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What is the difference between a cryptocurrency trading platform and a kitchen blender?

Lawrence Akka QC

On 14 March, Simon Thorley IJ gave judgment in the Singapore International Commercial Court in the cryptocurrency trading case, *B2C2 Ltd v Quoine Pte Ltd* [2019] SGHC(I) 03. It is interesting not only for the description of algorithmic trading on cryptocurrency exchanges, but also because it contemplates the possibility of there being trusts of cryptocurrencies and analyses the doctrine of mistake in the context of the automatic making of contracts by computer programs.

The facts

Seven trades for the sale by B2C2 of the cryptocurrency Ethereum in exchange for Bitcoin were effected automatically by Quoine's currency exchange platform, in response to orders from B2C2's custom algorithmic trading software. In fact, because of an error in the way that Quoine's software had been programmed, an abnormal exchange rate was applied in B2C2's favour.

On review by a human the next day, Quoine spotted the abnormal rates, and reversed the trades. B2C2 argued that Quoine had no right to do so, and that it was in breach of the relevant contractual terms. Importantly, it also contended that Quoine held the amounts of cryptocurrencies in B2C2's account on trust for B2C2, and that their unilateral withdrawal by Quoine, which had occurred as a result of the reversal of the trades, was a breach of that trust. Amongst other things, Quoine said that it was right to reverse the trades because they had been entered into by mistake and were therefore void.

Are cryptocurrencies property?

Whether cryptocurrencies such as Bitcoin and Ethereum are property in the legal sense, notwithstanding that they are in essence mere digital information stored on an electronic ledger, is something of a hot topic at present. Their formal classification as property would affect the remedies which courts could award and would have consequences in many areas such as insolvency. Both B2C2 and Quoine appear to have been prepared to assume that Bitcoin and Ethereium were indeed to be treated as property. The judge noted:

… Quoine was prepared to assume that cryptocurrencies may be treated as property that may be held on trust. I consider that it was right to do so. Cryptocurrencies are not legal tender in the sense of being a regulated currency issued by a government but do have the fundamental characteristic of intangible property as being an identifiable thing of value. Quoine drew my attention to the classic definition of a property right in the House of Lords decision of National Provincial Bank v Ainsworth [1965] 1 AC 1175 at 1248:

"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".

Cryptocurrencies meet all these requirements. Whilst there may be some academic debate as to the precise nature of the property right, in the light of the fact that Quoine does not seek to dispute that they may be treated as property in a generic sense, I need not consider the question further.

Breach of trust

Given this, the judge held that the

cryptocurrencies were capable of being held on trust. Furthermore, there was sufficient evidence of intention to create a trust because all deposited funds were stored in a single offline wallet as members' assets rather than as part of Quoine's trading assets. Unless it was right to reverse the trades, Quoine was therefore in breach of trust.

Mistake and intention

The judge proceeded to determine whether Quoine was right to reverse the trades because they were void due to a mistake. The law of mistake in Singapore is a little different from English law, but in both jurisdictions a contract can be rendered void if one of the parties actually knows that the other party has made a sufficiently important mistake about a term of the contract (for example, as in this case, about the applicable exchange rate).

The judge debated how he should assess a party's knowledge where the relevant operations were carried out by computer programs operating as programmed. Whose knowledge is relevant, and at what time should it be assessed?

Quoine suggested that the law should treat the algorithms or computers used to enter into the contracts as the legal agents of their human principals—a proposal with a certain degree of academic support. The judge rejected this approach and held that the relevant mistake must be a mistake by the person on whose behalf the computer entered into the contract, as to the terms on which that contract would be concluded.

He noted that computer programs are deterministic in the sense that they do only what they have been programmed to do. They are, he said:

… no different to a robot assembling a car rather than a worker on the factory floor or a kitchen blender relieving a cook of the manual act of mixing ingredients.

Accordingly

Where it is relevant to determine what the intention or knowledge was underlying the mode of operation of a particular machine, it is logical to have regard to the knowledge or intention of the operator or controller of the machine. In the case of the kitchen blender, this will be the person who put the ingredients in and caused it to work. His or her knowledge or intention will be contemporaneous with the operation of the machine. But in the case of robots or trading software in computers this will not be the case. The knowledge or intention cannot be that of the person who turns it on, it must be that of the person who was responsible for causing it to work in the way it did, in other words, the programmer.

It followed that

… in circumstances where it is necessary to assess the state of mind of a person in a case where acts of deterministic computer programs are in issue, regard should be had to the state of mind of the programmer of the software of that program at the time the relevant part of the program was written.

The judge concluded that B2C2's counterparties on the relevant trades held the mistaken belief that they could never take place at the rates which were in fact applied. B2C2 did not, however, know about that belief. In the circumstances, the trades were not void for mistake.

Specific performance

A final point of interest concerns the fate of B2C2's claim for specific performance of the contract with Quoine to deliver the cryptocurrencies. The judge disagreed with B2C2's submission that because of the volatility of the markets, damages could not sensibly be measured and therefore would not be an adequate remedy. Quoine would also suffer substantial hardship if required to buy cryptocurrencies for delivery to B2C2 because of market movements in the intervening period. B2C2 was therefore restricted to its remedy in damages for breach of contract and breach of trust, which will be assessed at a later hearing. No doubt any subsequent judgment will also be awaited with interest.

Lawrence Akka QC

For further information about this bulletin contact: dking@20essexst.com

LONDON
20 Essex Street London WC2R 3AL
Tel +44 (0)20 7842 1200
Fax +44 (0)20 7842 6770

SINGAPORE
Maxwell Chambers, #02-09
32 Maxwell Road, Singapore 069115
Tel (+65) 62257230
Fax (+65) 62249462

enquiries@20essexst.com