



ELEMENT

Bitcoin Futures – a trading review of Q1 2018

Thejas Naval, Director of Portfolio, The Element Group

Introduction to bitcoin futures

We would like to start off by explaining some of the terms used in this report. For those new to trading futures, the futures curve consists of a series of forwarded prices plotted together, showing a range of today's tradable values for specified future dates. In commodity markets, the slope of the futures curve indicates whether the market is in contango or backwardation. Contango is an upward sloping curve and occurs when the futures price is above the expected future spot price. In practical terms, people are willing to pay more for the commodity at some point in the future rather than buying it today and incurring the cost of storing it. Backwardation is a downward curve and happens when the relationship is flipped. In other words, the current spot price is greater than the futures implied spot price. The slope of the futures curve is usually a function of price sentiment, storage costs, insurance costs and other 'force majeure' factors, such as weather conditions or geopolitical events.

The very first bitcoin futures began trading on 10 December 2017. That month the futures curve was in contango. However, by early 2018, it was moving into backwardation. Today it is back in contango, but this general trend implies that there is little conviction in the bitcoin futures marketplace. In this report, we will outline the various trends we have observed since bitcoin futures began trading in December 2017.

***DISCLAIMER:** We recognize that the bitcoin futures market, like the digital asset market, is nascent and extremely small relative more traditional asset class markets. There may be inconsistencies and possible inaccuracies in how futures positions are reported, as well as in how various market participants classify themselves (and if they do so in the first place). Our interpretations from the COT report are therefore only as good as the underlying data itself. We therefore intend for this piece to serve strictly as a loose framework for how one should think about the futures market.*

1. The bitcoin futures curve is effectively flat and approaching backwardation.

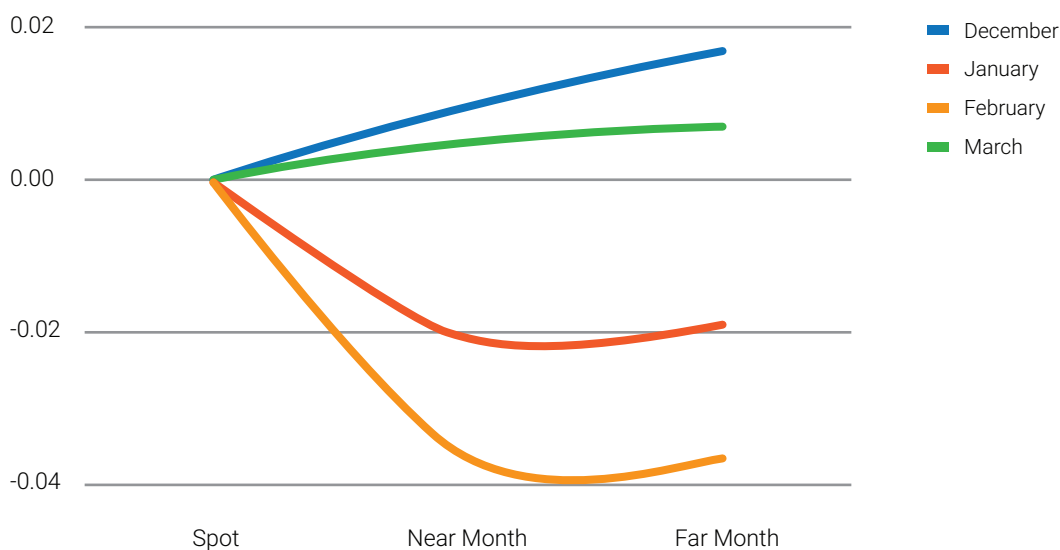
There is an ongoing debate on how the futures curve should be calculated for bitcoin. The normal state of the markets still hasn't been determined. Bitcoin differs from many other commodities as it incurs little to no traditional storage costs. However holding bitcoin still poses a risk, since the holder could be hacked, misplace their private keys, or otherwise lose the currency. Some argue that this can be defined as a cost, particularly for those purchasers and holders who haven't installed robust security infrastructure. Those people may put a premium over having access to bitcoin exposure in the future. Consequently, they may be more willing to pay a premium for the futures price. This can create what may be perceived as a contango in prices.

Other traders may look at the futures product as a hedging mechanism. These tend to be miners or other large, more institutional, types of holders who are actively involved in the bitcoin supply chain. They have no directional view of where the price of bitcoin might be in one or two months and aren't necessarily looking to arb. They're interested in protecting the downside. This makes them willing to sell contracts at the current spot price, or even slightly below, in order to earn this protection. This dynamic can create what may be perceived as backwardation.

We believe that the latter dynamic currently holds more credence. The majority of futures trading today is likely

being done for hedging and risk management purposes, rather than for speculation. We also believe that market makers who take on the other side of a speculator shorting futures have a desire to be paid for that risk, given bitcoin's high volatility. This payment for risk will usually show up as a deep discount to spot.

Below is a normalized futures curve from the launch of BTC futures in December 2017 until today, designed to illustrate this relationship. To keep things simple, we used the CBOE contracts (given higher volumes) and struck the levels the week after expiration of the previous month.



This graph tells us is that in December 2017, BTC futures were trading in contango. They proceeded to move to a backwardation structure in January and February. In March we see a bit more contango, but the curve is still flatter than at the end of last year. We conclude that, among these players, there is no conviction in the marketplace.

2. It isn't a coincidence that the CBOE and CME contracts launched at the best time to short the marketplace.

Last December was a monumental time for major bitcoin naysayers. Those with deep pockets and even deeper stomachs for the margin risk had the chance to put their money where their mouths were. They finally had the opportunity to express a short position in the price of BTC with a listed product on two major exchanges. We believe this occurred, to a large extent, in the first month of the futures' existence.

In order to get a glimpse of positioning, technical analysts often use what's called a Commitments of Traders (COT) report. The COT report is published each week by the CFTC. It breaks down recent open interest for futures and options on futures markets in which twenty or more traders hold positions equal to or above the reporting levels established by the CFTC. If traders are overwhelmingly long, or if there has been a significant increase in long positions, we might say there is a bullish bias on the near term state of the markets. Conversely, if traders are overwhelmingly short, or increasing short positions significantly, one can infer a bearish bias.

NOTE: This piece was written as of mid March 2018. Some of the numbers have been updated with April data however the conclusions were written while BTC was experiencing a bear market.

The COT report breaks out the net long or short positions for three types of traders:

1. **Commercial traders** represent companies and institutions who use futures to offset risk or manage balance sheets. For cryptocurrencies, these tend to be major players that may have bitcoin exposure with any adverse movement in spot prices. Think miners, exchanges, and other large blockchain companies.
2. **Non-commercial traders** represent institutional investors, funds, and entities that may trade in futures for speculation purposes. They are typically not involved in the supply chain of the underlying asset. For cryptocurrencies, the majority are usually hedge funds, family offices, and high-net-worth individuals.
3. **Non-reporting traders** represent those traders too small to be required to report their positions to the CFTC. How many they are, who they are, why they're trading – nobody knows for sure. They simply don't get much attention.

To illustrate the positioning in the first month of BTC futures' existence, we refer to the January 16 report. This was the week that the first bitcoin futures expired. For the sake of simplicity, we focus on reportable positions for the non-commercial traders. In the first month of the year, there was over double the amount of shorts than longs (3,779 vs 1,553 contracts). Since each CBOE contract represents 1 BTC, the approximate positioning translates to roughly \$45M in notional value at current prices at that time. This isn't a large amount relatively speaking, but bear in mind that this was the first month of existence. At the time, high margin costs made it prohibitively expensive to short. Therefore, what we are looking at below are the views of the bitcoin haters with 'big pockets and big stomachs'.

BITCOIN-USD - CBOE FUTURES EXCHANGE
Commitments of Traders - Futures Only, January 16, 2018

	Total	Reportable Positions						
	Open	Non-Commercial			Commercial		Total	
	Interest	Long	Short	Spreading	Long	Short	Long	Short
		: (1 Bitcoin)						
All	4,736	1,553	3,779	179	0	0	1,732	3,958
Old	4,736	1,553	3,779	179	0	0	1,732	3,958
Other	0	0	0	0	0	0	0	0
		Changes in Commitments from: January 9, 2018						
	112	-211	108	-130	0	0	-341	-22
		Percent of Open Interest Represented by Each Category of Trader						
All	100.0	32.8	79.8	3.8	0.0	0.0	36.6	83.6
Old	100.0	32.8	79.8	3.8	0.0	0.0	36.6	83.6
Other	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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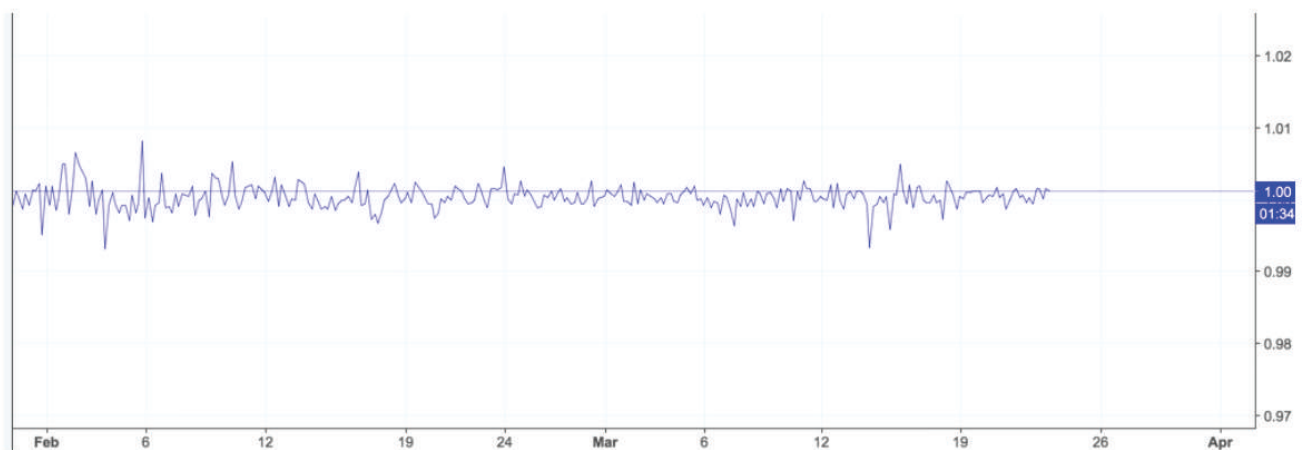
4. The effect on bitcoin spot is not conclusive, but signs of momentary dislocation, and possibly manipulation, exist.

To illustrate this point, we look specifically at the CBOE contract that settled every month on the Wednesday prior to the 3rd Friday at approximately 4 pm EST. The settlement price is the auction price on the Gemini exchange.

Gemini is an exchange that, at press time, trades a relatively small average daily volume of \$60M of BTC/USD transactions. This tells us that it doesn't take much volume to have a temporary impact on the price of BTC on that exchange. On a day when futures are expiring, it's likely that major market participants can affect the price of BTC spot in order if they are hedging their delta exposure. Other traders may well see this and jump into the market for a risk-free transaction – that is if they are quick enough.

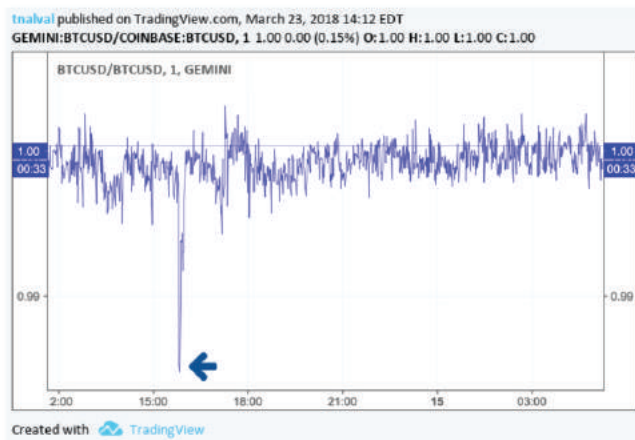
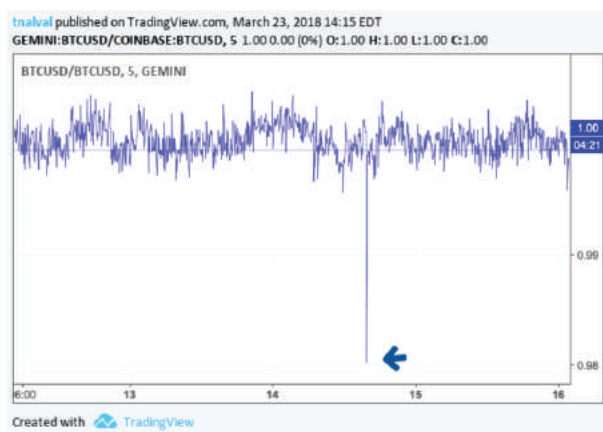
We qualify this statement by looking at what the price of BTC did on Gemini versus another liquid exchange like GDAX at expiration. Our thesis going into the exercise is that the Gemini price probably traded at a deeper than normal discount to the GDAX price, given the significant short interest in BTC futures.

First, we get a baseline for the BTC price relationship between the exchanges. The graph below indicates the plot of $BTC_{\text{Gemini}} / BTC_{\text{GDAX}}$ daily prices in the past couple of months. For the most part, the prices move in tandem when viewed in this time horizon.



Now we look at the last couple of expiration dates, specifically Feb 14 on the left and March 14 on the right, and with 1-minute interval data. We discover that our thesis is correct. The price of BTC on Gemini traded at approximately a 2% discount to that of GDAX. This was likely due to market makers hedging their books and causing a dislocation along with statistical arbitrage firms both acting on the dislocation and bringing prices back to fair value.

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Conclusion

In analyzing bitcoin's futures curve, we have reviewed trading patterns ranging from bitcoin's first future trade in December 2017 to market movements as of the end of March 2018, with some data reaching as far as early April 2018. Since the dynamics of the bitcoin market are still settling into a "normal" pattern, this early analysis can give us valuable insight into the factors that influence bitcoin pricing. According to our research, the bitcoin futures curve teetered between being effectively flat and in a backwardation state for most of Q1. This implies that there is little conviction in the bitcoin futures marketplace in its current state. When assessing the market more deeply and segmenting by types of traders, we find that large holders, traditional to the bitcoin space and involved in the infrastructure, are willing to sell contracts at current spot price or even lower. This is done to protect the downside risk. The trends also demonstrate a correlation between futures expiration dates and bitcoin spot, though more research is needed to make this assessment conclusive. Overall, while it is too early to make any large-scale generalizations regarding the bitcoin futures market, assessing data like this is useful in identifying what can be characterized as "normal" for this nascent and largely volatile sector.

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