risks – illustrated by the downfall of UST - and the future landscape for stablecoins in terms of regulation and potential civil liabilities.

Stablecoins

Stablecoins are crypto-assets[6] that are designed to be pegged or "tethered" to the value of one or a basket of government-issued (or "**fiat**"[7]) currencies. This is in contrast to other types of crypto-assets, such as bitcoin, which are marked by high levels of volatility as against fiat currencies and other non-crypto-assets. Therefore, stablecoins have become a popular bridge for those who wish to participate in the crypto-ecosystem (for example, its use as a payments system and "de-centralised finance" ("**DeFi**")) without taking on the volatility risk presented by un-pegged crypto-assets. By way of example, prior to the collapse of UST and LUNA, the Anchor Protocol on the Terra blockchain (of which UST and LUNA were native assets) offered a "yield" of 20% per annum on UST deposits, far outstripping the interest offered on US Dollar deposits in the traditional banking system.

In April 2022, it was estimated that the global value of stablecoins in circulation was over $180 bn[8].

There are two principal ways stablecoins seek to maintain their peg to reference fiat currencies:

- The first is through **collateralisation**, with a combination ranging from cash, "cash equivalents" and/or a basket of other assets, including other crypto-assets backing the issuer's promise to redeem the stablecoin on demand for the reference fiat currency at par. Conceptually this is similar to the gold-standard that was maintained for various government-issued currencies in the past. Full-collateralisation is designed to ensure that the stablecoin will survive any "bank-run".

- The other type of stablecoins are "**algorithmic**", which rely on market participants taking advantage of arbitrage opportunities where the market value of the stablecoin

in question departs from the target peg, which is explained in more detail below in the context of UST.

UST - What happened?

UST was accompanied by a counterpart crypto-asset, LUNA. In very simple terms, the protocol governing the Terra blockchain enabled[9] participants to swap 1 UST for $1's worth of LUNA and vice versa, regardless of the market value of either crypto-asset at any point in time (the "**Swap Protocol**"). This was intended to create arbitrage opportunities when the market price of UST departed from its $1 peg:

- If 1 UST was trading at $0.9, then one could purchase 1 UST in the open market for $0.9[10], swap it for $1's worth of LUNAs via the Swap Protocol[11], and then immediately re-sell the LUNAs for $1 in the open market, thereby making a gain of $0.1.

- Where UST was trading for $1.1 in the open market, one could purchase $1's worth of LUNAs in the open market, swap them for 1 UST via the Swap Protocol, and then re-sell that 1 UST in the open market for $1.1.

The theory was that the arbitragers' activities would have a self-equilibrating effect on the supply and demand of UST such that the market value of UST would always tend towards and stabilise at the $1 peg.

Whilst UST's $1 peg was largely maintained during the majority of its (relatively short) life, the turbulent and volatile conditions brought on by the downturn in sentiment in the crypto and wider financial markets in early May 2022 saw UST's de-pegging from the US Dollar. Instead of the arbitrage mechanism working as intended to stabilise the value of UST, both UST and LUNA entered a "death-spiral", whereby overwhelming selling pressure on both assets led to a complete collapse in their value[12]. The last-minute intervention by Luna Foundation Guard, a non-profit organisation set up to support the Terra ecosystem, including purchasing of reserves to the value of $3.1 bn to support the UST peg, could not save the day[13].

The entire Terra blockchain was halted on 12 May 2022, including the Swap Protocol[14]. The collapse of UST and LUNA led to the Terra blockchain essentially hitting the "reset" button, with the creation of "Terra 2.0"[15]. The new Terra blockchain does not have a native stablecoin, with Terra's founder, Do Kwon, tweeting "*Terra is more than UST*"[16] .

Aftermath

The collapse of UST and LUNA has undoubtedly been a severe blow to the credibility of the entire crypto-ecosystem. UST was one of the most widely-adopted stablecoins, whose essential ambition was to eliminate risk and volatility. Instead, some $18.7 bn of value was lost in UST, and $41 bn in LUNA.

With hindsight, one might say that UST overly relied on a rudimentary model of supply and demand and investor behaviour, which would not (and did not) necessarily play out in stressed market conditions. However, to put it into a wider context, the attempt to maintain exchange-rate pegs through extreme market conditions has seen notable demises even in the

traditional financial system, as illustrated by the UK's exit from the European Exchange-rate Mechanism on Black Wednesday.

Do collateralised stablecoins have a chance of faring better? That may be so, in theory, if they are backed 100% (plus a margin to address volatility) by liquid, virtually risk-free assets. However, Tether, the largest stablecoin[17], has so far been opaque in the exact composition of its collateral. Most recent data[18] published by its issuer states that 85.64% of its collateral consists of "*Cash & Cash Equivalents & Other Short-Term Deposits & Commercial Paper*", of which only 5.81% is cash and bank deposits and 55.53% is US Treasury Bills. Other collateral includes 4.52% of "*Corporate Bonds, Funds & Precious Metals*", 3.82% of "*Secured Loans (None To Affiliated Entities)*" and 6.02% of "*Other Investments (Including Digital Tokens)*". Whether it will survive a "bank-run" or not will depend, amongst other things, on the quality and liquidity of those assets.

Furthermore, as noted by the Financial Stability Board[19], a "bank-run" on a systemically significant stablecoin might result in a "fire-sale" of significant positions in those assets in the traditional financial markets, triggering spillover effects to the wider financial system. For example, the fire-sale of repo collateral assets was identified as a major factor in the asset spirals experienced in the 2007-8 financial crisis. In other words: what happens in crypto, may not stay in crypto.

Stablecoin regulation

As noted at the outset, given the risks to consumers, as demonstrated by the collapse of UST, and the potential impact on market integrity and the stability of the financial system posed by stablecoins, the Treasury confirmed the government's intention to take the necessary legislative steps to bring certain activities relating to stablecoins where used as a means of payment into the UK regulatory perimeter. The broad outline of the proposed programme is as follows:

- amending the Electronic Money Regulations 2011 and Payment Service Regulations 2017 to deliver, in summary, a framework consistent with e-money to regulate stablecoin issuance and the provision of wallets and custody services;

- extending the applicability of Part 5 of the Banking Act 2009 to include stablecoin activities, to apply in cases where the risks posed have the potential to be systemic and so the threshold for Bank of England supervision is met; and

- extending the scope of the Financial Services (Banking Reform) Act 2013 in order to ensure relevant stablecoin-based payment systems are subject to appropriate economic and competition regulation by the Payment Systems Regulator.

These changes are designed to meet the government's stated objective of "same risk, same regulatory outcome" and to engender public confidence in stablecoins. The Treasury does, however, also note the importance of working with international partners to ensure common standards, recognising the borderless nature of crypto-assets activity. Therefore, how the government approaches the jurisdictional scope of the new regime(s) will be an area of significant interest and importance.

Finally and at this stage, the legislative programme above appears to be geared towards collateralised stablecoins, rather than algorithmic stablecoins, such as UST, on the grounds that the latter share more similar characteristics to unbacked crypto-assets, which the government considers require different regulatory treatment. Whilst there is some logic to this distinction, for example, there being a reduced risk of contagion into the mainstream financial markets from a "fire-sale" of collateral, one could argue that the risk to consumers is heightened by unbacked stablecoins purporting to guarantee a stable value, as clearly illustrated by the collapse of UST.

Potential civil liability

What potential civil liabilities, if any, could arise from the recent collapse of UST and LUNA, and other so-called DeFi projects more generally? A fundamental question is the extent to which existing legal principles can be applied to projects using de-centralised blockchain technology, many of which claim that power, control, authority and responsibility are fully distributed amongst the participants, with no one person or group of people "in charge", and that the software and code governing them should take primacy, encapsulated in the dictum: "code is law".

Although on very different facts, the *Tulip Trading vs Bitcoin Association for BSV*[20] decision of the English High Court gives us some clues as to how the English courts might approach this question. In that case, the claimant – an entity owned by the self-proclaimed inventor of bitcoin, Dr. Craig Wright – claimed that following an alleged hack, the private key to its bitcoin account was stolen and the claimant left unable to access over £3bn worth of bitcoins. The claimant argued that the defendants, who were bitcoin software developers, owed it tortious and fiduciary duties in respect of the assets, and sought orders requiring the defendants to help the claimant regain control of them (or, in the alternative, equitable compensation or damages).

The High Court summarily rejected this attempt to impose novel duties on bitcoin's software developers. In doing so, the judge noted that: "[i]*t is uncontroversial that a fundamental feature of the Networks, at least in their existing form, is that digital assets are transferred through the use of private keys*" and the claimant's claim "*effectively seeks to bypass that*"[21]. In other words, there was nothing in the claim which suggested that the bitcoin software and protocol was working in any other way than it should.

The defendants also raised a further argument that what the claimant sought, which was effectively that the Court should order that the developers seek manually to amend the bitcoin ledger to credit another account with the bitcoins held in the allegedly hacked account, would be ineffective due to the distributed nature of the bitcoin ledger and the consensus mechanism upon which the network is founded. The bitcoin "miners" who validate transactions and amend the distributed ledger in accordance with the bitcoin protocol – a core principle being a transfer of bitcoin only being validated if the instructions were encrypted with the private key – would simply refuse to validate such an attempt to amend the ledger[22]. However, given the summary nature of the application, and the fact that other parts of the judgment made it unnecessary to decide this point, the court in *Tulip* declined to opine on it[23].

Despite its ruling, the court did *not* rule out the possibility of a duty of care arising on the part of the developers in other factual circumstances. For example, when making software changes, the developers might be taken to assume some level of responsibility to ensure that

they take reasonable care not to harm the interests of users, for example, by introducing a malicious software bug or doing something else that compromised the security of the bitcoin network.

It follows that, despite the self-professed absence of control exerted over many de-centralised distributed ledger technologies by their founders and developers, they may not always find themselves entirely off the hook. Everything depends on the facts.

In the case of the Terra blockchain, it could be argued that Terraform Labs, the main developer of the Terra blockchain, and its founder, Do Kwon, exerted a significant degree of control over the network and the protocol, as opposed to creating an initial concept and disappearing from the scene, as Satoshi Nakamoto did for bitcoin. They appeared to be taking the lead on last minute attempts to prop-up the UST peg by buying and deploying reserve assets[24], halting the Terra blockchain[25], as well as the Terra "revival" plan[26]. This seems a far cry from a crypto-purist's de-centralised conception of these types of projects. Potential claims under English law might include, amongst other things:

- breach of contract (e.g. for halting the operation of the Terra blockchain and the Swap Protocol);
- breach of duty of care (e.g. for failing to take reasonable care to ensure that the UST peg would be maintained); and
- misrepresentation (e.g. for representations to the effect that the Swap Protocol was an effective mechanism for guaranteeing UST's peg).

This is not to say that these types of claims against founders, developers and operators of projects using de-centralised blockchain technology will be straightforward, either in terms of the proving the substantive claims, or in resolving preliminary issues such as governing law and jurisdiction. Rather, it seems that there is nothing in principle which prevents established principles of contract, tort and other areas of private law applying to them.

Class-actions against Terraform Labs and Do Kwon have already been filed in Korea based, amongst other things, on fraud and violations of regulations relating to fund-raising[27], and in California, raising allegations of selling unregistered securities and misleading investors by "repeatedly touting the stability of UST"[28].

Conclusion

Stablecoins offer an accessible "gateway" into the crypto-ecosystem for many people, given their stated aim of maintaining a stable value as against fiat currencies. However, they are not without risk, as demonstrated by the recent collapse of UST. The UK government's aim is to bring this technology within the bounds of financial regulation, with a view to reducing the risks to consumers, market integrity and the stability of the wider financial system. Finally, despite many projects leveraging blockchain technology's aim and claim of de-centralisation of power, control and responsibility, the facts in any specific instance may be very different, which means that ordinary civil liability in contract, tort and other areas are likely to continue to apply to those involved in those projects.

Footnotes

[1] https://www.gov.uk/government/consultations/uk-regulatory-approach-to-cryptoassets-and-stablecoins-consultation-and-call-for-evidence#full-publication-update-history

[2] Executive summary.

[3] At its peak on 7 May 2022, its market capitalisation reached approximately $18.7 bn: https://coinmarketcap.com/currencies/terrausd/

[4] UST has since been renamed "TerraClassicUSD" and given the ticker "USTC". However, this article will use continue to use the ticker at the time of its collapse (UST).

[5] LUNA has since been renamed "Terra Classic" and given the ticker "LUNC". However, this article will use continue to use the ticker at the time of its collapse (LUNA).

[6] Although there is no universally accepted definition of this term, or its alternative, crypto-currencies, a good starting point is a digital token created, recorded and transferred within a distributed ledger system, which is governed and maintained by a de-centralised, self-regulating consensus mechanism, secured through cryptography.

[7] Most major government-issued currencies today are not backed by assets, such as gold, and therefore are said to maintain their value and authority merely through government fiat.

[8] https://btctools.io/stats/market-cap

[9] Or at least its "Whitepaper" stated so: "*The system uses* [LUNA] *to make the price for* [UST] *by agreeing to be counter-party to anyone looking to swap* [UST] *and* [LUNA] *at* [UST]*'s target exchange rate*" (at page 5). See: https://assets.website-files.com/611153e7af981472d8da199c/618b02d13e938ae1f8ad1e45_Terra_White_paper.pdf

[10] For simplicity, any transaction fees and/or spreads are assumed to be insignificant in these examples.

[11] This can be thought of as being analogous to market-makers offering liquidity.

[12] In the case of LUNA, this was exacerbated by the hyperinflationary consequence of the Swap Protocol, which required the creation of an ever-increasing number of LUNAs to meet the arbitrageurs' demand for swapping USTs.

[13] https://www.theblock.co/linked/147014/luna-foundation-guard-breaks-silence-on-state-of-terra-reserves-looks-to-compensate-users

[14] https://twitter.com/terra_money/status/1524785058296778752

[15] The legacy blockchain has been re-named "Terra Classic".

[16] https://twitter.com/stablekwon/status/1526258273820651520?s=20&t=jXsxrMWuOrLInl5qzmzCug

[17] Approximately $70.5 bn in circulation as of 15 June 2022. Source: https://www.coingecko.com/en/coins/tether

[18] As of 31 March 2022 at: https://tether.to/en/transparency/#reports

[19] Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements: Final Report and High-Level Recommendations: https://www.fsb.org/wp-content/uploads/P131020-3.pdf

[20] [2022] EWHC 667 (Ch)

[21] Paragraph 78.

[22] Paragraph 34.

[23] Paragraph 137.

[24] https://twitter.com/stablekwon/status/1523733542492016640: "*Deploying more capital - steady lads*" on 9 May 2022.

[25] https://twitter.com/terra_money/status/1524785058296778752: "*The Terra blockchain was officially halted at a block height of 7603700*" on 12 May 2022.

[26] https://twitter.com/stablekwon/status/1526896786685583360: "1/ *Terra governance prop #1623 to rename the existing network Terra Classic, LUNA Classic ($LUNC), and rebirth a new Terra blockchain & LUNA ($LUNA) is now live. Vote here: https://station.terra.money/proposal/1623*" on 18 May 2022.

[27] https://en.yna.co.kr/view/AEN20220519008500315

[28] https://www.ft.com/content/19c27ae1-ae72-4668-b3a9-162adc27dffc