

Surmounting the challenges of transacting OTC crypto-derivatives

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Summary

This article considers practical considerations, such as obtaining reliable reference prices and the risks of accepting underlying cryptocurrencies as collateral. The authors also examine whether OTC crypto-derivatives can be classified as “specified investments” and “controlled investments” under the UK's Regulated Activities Order and the Financial Promotions Order.

Introduction

Derivatives activities over cryptocurrencies such as bitcoin (BTC) and ethereum are growing steadily. According to a study conducted by TokenInsight, the total futures trading volume in this crypto industry exceeded US\$2.1trn in Q1 2020. This represents a 314% increase from the preceding quarter average.

The vast majority of crypto-derivatives activity happens on exchanges such as CME, BitMEX, OKEx, Huobi DM and Binance Futures. Whilst the data on bilateral (that is, over the counter or “OTC” crypto-derivatives is difficult to obtain, it would be unsurprising if OTC trading activity trails exchange-traded activity by a significant margin.

For crypto-derivatives to become a major asset class in their own right, the imbalance would need to be redressed. OTC trades permit parties to enter into bespoke contracts that suit their particular needs and objectives. Moreover, contractual documentation from the OTC industry helps drive the overall development of an asset class.

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Scope of this Article

This second part of our crypto-derivatives article is divided into two sections. First, we look at whether OTC crypto- derivatives can be classified as “specified investments” and “controlled investments” under, respectively, the UK’s Regulated Activities Order (RAO) and the Financial Promotions Order (FPO). This section is short, as the UK’s Financial Conduct Authority (FCA) has confirmed that this is the case. Second, we look at practical considerations of transacting in OTC crypto-derivatives.

This article is restricted to OTC derivatives referencing cryptocurrencies (ie exchange tokens). This article does not discuss crypto-derivatives which are exchange traded (eg futures) or which reference other sorts of tokens such as security tokens and utility tokens. Finally, this article does not address any change to the UK’s regulatory framework as a result of Brexit.

The FCA’s Position on OTC Crypto-Derivatives

On 5 April 2018, the FCA confirmed that OTC crypto-derivatives constitute “specified investments” under the [RAO.UK](#) firms advising on, or offering, crypto-derivatives need to be authorised by the FCA. They also need to comply with all applicable rules in the FCA’s Handbook and any relevant provisions in directly applicable European Union regulations.

By implication, OTC crypto-derivatives could also constitute “controlled investments” for purposes of the FPO. Firms would therefore need to consider the authorisation they need, or the exclusions they can benefit from, before promoting these instruments.

The FCA has announced a ban on the sale, marketing and distribution of crypto-derivatives to retail clients. Many of the reasons presented by the FCA for supporting the ban are covered in the practical considerations below. Christopher Woolard, the Executive Director of Strategy and Competition at the FCA, has said the following:

 As with our work on the wider CFD and binary options markets, we will act when we see poor products being sold to retail consumers. These are complex contracts built on top of complex assets. Most consumers cannot reliably value derivatives based on unregulated cryptoassets. Prices are extremely volatile and as we have seen globally, financial crime in cryptoasset markets can lead to sudden and unexpected losses. It is

therefore clear to us that these derivatives and exchange traded notes are unsuitable investments for retail consumers.



At this point, it is worth reiterating a conclusion reached in Part 1 of this article. Namely, physically settled crypto-derivative forwards could fall outside the scope of MiFID II. It is possible for a similar interpretation to be taken under the RAO and the FPO. However, in the absence of an explicit statement from the FCA and market consensus, it is perhaps prudent to take a cautious approach towards a conclusion that such an instrument falls outside the UK's regulatory perimeter.

Practical Considerations

We now turn to a number of practical considerations of transacting in OTC crypto-derivatives. The challenges have been split into the following five categories:

- valuation;
- collateralisation;
- settlement;
- documentation; and
- regulatory

In describing these challenges, it is helpful to use the following hypothetical forward over bitcoin as an example. Say a company specialises in mining bitcoins and selling them on the market. It has borrowed from a bank to invest in computer processors. The company is expecting to have mined a certain number of bitcoin in six months. However, it is worried about the volatility of bitcoin as any future depreciation in bitcoin's value will affect its ability to service its loan. In order to hedge itself, the company enters into an OTC forward with a broker under which both parties have agreed the number of bitcoin to be sold and their purchase price upfront.

Where the parties have decided that the forward will be physically settled, then on the settlement date (in six months' time) the company will deliver the pre-agreed number of

the newly mined bitcoin to the broker and the broker will pay the pre-agreed forward price to the company.

Where the parties have decided that forward will be cash settled, a single cash payment is made by one party to the other depending on whether the BTC spot price on the settlement valuation date (which could be the settlement date itself) is higher or lower than the pre-agreed forward price. Where it is lower, the broker will pay the difference to the company. Where it is higher, the company will pay the excess to the broker.

Regardless of the settlement method, the BTC forward results in the company pegging the BTC price on the settlement valuation date in six months' time to the pre-agreed forward price. The company could simply enter into a BTC future on a crypto exchange. However, it may wish to enter into a privately negotiated OTC forward with the broker instead for a variety of reasons. The prime reason is of course the freedom of the parties to negotiate their own bespoke provisions, subject to legal and regulatory requirements. This freedom is not available on the futures market where the instruments are heavily commoditised. Of course, it may be that the broker decides to hedge its risk under the BTC forward by buying a BTC future.

Valuation

For a cash settled BTC forward to settle on maturity, the parties need to agree to bitcoin's value on the settlement valuation date (settlement price). If, in the period between the trade date and the settlement valuation date, the BTC forward is collateralised, the parties also need to agree to bitcoin's value on the valuation dates (valuation prices).

The nominated calculation agent (which is likely to be the broker) could conceivably use the closing prices (eg the mid-point of the highest bid and lowest ask prices) - whether of physical bitcoin or of bitcoin futures - published by an exchange. The calculation agent could even obtain closing prices from multiple exchanges and employ an averaging methodology to make the derived settlement price and valuation prices more representative.

However, reliance upon exchanges as price sources is fraught with pitfalls for a number of reasons.

Inherent idiosyncrasies

The idiosyncratic nature of cryptocurrencies – and therefore of derivatives over them – introduces valuation challenges which do not exist in other established asset classes such as equities and fixed income products. After all, there is no “real” – at least in the traditional sense – asset behind bitcoin that can be used to independently extrapolate bitcoin’s value, and therefore that of the BTC future. The calculation agent must instead rely on the transactional demand for cryptocurrencies.

As the reader will undoubtedly know, bitcoin is barely being used as a mainstream means for exchange and its demand is volatile and speculative. There is also a danger that the rise of other cryptocurrencies will end up diminishing, if not nullifying, its value.

As the FCA put it (albeit in the context of its ban on selling crypto-derivatives to retail clients):

 We have found that firms manufacturing, and consumers seeking to invest in, crypto-derivatives are unable to reliably value the underlying cryptoassets. This makes it impossible to reliably value the derivatives contracts or ETNs linked to them. Consumers therefore cannot make informed decisions about the value of their investment and face significant risk of harm as they cannot accurately assess their risk of loss, or possible rate of return. This lack of reliable models for valuations contrasts with other ‘high risk’ asset classes where values might be volatile, but credible valuations can be constructed based on assumptions about dividends/ coupons, or use of materials in production or consumption. For exchange tokens, prices are driven by speculation about future supply and demand for the token, rather than by any underlying value. They promise no future cash flow and have no physical use. Despite this, exchange tokens would arguably have ‘value’ if they could be widely exchanged for other assets or goods. However, they fail to meet the tests of money (reliable store of value, wide acceptance and a unit of account) and are not legally recognised currencies, which the Bank of England has also stated.



Price manipulation by market participants

Market participants – especially cryptocurrency and crypto-derivatives speculators – routinely manipulate prices. “Pump and dump” tactics are orchestrated by speculators who synchronise the purchase of a selected cryptocurrency or future position to push prices up before selling at a profit. The remaining participants are left with devalued and often illiquid holdings. Participants with large illiquid holdings may also use their dominant position to influence the price.

Price manipulation by exchanges

There is mounting evidence that certain exchanges routinely manipulate prices themselves. This happens for a variety of reasons.

Liquidity is the fundamental factor that participants look for in an exchange. An exchange could be incentivised to artificially inflate its trading activity to drive participants to itself. It could engage in so-called “wash trading” by simultaneously entering into mutually cancelling trades (eg buy and sell orders of equal value) to concoct artificial activity when in fact no actual value has transferred between users.

The exchanges may also be trading against participants. Certain exchanges are heavily used by short sellers. In order to retain the short sellers as market participants, these exchanges could swing prices by shutting down trading activities at times favourable to the short sellers on the basis of fictitious hacks or overloads.

As the majority of the cryptocurrency exchanges operate from outside the UK and the EU, investors are not guaranteed the same trading platforms protections mandated by these jurisdictions.

The parties to our BTC forward need to be prepared to address these valuation challenges. Obvious solutions are to use only reputable exchanges as price sources and inserting contractual safeguards in the documentation to address situations when pricing becomes either unreliable or impossible to obtain (see below).

Collateralisation

It is common for OTC derivatives to be collateralised in the form of variation margin and initial margin. Collateralisation safeguards the party that is “in the money” as the party that is

“out of the money” provides it with collateral. Should the latter default, the former can net its exposure against the posted collateral.

The European Market Infrastructure Regulation (EMIR) requires counterparties that meet various requirements (Eligible Counterparties) to clear certain OTC derivatives *via* central counterparties. Where an OTC derivative has not been mandated for clearing, EMIR requires the Eligible Counterparties to collateralise bilaterally by way of ISDA Credit Support Annexes and Deeds. EMIR goes into considerable detail regarding the manner by which the parties should value the derivative on pre-determined valuation dates. In respect of initial margin calculations, parties need to use the specified standardised method (SM) or the more complex initial margin model (IMM).

BTC forwards are not mandated for clearing and it is highly unlikely that they will be so mandated any time in the near future given the paucity of demand and the bespoke nature of their terms. As a result, to the extent the parties to our BTC forward are Eligible Counterparties, they will need to collateralise the BTC forward bilaterally. The same issues regarding valuation as discussed above occur. Where the parties are required to post initial margin to one another, they need to consider how the BTC forward will satisfy the SM or IMM requirements, particularly the classifications and the haircut assumptions. EMIR requires only certain collateral such as cash and liquid securities to be posted. Parties will be unable to post the underlying bitcoin as collateral.

Where the parties are not Eligible Counterparties, they may decide to collateralise the BTC forward voluntarily to lower counterparty credit risk and (in the case of the broker) receive regulatory capital benefits. In such circumstances, they may wish to post bitcoin as collateral. Doing so is advantageous as it reduces the difference (basis) between the posted collateral and the exposure for valuation and close-out purposes. In spite of this benefit, it is unlikely the parties will do so if it means that the delivery risks outweigh the benefits of the basis reduction (please see below where delivery risks are discussed in the context of settlement).

Bitcoin is also unlikely to be posted as collateral as this means losing the protections afforded by the Financial Collateral Arrangements (No 2) Regulations 2003 (FCARs). Where an arrangement is considered a financial collateral arrangement under the FCARs, parties

are able to take and enforce security free from a number of restrictions and formalities that would otherwise apply to them. For instance, perfection requirements are considerably simplified, and certain insolvency limitations are overridden. For a derivative to constitute a financial collateral arrangement, only collateral considered “financial collateral” can be posted. “Financial collateral” consists of cash (including deposits in any currency with the counterparty or a bank), financial instruments (including bonds, shares and securities) and credit claims (bank loans). Bitcoin and other cryptocurrencies do not fall under any of these categories.

Settlement

As described above, in the case of cash settlement no actual delivery of bitcoin occurs on the settlement date. Rather, one party pays cash to the other based on the difference between the pre-agreed forward price and the bitcoin price as of the settlement valuation date.

However, where the parties have elected physical settlement, the seller is obliged to deliver the bitcoin to the buyer on the settlement date.

The transfer of bitcoin securely ought to be straightforward. However, there are various delivery options available to the parties. Broadly, the company can either deliver the private keys to the broker physically (eg specified on a physical document, stored in hardware such as a USB stick) or digitally (eg by transfer from the company’s wallet to that of the broker). Each of these options has its advantages and shortcomings (eg fraud, theft, taxation).

Documentation

To date, neither the International Swaps and Derivatives Association, Inc. (ISDA) nor any other industry association has published any templates for documenting OTC crypto-derivatives. Parties need to negotiate their terms without the benefit of having a market-standard starting point. The present lack of industry initiative contributes to the overall slow growth of this asset class.

Nevertheless, parties to our BTC forward can take inspiration from existing ISDA documentation. There is an inherent logic for the BTC forward to be governed by an existing

or new 1992 or 2002 ISDA Master Agreement between them. However, the specific trade terms of the BTC forward (which would be reflected in a trade confirmation) would need to be drafted from scratch without the benefit of ISDA's product-specific definitions booklets. Key terms such as the settlement price and settlement valuation date would need to be defined, along with their fallbacks.

In the case of cash settlement, the parties would need to consider the contractual consequence of the occurrence of disruption events on the settlement valuation date. Disruptions such as excessive volatility or exchange closure can make it difficult, if not impossible, to obtain the settlement price. In this regard, the parties can take inspiration from the 1998 FX and Currency Option Definitions and the 2002/2011 Equity Definitions which suggest solutions for similar market disruption events in respect of the rates and equity asset classes. A common fallback proposed by these definitions booklets is to postpone the settlement valuation date until such day as on which the settlement price can be obtained. Should the disruption event continue beyond a mandated number of days (eg eight exchange business days), then a hard fallback – or a waterfall of fallbacks – is employed. Such fallbacks include:

- taking the closing price from the immediately preceding exchange business day;
- using other price sources (including offline sources);
- an adjustment to the contractual terms by the calculation agent; and
- a no-fault early termination using a pre-agreed methodology.

In case of physical settlement, the parties would also need to take into account events that are idiosyncratic to cryptocurrencies. A good example is a settlement failure, such as the company's digital wallet provider failing to deliver the bitcoin to the broker. Another example is a "hard fork". This arises when nodes of the newest version of the cryptocurrency's blockchain no longer accept the blockchain's older version. Such divergence is ordinarily resolved by the users of the old version adopting the newest version. However, where this does not happen, there will be two permanently diverged blockchains – the old version and the new one. Some methodology needs to be built into the contract to resolve this eventuality. At least to the authors, a reasonable solution is to opt

for calculation agent adjustment. That is, the calculation agent will reasonably determine which of the two diverged blockchains the BTC forward should follow by taking into account the blockchain which the specified price source(s) have elected to follow.

Regulatory

As discussed above, crypto-derivatives fall within the FCA's regulatory perimeter in that the FCA has adopted a ban on the selling of crypto-derivatives to retail clients. There is also the possibility that physically settled crypto-derivative forwards are outside the regulated perimeter.

Regulated firms that enter into crypto-derivatives such as the broker in our BTC forward need to take into account a host of legislation ranging from EMIR to MiFID II. Whilst an argument can be made that the overall regulatory approach is no different from that of other derivatives, the entry into a derivative under a new asset class does create new challenges. One examples is satisfying MiFID II's product governance and disclosure requirements, taking into account the particularities of crypto-derivatives.

CONCLUSION

The FCA has provided helpful clarity on the overall regulatory position with respect to OTC crypto-derivatives. Its ban on the sale of these products to retail clients also provides an indication that it views this new asset class with a degree of distrust. Nevertheless, trading activity in exchange-traded crypto-derivatives continues to grow. We can expect a comparable growth in OTC crypto-derivatives if some of the challenges discussed in this article are addressed.

Get in touch with Tariq Rasheed or Felicia Di Tommaso if you have any questions or wish to find out more.

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