DELPHI DIGITAL

Monthly Bitcoin Outlook
October 2019

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Executive Summary

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Key Themes & Trends

Open Interest Based Trading of The Summer

We provide our take on the evolving relationship between price and open interest, including the impact of market sentiment, volatility, and exchange flows.

Rebound in Volume Strengthens Argument that Local Bottom is in

After continuously declining since the YTD price peak in June, volume has come back to life in this recent resurgence, giving credence to the idea that the bottom is behind us. Another prolonged decline in volume would, however, certainly add doubt to that opinion.

Long-Term Holders Stay Strong

Long term holders have held steady throughout all the volatility that took place this year, with 2 year+ holders at YTD highs and 5 year+ holders at ATHs. Short term traders continue to drive price action.

Exchange Flows

We use high and low time frames to help put both market wide sentiment and individual trading trends into perspective.

Macro Backdrop

Ideal Macro Environment for Bitcoin

Seeing as how bitcoin has never experienced a full market cycle, any prediction of its behavior during the next economic downturn is speculative at best. However, given how it's performed over the last 5-7 years, we have a decent indication of how it may respond when markets finally tap out.

In our view, the best environment for bitcoin is one characterized by **declining market volatility, more accommodative monetary policies from global central banks, and low (but not contracting) economic growth.** Such a backdrop is favorable for risk assets, especially those that are more growth-oriented, as investors' appetite for risk returns.

We've already begun to see a slight improvement on several macro fronts, including trade discussions between the U.S. and China and better-than-expected economic data (at least in some major developed markets). However, the risk of a global recession over the next 12-18 months remains elevated and any new headwinds to an improving outlook could send markets into a tailspin given their fragile state.

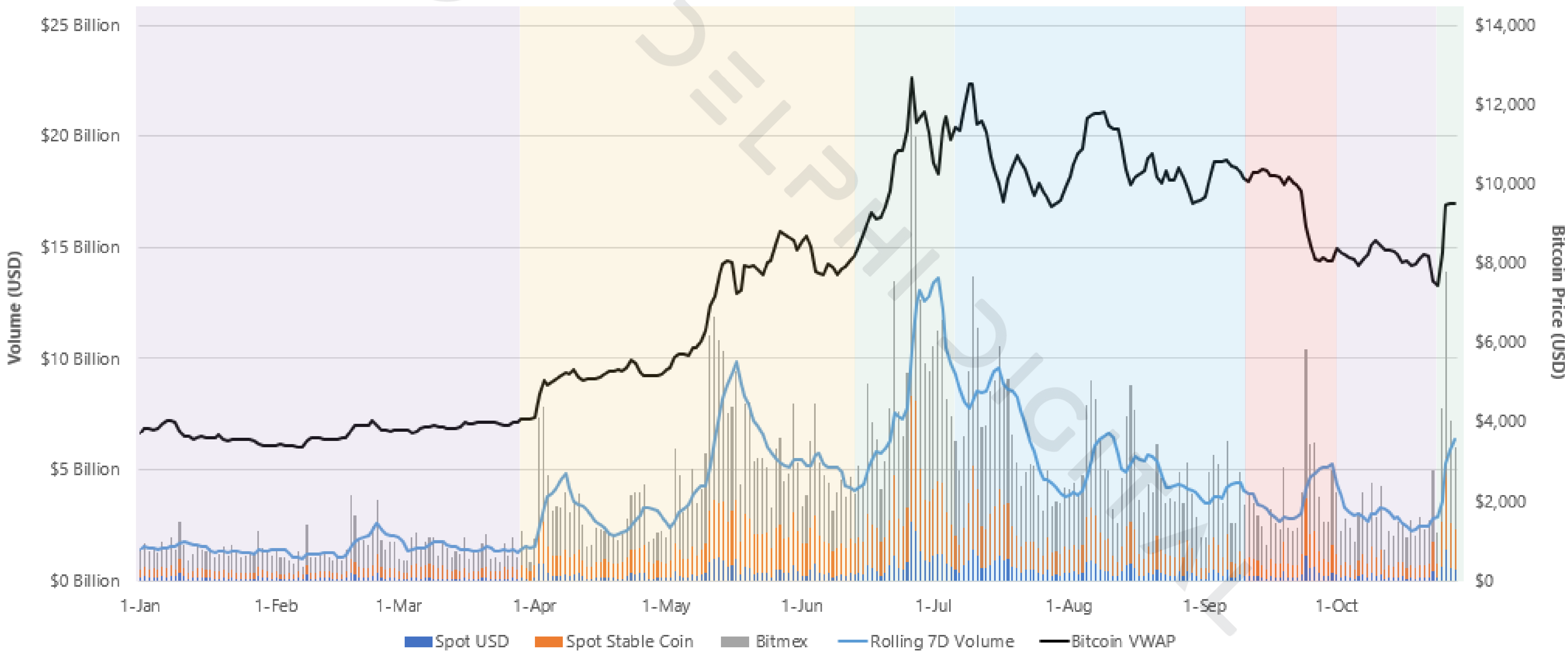
We will delve into each section individually while providing the necessary data analysis to support our opinions. It is important to note that investing in Bitcoin is risky and any decision made should be evaluated in the context of an individual investor's capability and appetite to take risk.

2019 Bitcoin Volume Profile

Bitcoin's volume profile this year has resembled that of a mini bull bear cycle.

- Non-existent in Q1 as price sat idle during the accumulation phase (indicated by the **purple region**)
- Rapidly growing as price took off in Q2 (indicated by the **yellow region**)
- Peaking along with price at the end of June (**green region**)
- Falling off heavily post peak, then slowly declining over time while price held on through consolidation (**blue**)
- Finally seeing price catch up to weak volumes through the drop to $8,000 (**red**)
- Return to a mini accumulation phase, as most participants looked for the best possible entry, with volumes (on a rolling 7 day basis) dropping down to levels from late April/early May before bitcoin broke above $6k. (**purple**)
- Rallying once again as Bitcoin finds a likely bottom (indicated by the **green region** at the end)

Exchange	Spot	Spot Stable Coin	Derivatives
Binance		USDT TUSD USDC PAX	
Bitfinex	USD	USDT	
BitFlyer	USD		
Bitmex			XBT Perp
Bitstamp	USD		
Bittrex	USD	USDT	
Coinbase	USD	USDC	
Gemini	USD		
Huobi		USDT HUSD	
itBit	USD		
Kraken	USD		
Okex		USDT USDK	
Poloniex		USDT USDC	



Data as of October 28th, 2019 | Sources: Kaiko, Digital Assets Data

Open Interest - Bearish Exhaustion

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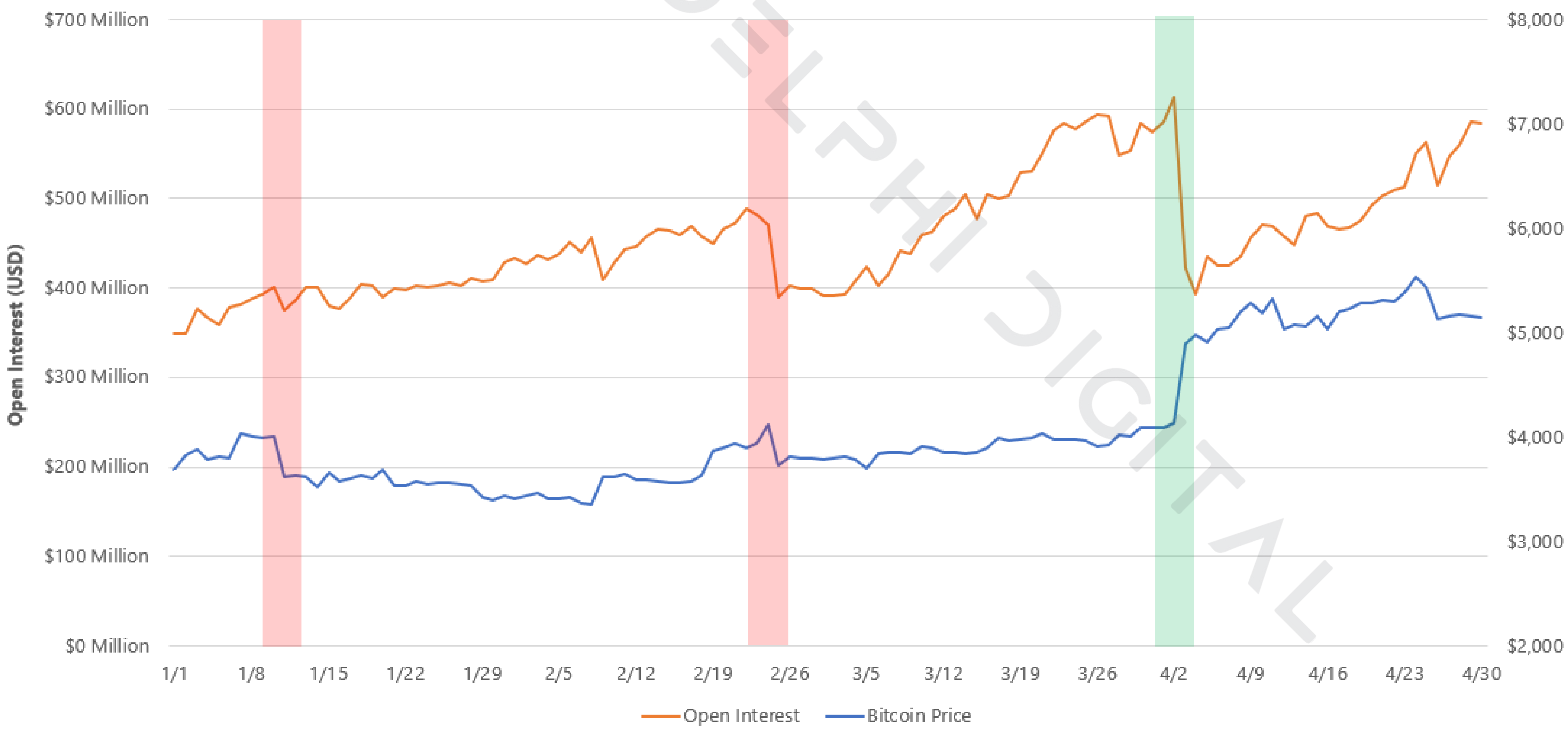
A trading trend that took place this summer was the equivalent of range trading open interest (OI) on Bitmex. More specifically, it was selling Bitcoin once OI went above $1 billion. We cover this trend in further detail on the following pages. OI represents the number of futures contracts in existence, serving as a useful proxy for the amount of leverage in the market. In 2019, peaking OI has functioned as a potential sign of trend exhaustion and subsequent reversal.

The first example of this dynamic took place during the rally in the beginning of April. OI was at its highest level since the price fell below $6k in November 2018. During that <2 hour window in early April when price rallied from $4.2k to slightly above $5k, there was ~$500 million worth of liquidations on Bitmex, indicative of the confidently over-levered positioning of many traders. In the months leading up to April, there were multiple instances where shorting these levels was a profitable trade, and with each instance you saw OI reach higher highs as more people piled into this trade. **This continued until the bears got exhausted and the trend aggressively reversed in the very beginning of April. These elevated levels of OI often contribute to the magnitude of the move, as liquidations and stop-market orders create, in this case, a short squeeze.**



Data as of October 28th, 2019, Sources: Bitmex, Digital Assets Data

False Bull Market?

Throughout the summer we saw this trend shift in the opposite direction with bullish exhaustion. A few elements were necessary for this to properly materialize. To quickly recap and provide context for the chart below, Bitcoin started June at $8,500, peaked at the end of the month, and then continued to make lower highs while bouncing off the $10,000 area as support. It followed this consolidation pattern until the second half of September, when it abruptly dropped to $8,000. Bitcoin Dominance kicked off the beginning of June below 56%, quickly broke above 65% before the end of June as Bitcoin rallied, peaked above 71% in the first week of September, and now sits slightly above 66%. **The general consensus was that we were back in a bull market after price took off in the second half of June, especially as we were within a year of the block reward halving, a notoriously bullish fundamental event with an n of 2. At the same time, alts were taking a beating, evidenced by the huge rise in dominance. Bitcoin basically became the only game in town, and the logic for it was sound:**

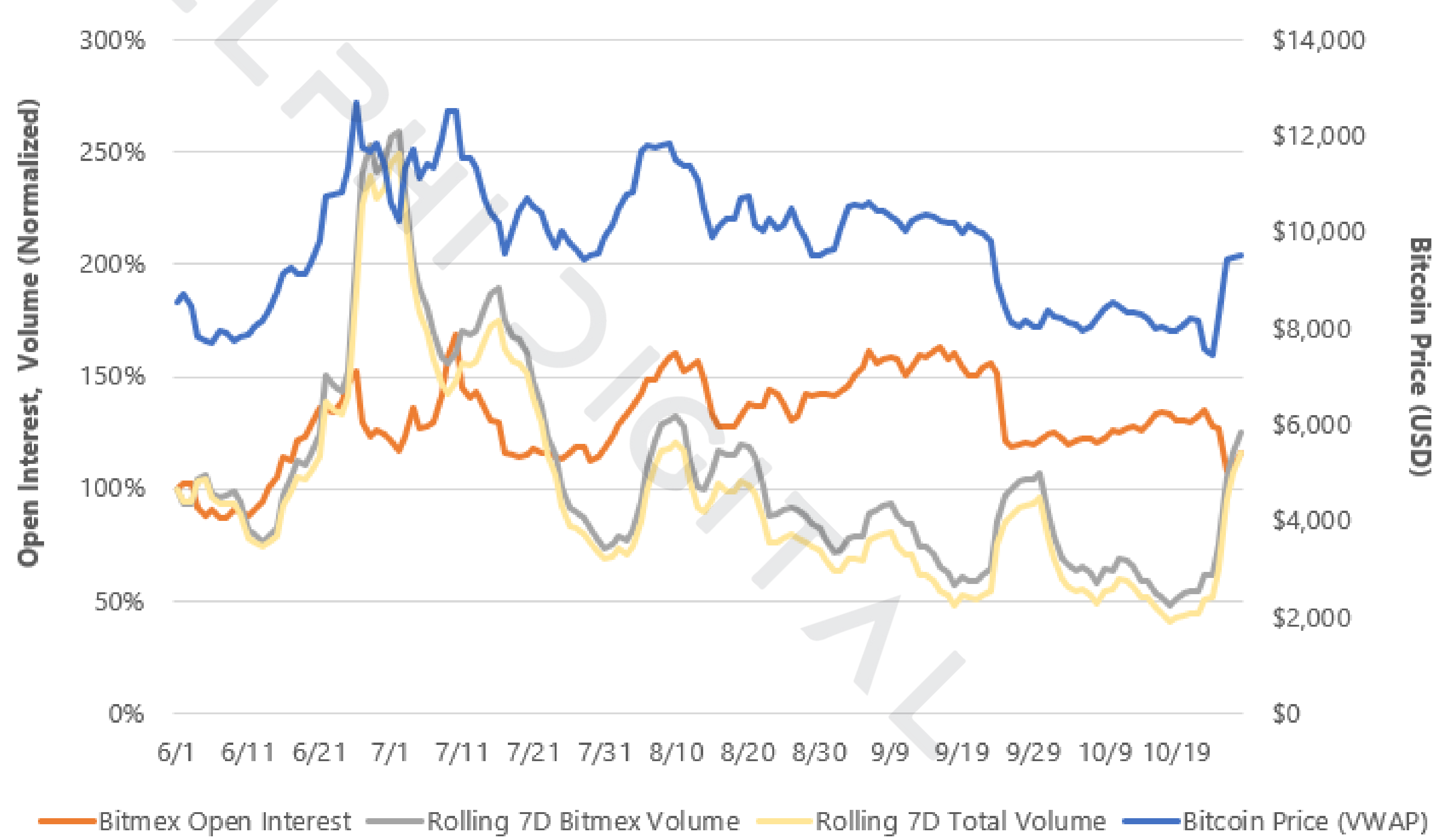
- The existing investor base was, in aggregate, likely more knowledgeable than at any point over the past several years, implying they'd be less likely to buy into vaporware investments.

- Most alts failed to generate the level adoption necessary to drive prices up, leaving alt investors less hopeful.

- The incremental dollar moving into the space was less retail heavy now than at any point over the past several years, based on a lack of sizable growth in indicators resembling retail interest (google search trends, sizable growth in new accounts on exchanges, etc.) while more institutional money was moving in (not implying there was significant investment, just relative to previous times) with Bitcoin likely making up a large portion of their liquid allocation based on many factors including investment mandates, custody solutions, regulatory clarity and a more digestible investment thesis.

- Bitcoin was also rallying, making the risk reward of chasing an alt a lot less appealing.

Bitcoin Price vs Bitmex Open Interest, Rolling 7 Day Bitmex Volume, Rolling 7 Day Total Volume (Normalized)



Data as of October 28th, 2019, Sources: Bitmex, Kaiko, Digital Assets Data

Bitcoin Dominance

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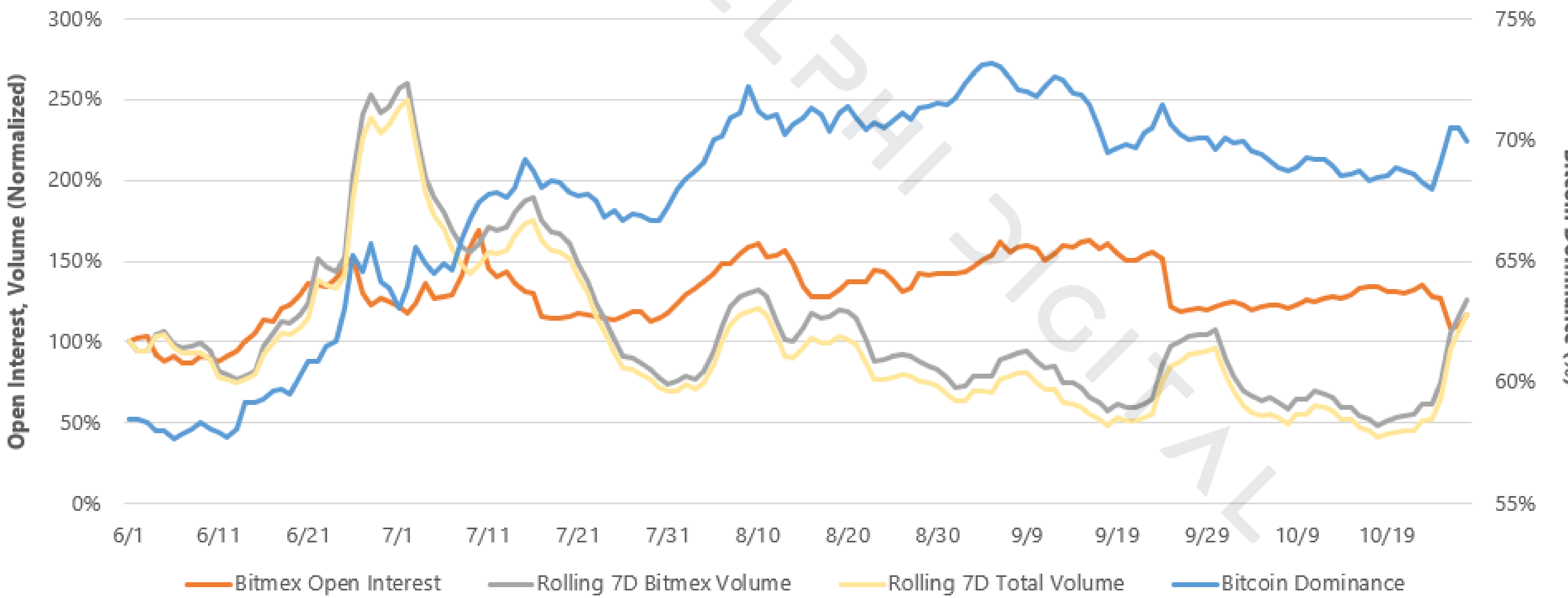
And so it played out this way. **Price peaked at the end of June on daily volume that hasn't been seen since the beginning of 2018.** Consensus became overwhelmingly bullish as bitcoin came close to retesting June highs in early July and August. Each retest, however, was reaching lower highs with a consistently sizable decline in volume. Simultaneously, dominance continued to rise. **Expectations that bitcoin would likely need to rally before capital moved to other assets combined with the structural alt headwind of Binance shutting its doors to US customers further diminished the investment case for alts.**

This helped funnel investors to trading on leverage in an attempt to earn more Bitcoin. Although some of these dynamics imply a generally bullish setup for Bitcoin, for every buyer of a Bitmex perpetual swap, there must be a seller, so the market wasn't one sided. Consistently lower highs combined with diminishing volume presented a solid case for a short opportunity. **This environment of minimal alternative investments combined with strongly convicted traders on both ends of the Bitcoin trade lead to a situation where Open Interest could stay elevated, even though volume was clearly dropping off.**

Bitcoin Dominance vs Bitmex Open Interest, Rolling 7 Day Bitmex Volume, Rolling 7 Day Total Volume (Normalized)

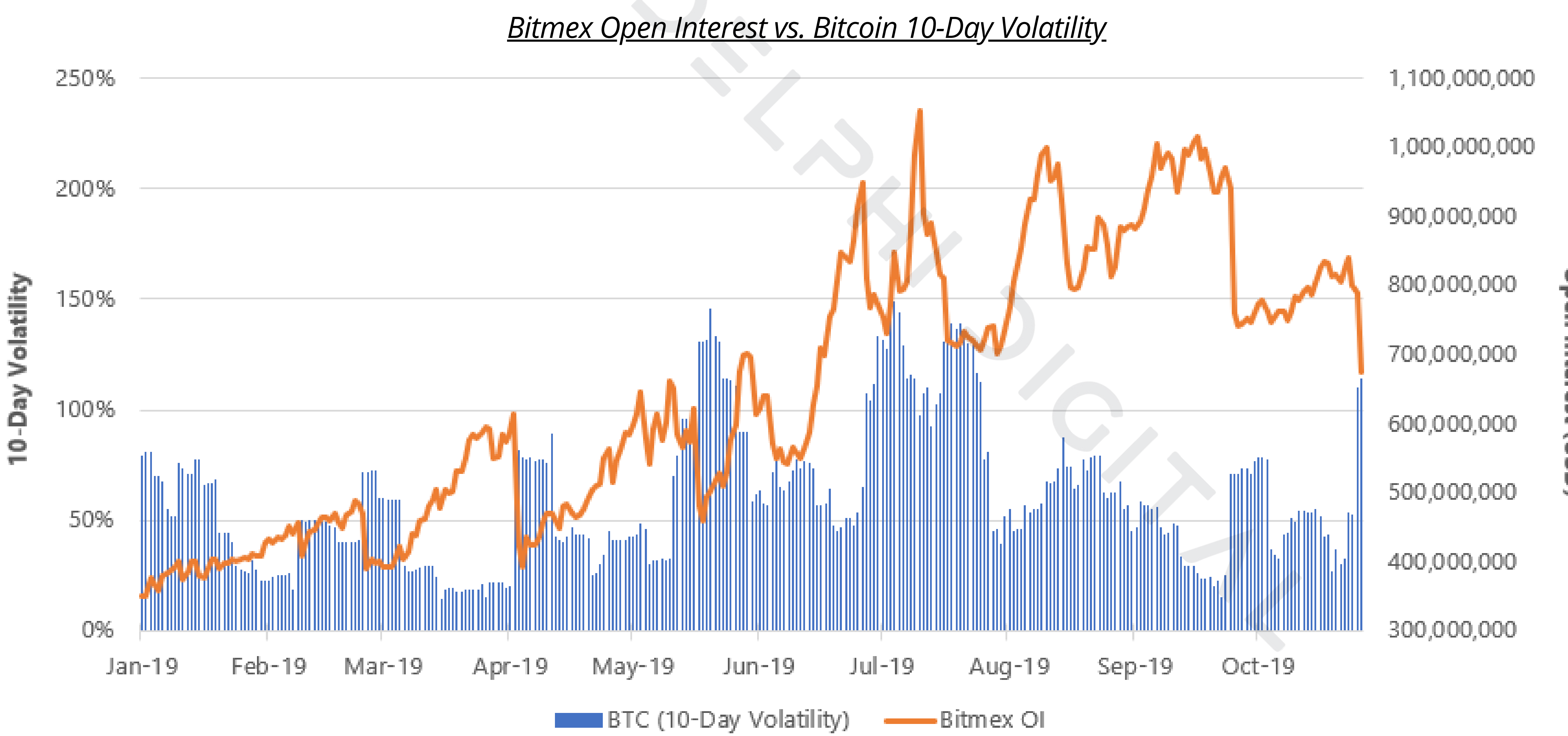


Data as of October 28th, 2019, Sources: Bitmex, Kaiko, Digital Assets Data

Open Interest and Volatility

Another factor that helped keep open interest elevated was the decline in volatility. **Muted volatility allows leverage to build because it creates an extended window for new or larger positions to be entered without forcing sizable stop losses or liquidations from existing ones.** At the same time, it also feeds on the impatience of a market that's conditioned for constant volatility, and indirectly encourages traders to take on more leverage as the expected returns for each trade decline.

This dynamic wasn't unique to this summer, or a bull market for that matter. Periods of low volatility also led to increasing open interest in Q1. What helped exacerbate the situation this summer was that most eyes were on Bitcoin while it was going through a relatively consistent range bound pattern with declining volatility. The rangebound nature of the consolidation pattern provided traders with extra conviction to get into positions with leverage because it felt predictable, at least more so than during periods of significant volatility, when Bitcoin really does whatever it wants.



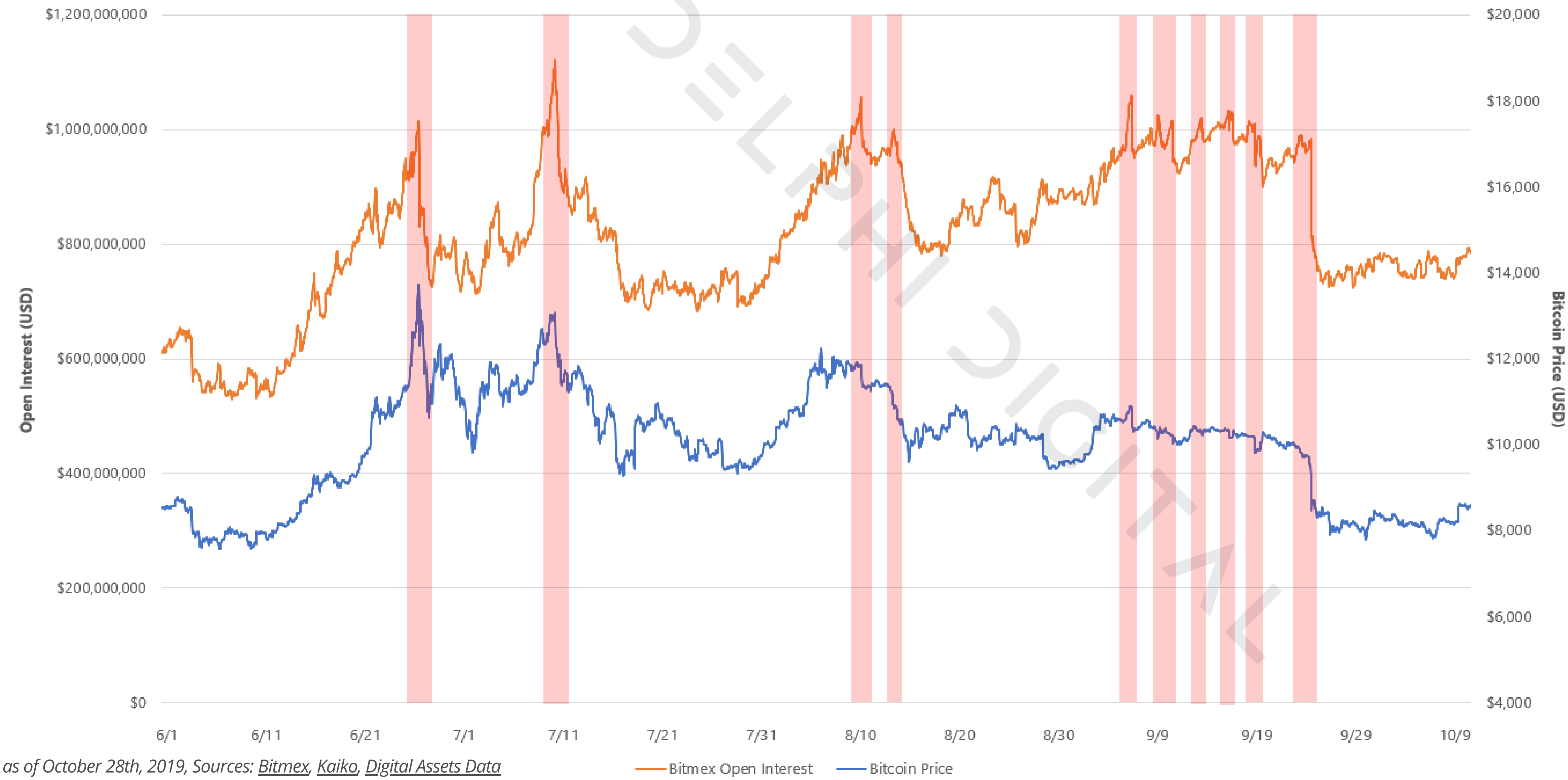
Data as of October 28th, 2019, Sources: Bitmex, Kaiko, Digital Assets Data

Open Interest - Bullish Exhaustion

These were some of the elements that gave birth to the 1 billion open interest (OI) trend. As you can see below, a selloff ensued each time OI broke above 1 billion. This first instance was likely coincidental, as it occurred simultaneously with the $13.7k price peak. However, going forward, it became almost systematic and self-fulfilling.

After a selloff, price would find support in the $10k range and slowly recover. OI would also creep up in line with this recovery as overall market leverage increased. Shortly after OI broke above $1 Billion, bitcoin would selloff leading to significant liquidations and general deleveraging of the market. **This process repeated throughout the summer and traders certainly began to catch on, leading to less time spent above $1B.**

Throughout all of this, volume continued to decline, especially in spot markets. **In the week leading up to the selloff from $10k, volume was half of what it was in the beginning of June, despite Bitcoin's price being higher. Bitmex volume also went from being 1.5x the size of spot to 2.3x.** Several signs potentially indicating that new money entering the space was slowing with mostly existing money bouncing around dictating short term movement.



Data as of October 28th, 2019, Sources: Bitmex, Kaiko, Digital Assets Data

Quantifying The 1B Open Interest Trend

We provide some metrics below to quantify the significance of this trend and how it developed over time. The first set of tables shows average returns based on entries when open interest was above 1 billion, along with how often price declined after those entries. The success of this trading strategy was clear, particularly in July and August when it wasn't as well known. Over time, the returns dissipated as it became a bit of a crowded trade, but the success rate remained consistent. Even as the returns came down significantly in September, you were still able to execute this strategy with a high degree of success.

	Hours Above 1B
June	1
July	29
August	22
September	93

Price Change T+ Hours	1	2	3	4	5	6	12	24	36	48	72	96	120	144
June	-6.1%	-18.1%	-17.7%	-15.8%	-15.1%	-14.7%	-15.7%	-25.8%	-26.8%	-23.2%	-23.0%	-27.3%	-23.9%	-29.0%
July	-0.2%	-0.5%	-0.8%	-1.2%	-1.5%	-1.9%	-4.4%	-8.7%	-14.7%	-15.9%	-14.9%	-17.4%	-21.1%	-22.0%
August	-0.2%	-0.4%	-0.5%	-0.7%	-0.8%	-1.0%	-2.3%	-5.7%	-7.1%	-7.3%	-6.0%	-6.0%	-14.8%	-20.3%
September	-0.2%	-0.5%	-0.7%	-0.9%	-1.2%	-1.4%	-2.6%	-3.0%	-3.9%	-3.3%	-3.3%	-4.7%	-5.7%	-5.7%

% of Time Price Declined	1	2	3	4	5	6	12	24	36	48	72	96	120	144
June	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
July	41.4%	44.8%	48.3%	51.7%	51.7%	58.6%	55.2%	72.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
August	40.9%	45.5%	54.5%	54.5%	50.0%	45.5%	63.6%	95.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
September	37.6%	46.2%	49.5%	57.0%	60.2%	66.7%	72.0%	76.3%	88.2%	92.5%	79.6%	98.9%	90.3%	92.5%

To provide some context, we also looked into returns and frequency of price decline during all hours not spent above 1 Billion during this 4 month window. Average returns are, as expected, positive in the earlier months and slightly negative in September. The frequency of declines also shows how it's basically a coin flip when looking at your average time period.

	Hours Below 1B
June	719
July	715
August	723
September	627

Price Change T+ Hours	1	2	3	4	5	6	12	24	36	48	72	96	120	144
June	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.4%	0.9%	1.3%	1.5%	2.3%	3.9%	5.4%	6.9%
July	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.3%	0.6%	1.1%	1.4%	1.8%	2.1%	2.8%	3.6%
August	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.4%	0.7%	1.0%	1.3%	1.6%	2.1%	2.7%	3.3%
September	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	-0.2%	-0.8%	-1.3%	-2.0%	-3.0%

% of Time Price Declined	1	2	3	4	5	6	12	24	36	48	72	96	120	144
June	42.0%	41.7%	41.6%	42.8%	41.9%	42.7%	40.6%	36.2%	39.2%	40.6%	43.3%	35.3%	38.0%	39.5%
July	42.4%	45.2%	43.6%	43.5%	44.2%	43.9%	45.7%	47.6%	47.7%	50.6%	51.9%	43.8%	39.4%	38.9%
August	43.2%	43.7%	43.7%	44.8%	44.7%	43.8%	44.4%	37.1%	35.0%	37.6%	33.5%	32.5%	33.2%	30.3%
September	38.6%	37.3%	36.8%	35.9%	37.8%	37.2%	39.2%	34.9%	28.5%	31.9%	35.9%	44.0%	45.8%	46.3%

Data as of October 28th, 2019, Source: Bitmex

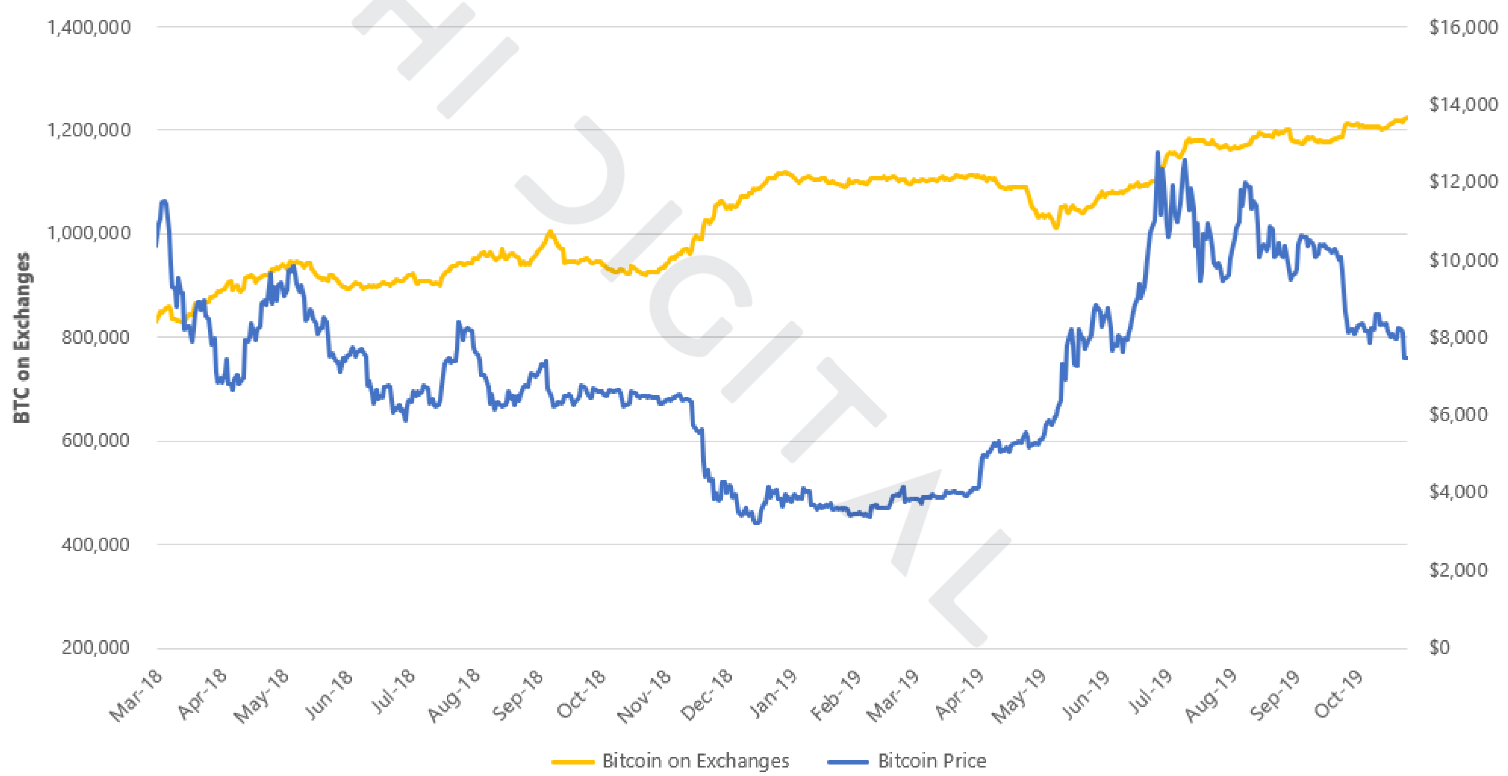
Monthly Exchange Flows

Exchange flows, in both directions, have continued to slow down as price declined, with October likely to exhibit the least amount of exchange flow since March. The value shown for October is based on the assumption that existing run rate flows continue for the rest of the month. The last time outflows outpaced inflows was in April when prices finally started bouncing back. Since then, we've seen steady net inflows to exchanges as depicted by the growth in total Bitcoin on exchanges in the chart below. *This aggregate data set includes Binance, Bittrex, Bitstamp, Bitmex, Bitfinex, Huobi, Kraken and Poloniex.*

As an indicator, net inflows to exchanges are typically on the bearish side as it potentially indicates that there's more appetite for selling than holding. On high time frames, this can be a useful tool to gauge sentiment and ensuing price action. **There was clear growth in Bitcoin on exchanges that preempted the selloff in November 2018 and price decline following the peak in June 2019.** Using lower time frames will often provide better signals since the flows aren't smoothed over time, but concentrated during specific periods.

Exchange Outflows & Inflows vs. BTC Price

Bitcoin on Exchanges vs. BTC Price



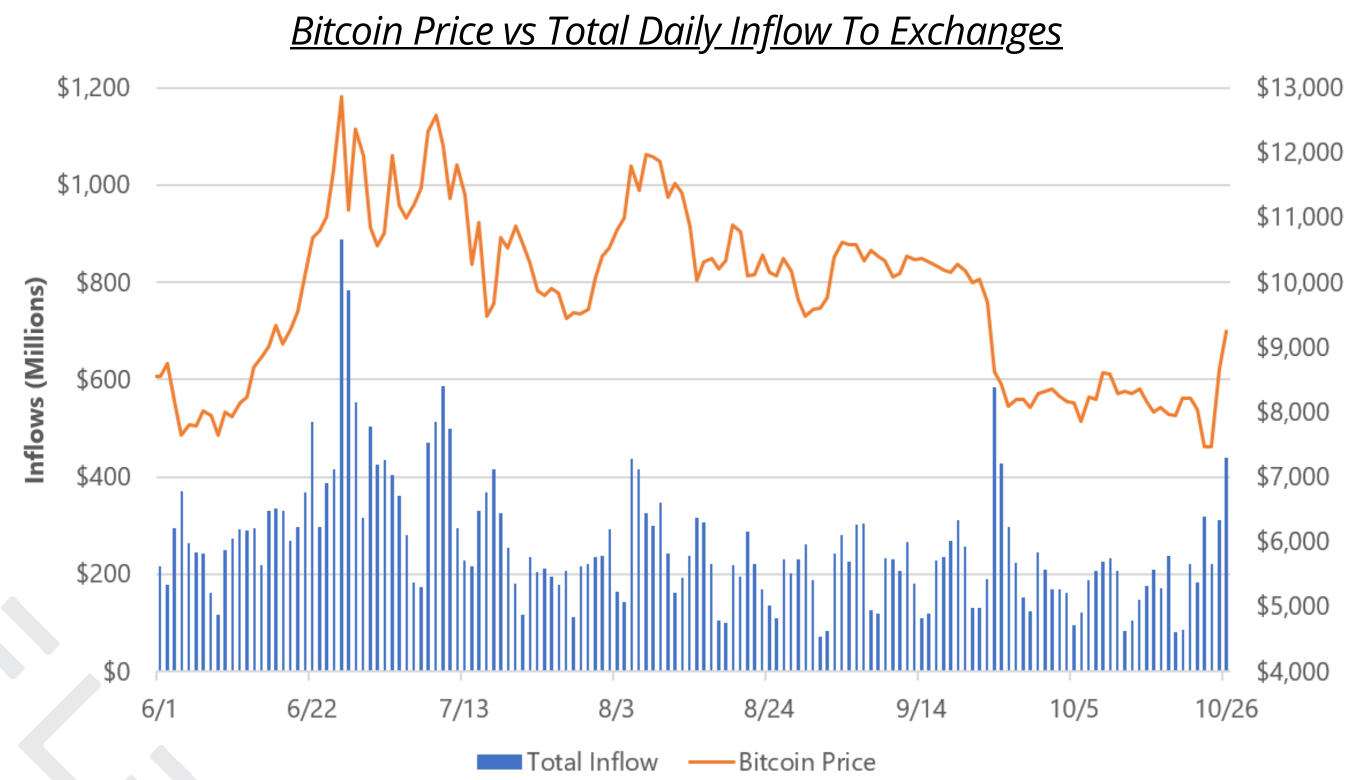
Data as of October 28th, 2019 | Sources: TokenAnalyst, Kaiko

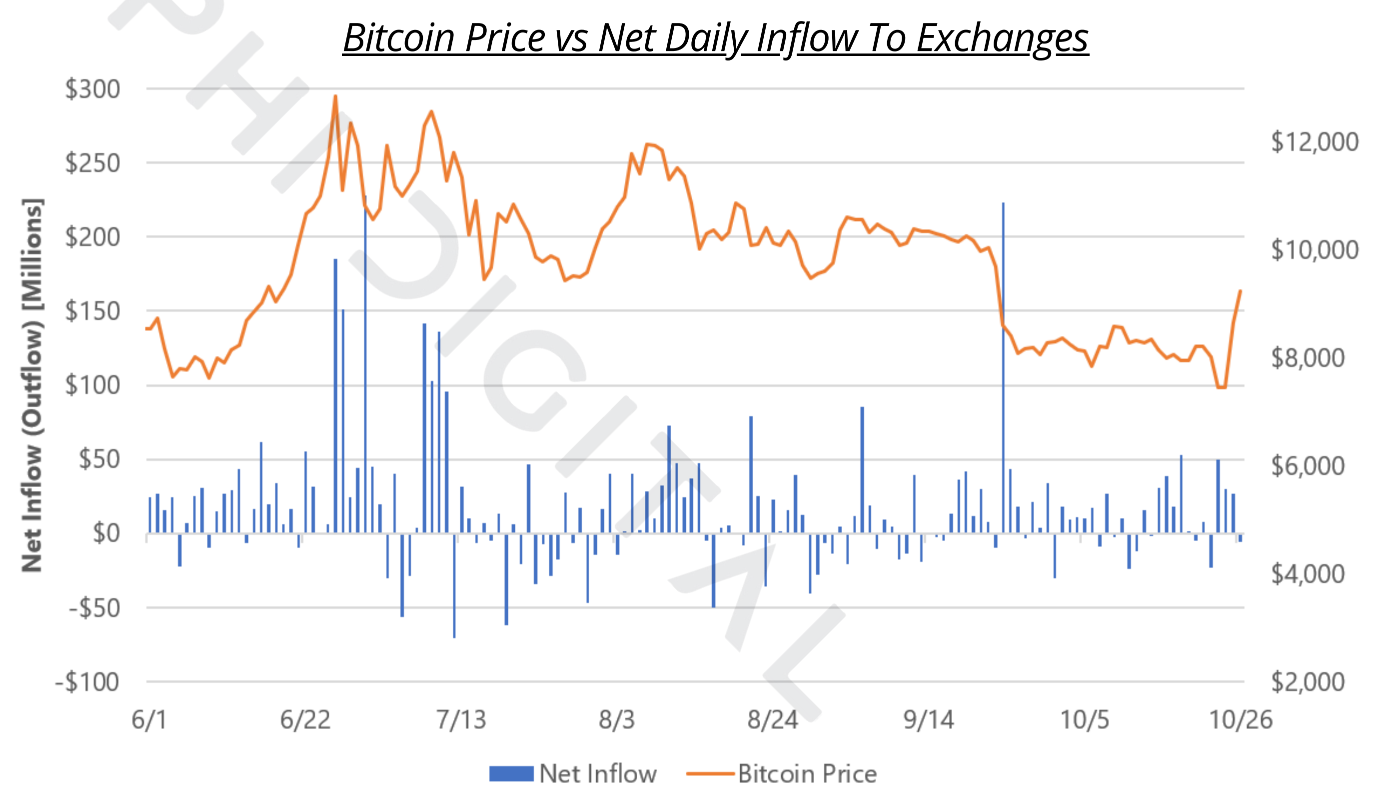
Daily Exchange Flows

Total daily inflows to exchanges peaked with price in late June as many holders looked to take profits. The next two largest inflows took place during materially different market structures.

The first was at the tail end of the second rejection at $13,000 on July 10th, when sentiment was still generally bullish and trading volumes were high. **Despite inflows peaking on the 10th, the successive days of strong inflows in the build up to it functioned as bit of a leading indicator, with rolling 24H inflows actually peaking more than 24H before price.** The other instance where daily inflows almost hit $600 million.

The other instance where daily inflows almost hit $600 million was on September 24th, when bitcoin dropped from mid 9,000's to the mid 8,000's in an hour. One significant difference during this period was the relatively muted volume. **In the days leading up to the selloff, volume was half of what it was in the beginning of June, and a third of what we saw in the days leading up to the previous significant inflow in early July.** Another major difference was sentiment. Bullish euphoria dominated the first half of the summer. That sentiment faded a bit as price consolidated and continued to make lower lows on decreasing volume. This also translated to less outflows from exchanges, so much so that on a net basis, more bitcoin was sent to exchanges the day of the selloff than on the day of the price peak in June. A significant move in either direction was anticipated by many after such an extended consolidation period. When you combine a sizable net inflow to exchanges with a highly levered market less equipped to absorb the selling pressure, a violent move down made a lot of sense.





Data as of October 28th, 2019 | Sources: TokenAnalyst, Kaiko

Hourly Exchange Flows During Rally

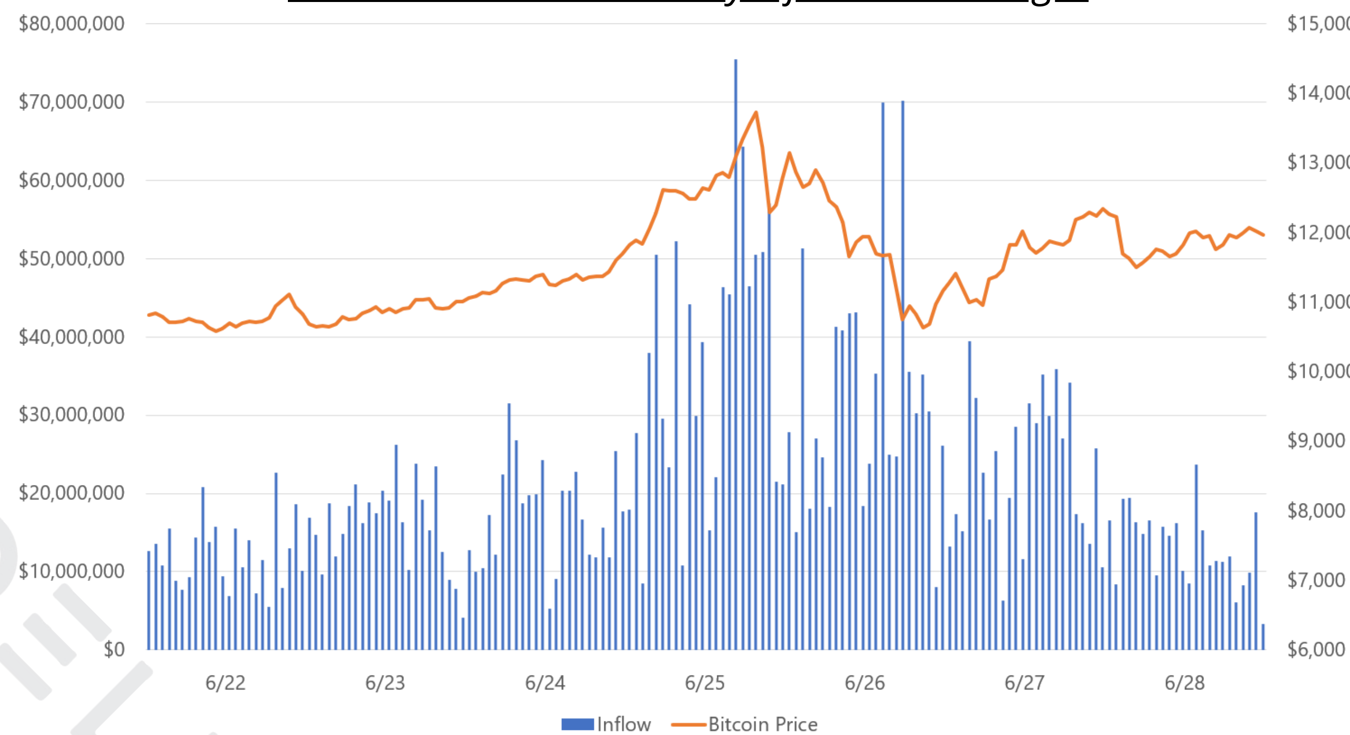
The chart on the right shows how hourly flows to exchanges really began to pick up as price rallied into the 2019 high. **The granularity and frequency of hourly data makes quantifying the magnitude of upcoming sell pressure a lot more viable as compared to daily data, which is usually only viewable after the fact.** Based on the hourly run-rate flows shown below, it makes sense why several sustained hours of $50 million inflows preempted the top.

Hourly Inflows	June	July	August	September
Mean	$14,279,330	$12,192,514	$9,479,653	$9,494,562
Median	$11,472,694	$9,750,193	$7,581,023	$7,668,906

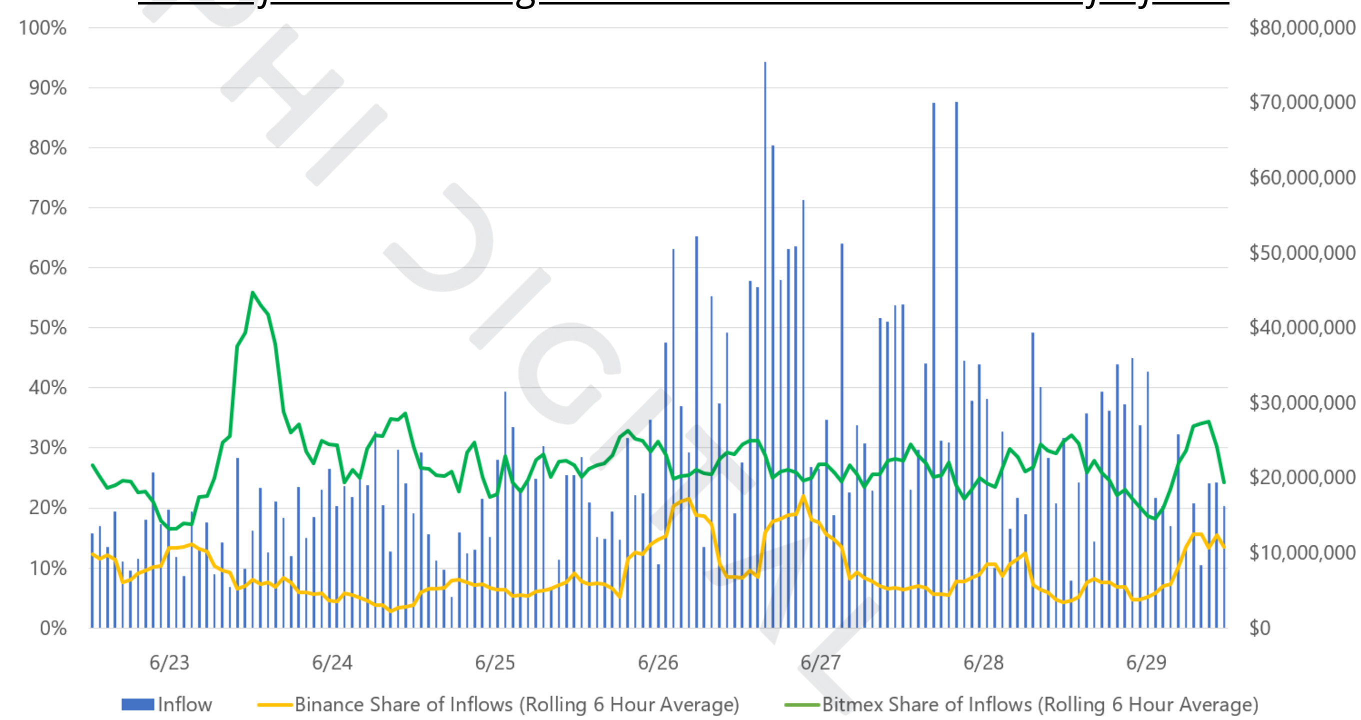
Despite the sizable inflows even after the peak, price was able to rebound and absorb a portion of the incoming supply glut as volumes were still strong and the general market sentiment was still bullish. As you'll see shortly, shifting momentum will make the market much less resistant to inflows of this caliber.

An interesting trend we noticed was the relative increase in flow to Bitmex during periods of high inflows. This also overlapped with the 1 billion open interest trend, where flows to exchanges were elevated as OI approached and reached 1 billion. **For context, 8.5% of hourly exchange inflows from June to September went to Bitmex. However, when filtering by the top 1% of inflow hours, Bitmex accounted for nearly 16%**. To address concerns about outliers skewing those values, the medians of standard and 1% flows were 6.2% and 13.5%, respectively.

Bitcoin Price vs Total Hourly Inflow To Exchanges



Total Inflows to Exchanges vs Binance and Bitmex Share of Inflows



Data as of October 28th, 2019 | Sources: TokenAnalyst, Kaiko

Hourly Exchange Flows During Sell-off

Looking at the September 24th price collapse through the hourly lens yields some interesting, borderline suspect, results. To quickly recap, Bitcoin continued its consolidation through the second half of the summer on declining volume, getting rejected by lower highs and always finding support around $10k. Exchange flows (in both directions) also continued to decline, with September tracking 40% lower than June, while OI continued to hold steady right under 1 billion.

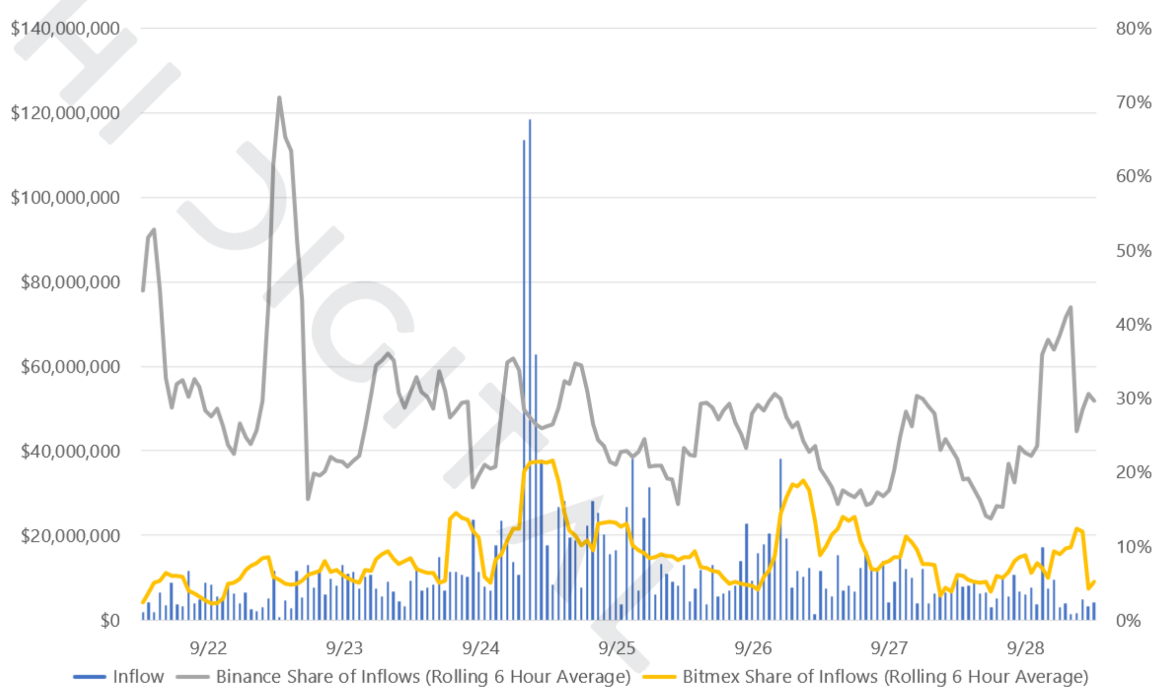
With $10k support faltering over the previous few days, traders put a nail in the proverbial coffin as massive inflows hit exchanges at the exact same time as prices took a dive. Two massive hourly inflows of over $100 million each, followed by a third slightly smaller hour, marked the largest inflow of the summer across a three hour span. Binance and Bitmex split roughly half the inflows in the first two hours between them, seeing over $55 million each go to their exchanges. **Bitmex received more in 2 hours than it did in the previous 4 days**, where it only captured 7% of inflow.

The consistency with which Bitmex captures incoming bitcoin during high flow periods is difficult to explain. It'll be clearer after a deeper dive into historical flows to determine if this is par for the course as traders possibly look to make leveraged directional bets based on flows they track, or if this is a more recent development based on current market structures.

Average Hourly Flows	June	July	August	September
Binance	28.8%	28.8%	29.5%	28.6%
Bitmex	8.1%	8.8%	9.7%	7.7%
Bitstamp	9.8%	11.4%	10.9%	9.7%
Bittrex	4.3%	2.7%	2.0%	2.0%
Bitfinex	6.7%	6.4%	5.6%	4.9%
Huobi	30.6%	28.3%	30.5%	36.0%
Kraken	9.8%	12.0%	10.5%	9.9%
Poloniex	2.0%	1.6%	1.4%	1.2%

Bitcoin Price vs Total Hourly Inflow To Exchanges

Total Inflows to Exchanges vs Binance and Bitmex Share of Inflows



Data as of October 28th, 2019 | Sources: Token Analyst, Digital Assets Data

Liquid Supply

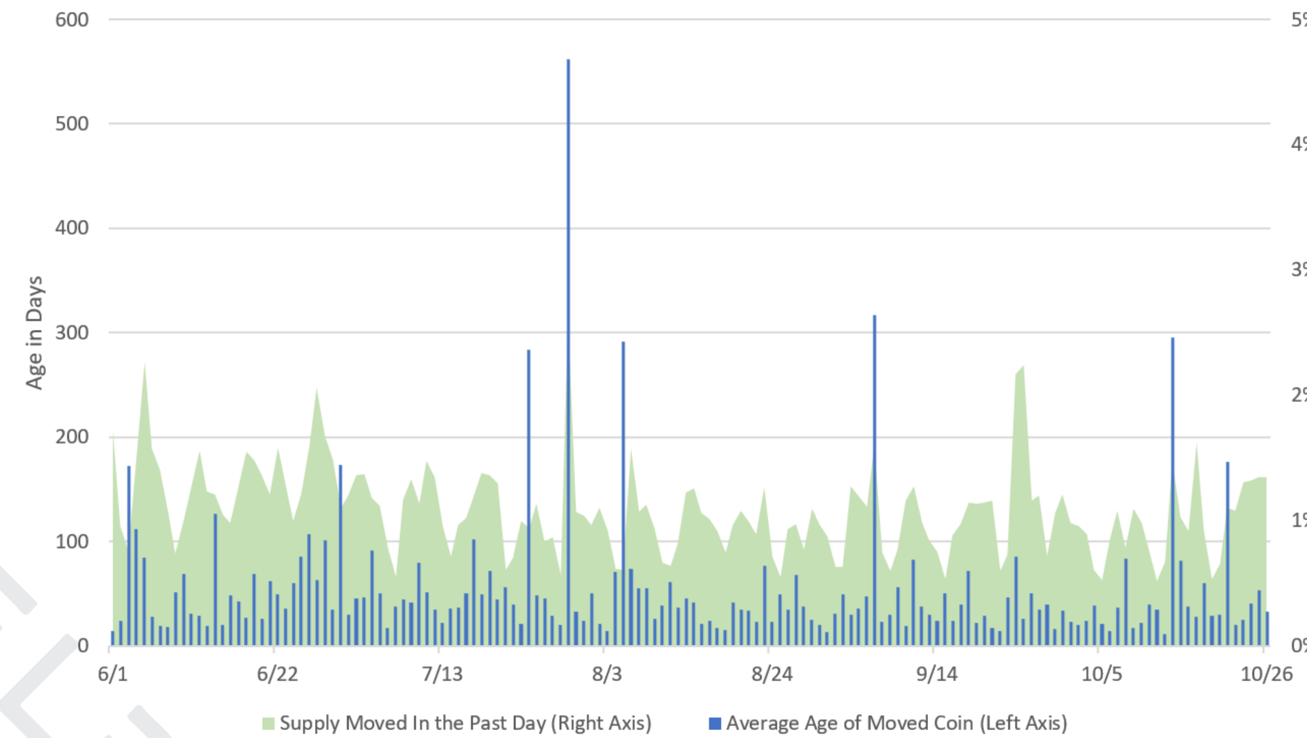
After a tumultuous several months, it's useful to see if there have been any sizable shake ups in the holder base. **One straightforward way we visualize this is by analyzing supply moved in the past day along with the average age of coins moved, which we calculate internally**. By knowing the quantity and age, we can immediately profile the UTXO's and get a sense for the move. This is also fairly exhaustive since it's broken out on a daily basis.

The selloffs in early and late June, and in late September clearly led to a lot of coins changing hands, but none of them were previously held for extended periods as depicted by the low coin age. On the other hand, **you have a large spike for both average age of coins moved and quantity of coins moved on July 29th. By cross referencing UTXO data, we can tell it was an individual who's held for 3-5 years**. It turned out to be a "whale" making three transactions worth 47k Bitcoin each from one unknown wallet to another.

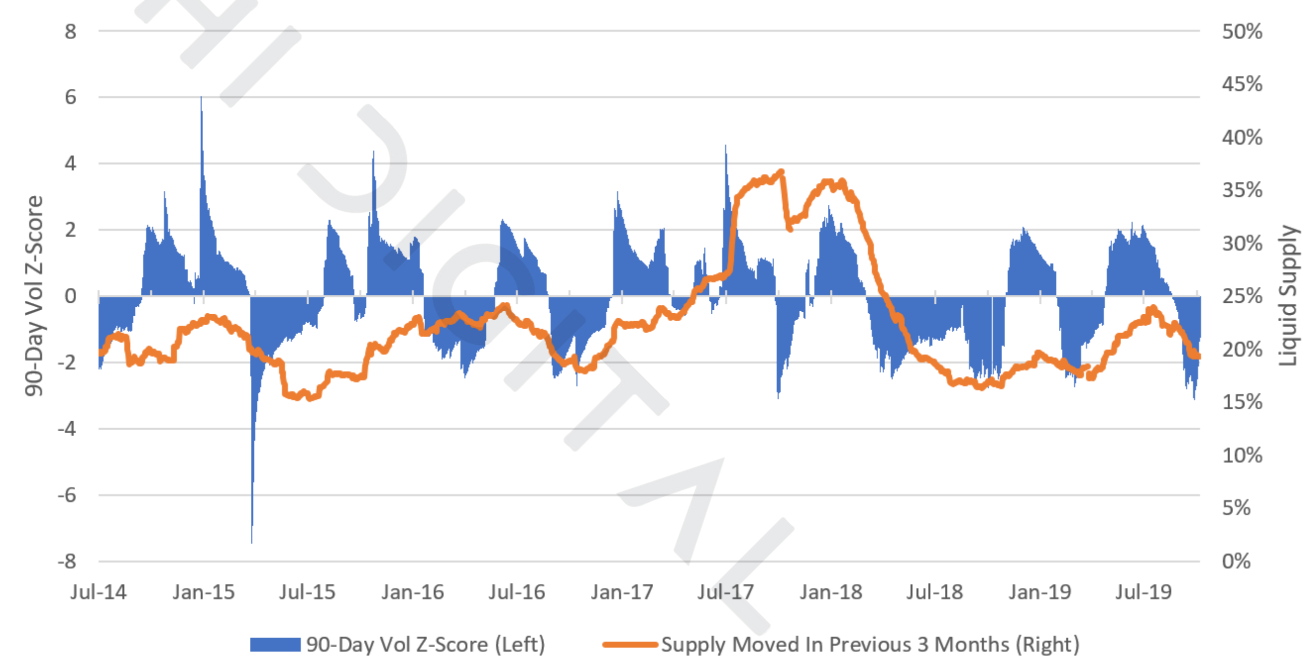
Taking a step back, the next measure we track is liquid supply, which we designate as the portion of supply that's moved within the past 3 months. It's particularly useful after a rally when trying to understand the size of the underlying shift in holders. What you'll typically see is that **the magnitude of the rally dictates the increase in liquid supply**. The increase in liquid supply then affects the amount of time it takes for prices to recover since it requires more demand to offset the increase in supply.

The ebbs and flows of the 90-Day Vol Z-Score make it a useful metric to view in tandem with liquid supply because it describes the movement of the market in a somewhat price agnostic way. This is important because aside from market cycle tops, liquid supply will also spike during period of volatility. To the surprise of many, Bitcoin has been going through a period of muted volatility since the second week of September, evidenced by the negative z-score. This has helped reduce liquid supply, and in turn, potentially reduce the demand necessary to move prices up.

Bitcoin Supply Moved vs Average Age of Coins Moved



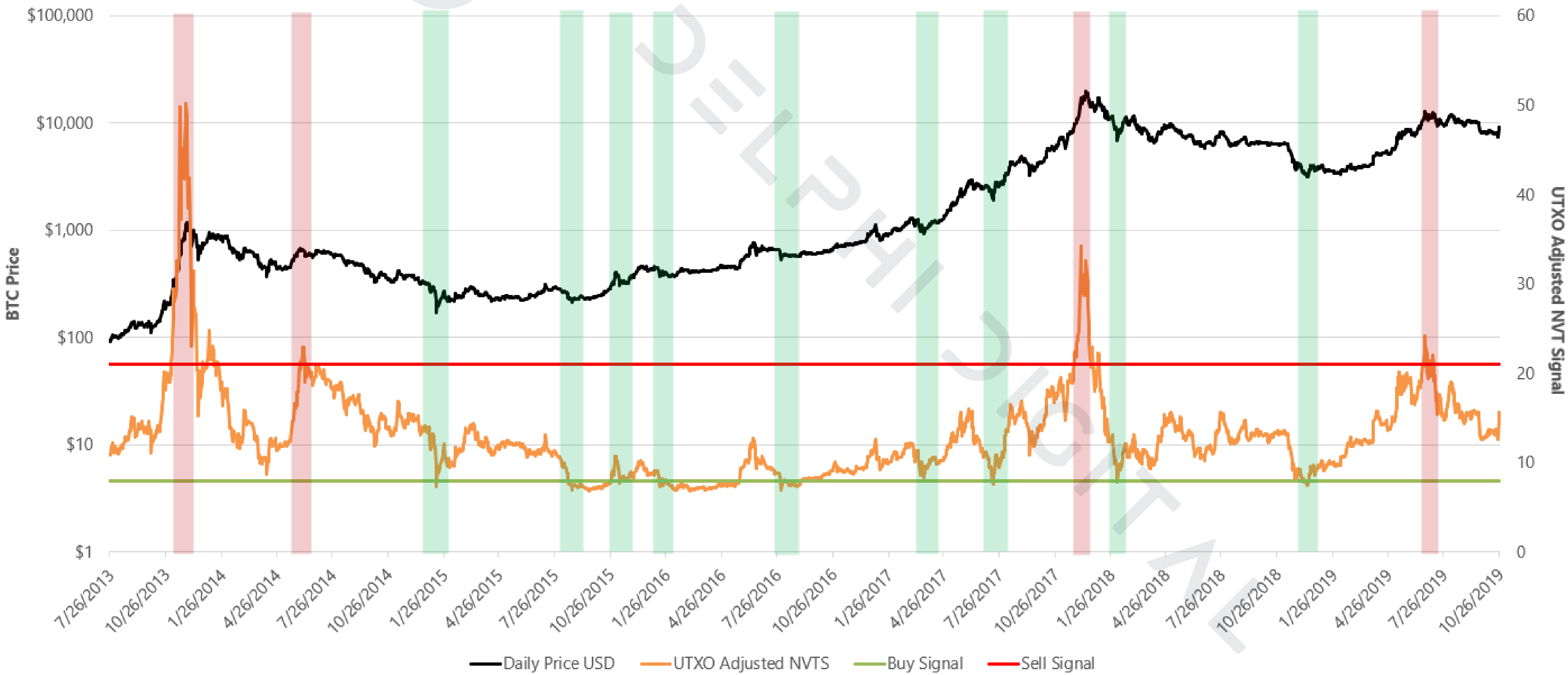
90-Day Vol Z-Score vs Bitcoin Supply Moved



Data as of October 28th, 2019 | Sources: Token Analyst, Digital Assets Data

UTXO Adjusted NVTS

This liquid supply also plays a crucial role in our variation of the NVT Signal, called the UTXO Adjusted NVTS, where we adjust the market cap to only account for the liquid portion that's being used to support on-chain activity. UTXO adjusted NVTS currently sits at 15.7 after rising 3 points in as many days during this recovery, meaning it **isn't in clear buy or sell territory**. After peaking along with price in late June, the signal hasn't provided any clear result. This ratio has been coming down because on chain volume has continued to decline since the second half of the summer, but at a slightly slower rate than price. In addition, liquid supply has also been decreasing since its peak in early August, driving the ratio down further.



Data as of October 28th, 2019 | Source: Digital Assets Data, CoinMetrics

UTXO Analysis & Market Cycles

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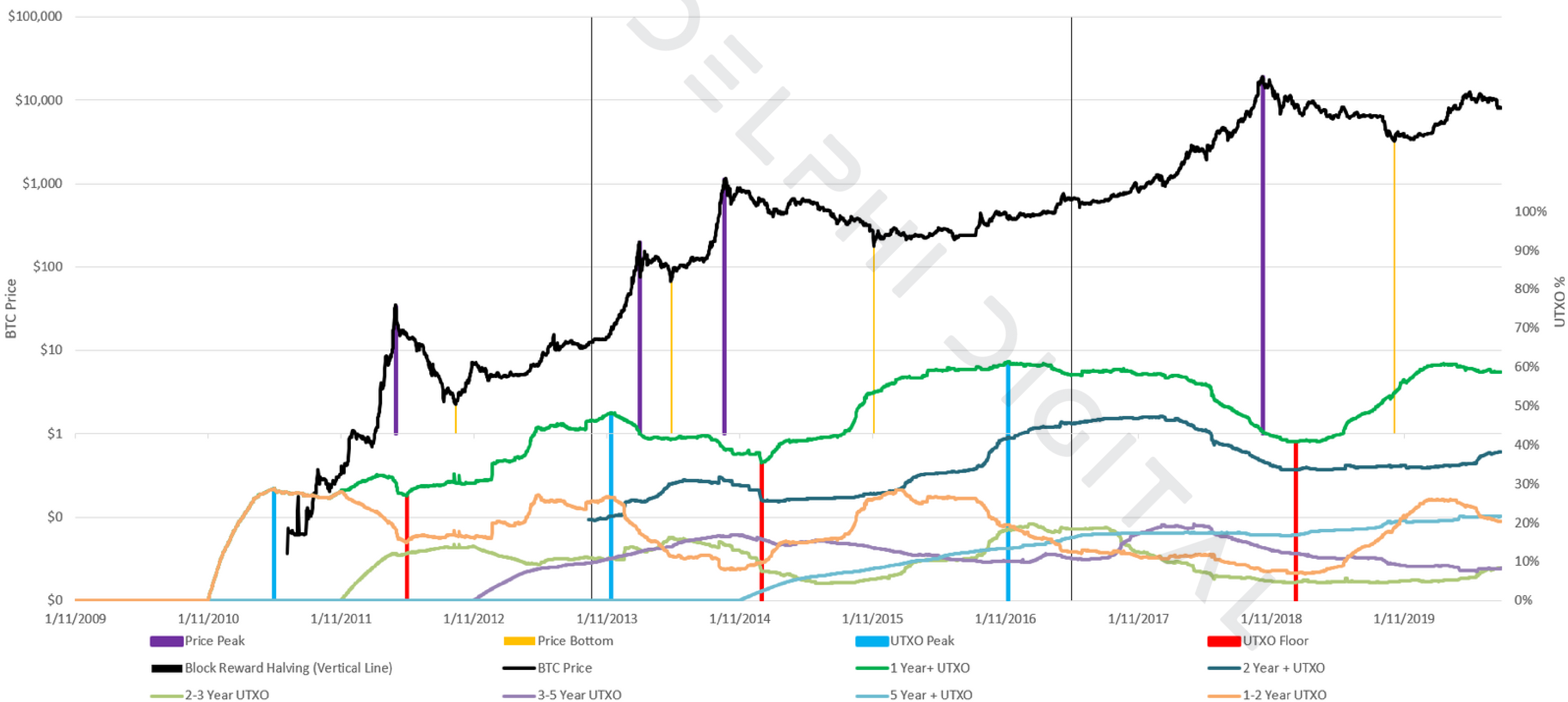
There hasn't been much movement from long term holders this year despite the roller coaster of price and sentiment. The portion of supply that hasn't moved in at least 1 year started the year at 55.6%, peaked at the end of April at 60.8% and currently sits at 58.3%. Going a little further out and looking at 2 years +, started the year at 34.6% of the supply and has consistently grown, currently sitting at YTD highs of 38.7%. **The 5 year+ group started the year at 20.5% and inched up slowly to its ATH of 21.6% today.**

This recent selloff was not caused by capitulation from long term holders, far from it in fact. The sizable decline was most associated with movement from individuals holding for 1-3 months. In the days following the selloff, there was additional movement from slightly older holders in the 6-12 month range and 12-18 month range, with heightened exchange inflows to match. **This is one of things that distinguishes this mini-cycle from true bull and bear cycles, you don't have long term holders cashing out as prices really take off.** Long term holders will dictate cyclical tops and bottoms, but it's the short term traders that will have a larger impact on intra-cycle prices as they gauge, among other things, the flow of new money entering the space. **This brings us back to the original slide where this sizable increase in volume can potentially mark a bottom, however, it would be undoubtedly bearish if it starts to decline again.**



Data as of October 28th, 2019 | Source: Digital Assets Data

Volatility Awakens

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Volatility is like a candle: forget about it and it'll burn your house down. While that may sound a bit extreme, volatility spikes can wreak havoc on a portfolio, **especially when excessive leverage comes into play.** After months of price consolidation and falling volatility, BTC finally broke out of its relatively tight trading range at the end of September. Unfortunately, it broke to the downside, dropping from $10,000 to $8,000 in a matter of days while taking out key support levels along the way. **Bitcoin appeared to find a new temporary home around $8,000 before last Wednesday's mid-week 10% drop, which pushed BTC below $7,500 for the first time since early June.**

Bitcoin Price vs. 60-Day Rolling Volatility

Bitcoin Price vs. 14-Day RSI

Bitcoin's late-September drop was swift, including one of the largest daily losses for the crypto behemoth all year. **The sell-off pushed BTC into oversold territory for the first time since December 2018** as its 14-day RSI hit a reading of 20. Notably, there's been 22 other instances when its 14-day RSI fell below 30 over the last five years. **The median and average return for BTC in the 90 days following is 8% and 37%, respectively, boasting gains 64% of the time.** Those with long-term conviction who embrace such short-term price dips were rewarded handsomely as the week progressed; BTC jumped roughly 40% intra-day on Friday, briefly breaking above $10,000 before settling closer to $9,500. Contrary to its price action earlier in the week, **Friday's move was one of BTC's best on record.**

Data as of October 28th, 2019 | Source: Coinbase, TradingView

BTC "Death Cross"

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The late September sell-off accelerated the downward trend in bitcoin's shorter moving averages, notably its 50-day MA, which just crossed below its 200-day equivalent for the first time since March 2018. The so-called "death cross" is often considered a bearish technical signal as short-term price momentum weakens relative to its longer-term price trend. Since 2011, **bitcoin has experienced just five death crosses prior to this one,** though its subsequent returns are rather mixed. For example, after its most recent death cross in March 2018, BTC initially saw a substantial reversal, **rallying almost 20% in the following two weeks.** However, the relief rally proved to be short-lived as **BTC wound up losing 14% over the full 90-day period** after the March 2018 event. Conversely, **BTC nearly doubled in the 90 days following its September 2015 death cross** and never looked back, so the implications of this technical pattern are muddled to say the least.

Bitcoin Price vs. 50, 100, 200-Day Moving Averages

Forward Returns Post-BTC Death Cross (Daily MAs)				
Date	**14-Day**	**30-Day**	**90-Day**	**180-Day**
3/30/2018	15.9%	37.5%	-14.2%	-5.4%
9/14/2015	3.9%	9.6%	88.1%	77.6%
9/4/2014	-12.8%	-32.8%	-23.2%	-42.3%
4/9/2014	10.8%	2.2%	41.1%	-26.2%
9/21/2011	-12.7%	-54.1%	-29.4%	-16.4%
Median	**3.9%**	**2.2%**	**-14.2%**	**-16.4%**
Average	**1.0%**	**-7.5%**	**12.5%**	**-2.5%**
Batting Avg.	**60.0%**	**60.0%**	**40.0%**	**20.0%**

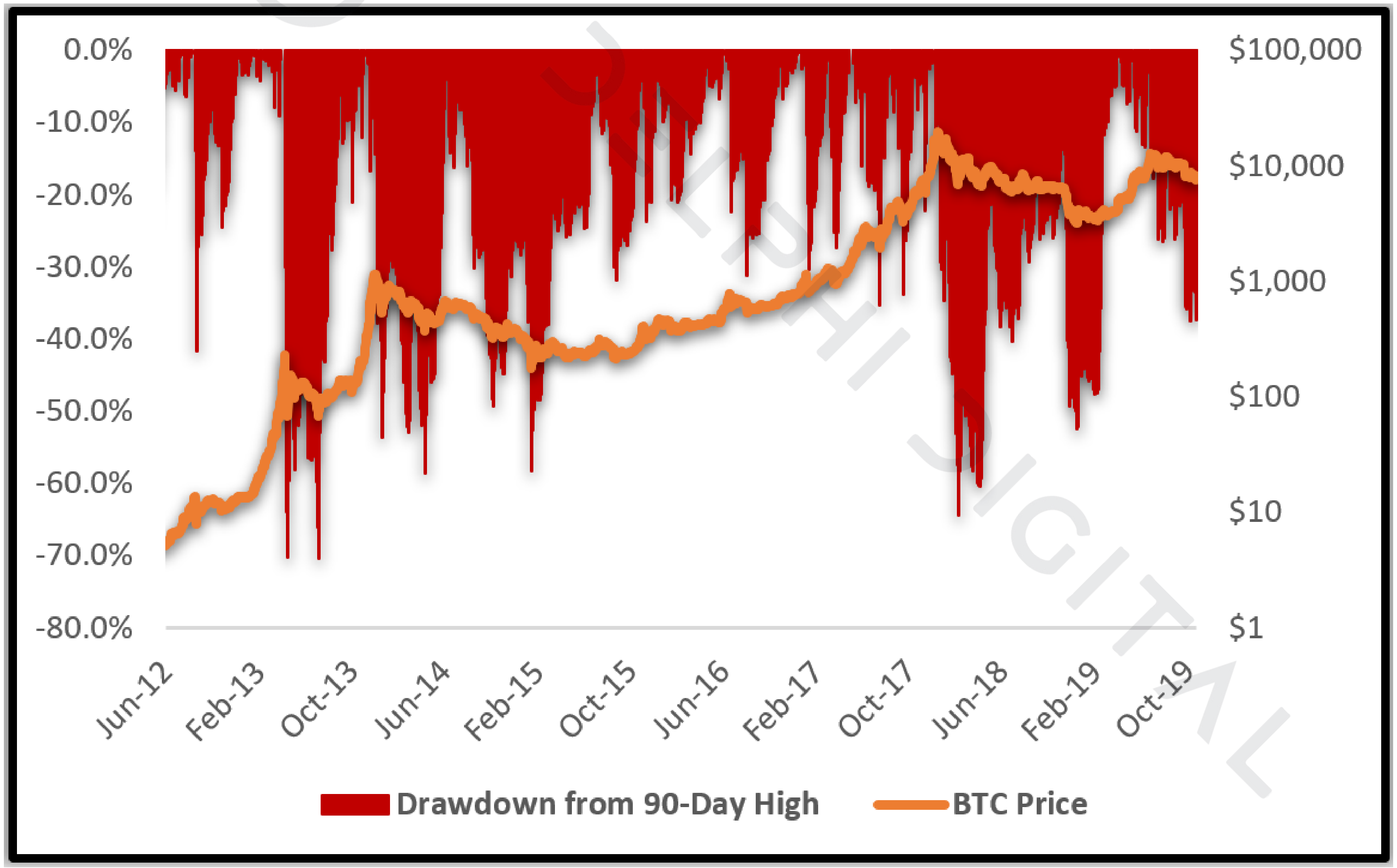
**Batting Average represents the % of times BTC is positive over each period.*

Data as of October 28th, 2019 | Sources: Brave New Coin, TradingView, CoinMetrics

Violent Drawdowns

Before Friday's price spike, BTC was almost 40% off its 90-day high - a sizable move by most standards. Its most recent drawdown was larger than average, even for such a volatile asset, but similar corrections are far from exceptional, especially among more seasoned market participants who've become accustomed to the violent mood swings of the world's largest crypto asset. **For perspective, BTC fell more than 50% from its 90-day high during Q4 2018 and over 65% from its all-time high back in late 2017. Many of these violent sell-offs proved to be lucrative long-term buying opportunities for those who could stomach BTC's wild short-term price fluctuations.** September marked bitcoin's third consecutive month of losses, a stark reversal from 1H 2019, which saw BTC gain more than 200% in a matter of just a few months.

<u>*Bitcoin Price vs. Drawdowns from 90-Day High*</u>

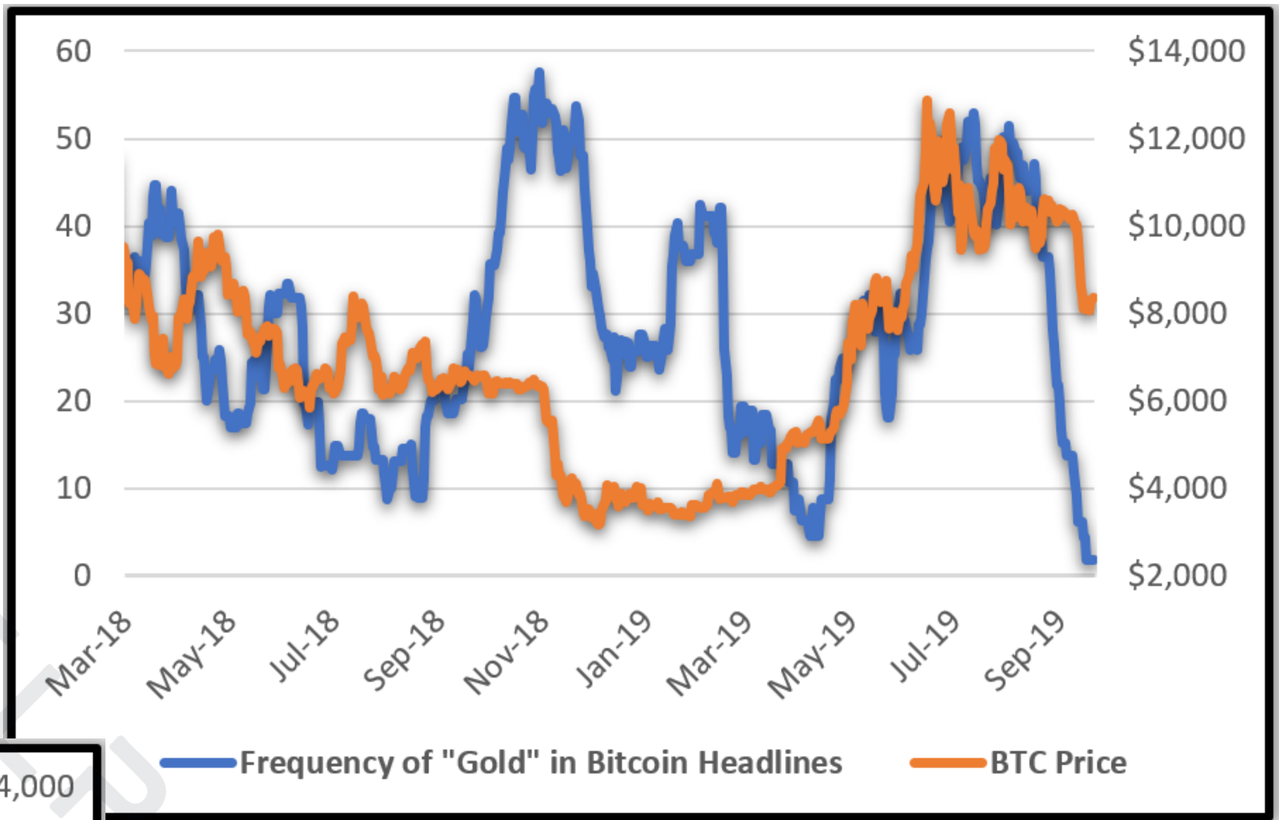


Data as of October 28th, 2019 | Source: CoinMetrics

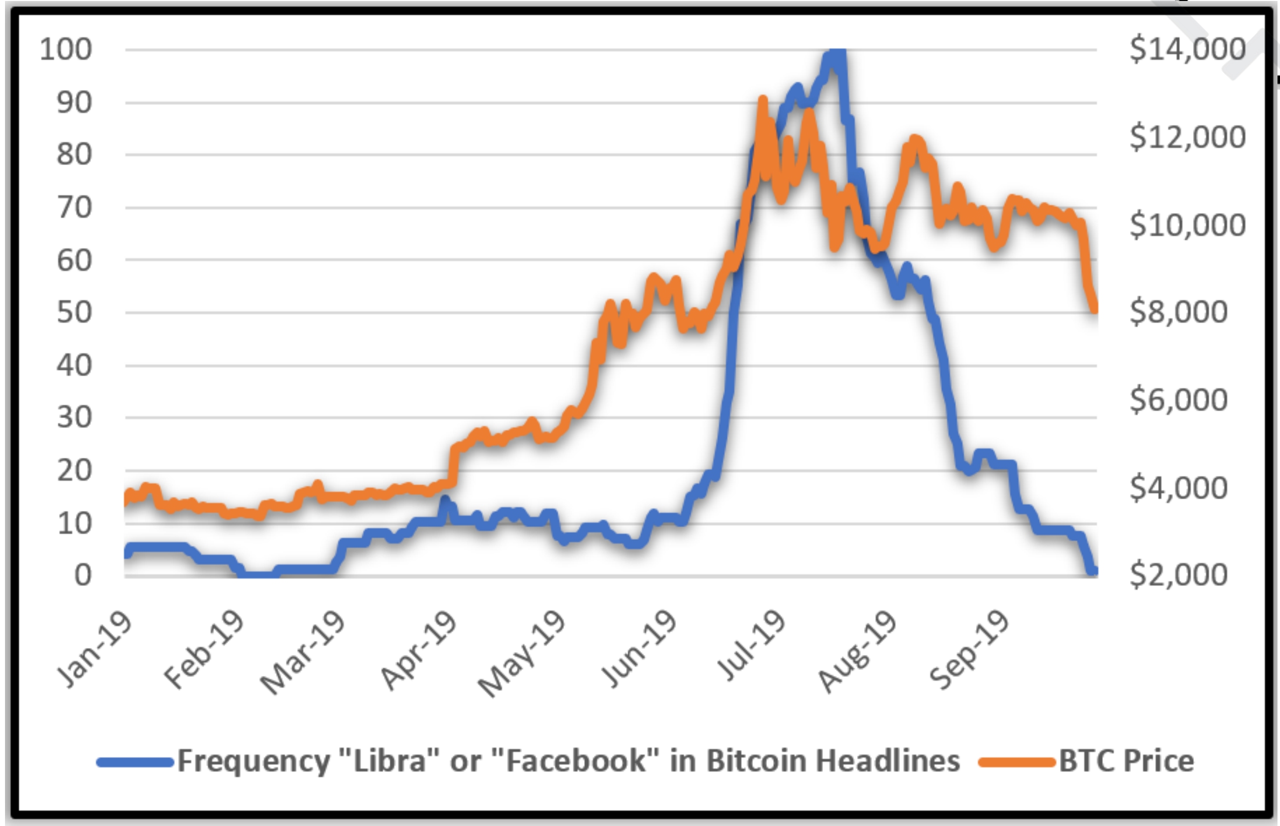
Key Drivers of Rally Fade

Bitcoin's rapid rise in the second quarter coincided with a resurgence in its "digital gold" narrative as the argument for slowing global growth and extreme monetary policies seemed to get stronger by the day. Unsurprisingly, as the digital gold hype faded, so too did bitcoin's price; **BTC is down more than 40% from its late June peak.** Coincidentally, **the frequency of the word "gold" in Bitcoin related headlines continued to fall to a new low,** according to data provided by The TIE, confirming such waning enthusiasm despite the comparably weak economic outlook and rising uncertainty we see today.

Bitcoin vs. Frequency of Gold-Related Headlines



Bitcoin vs. Frequency of Libra-Related Headlines



The Q2 run up also occurred as the excitement for Facebook's highly anticipated "cryptocurrency" project, Libra, was bubbling up. **The social media giant released the white paper and key detail surrounding Libra on June 18th, which helped propel BTC's last parabolic move before topping out at the end of June.**

However, like its gold companion, the frequency of "Libra" or "Facebook" in Bitcoin-related headlines has collapsed, according to data again provided by The TIE.

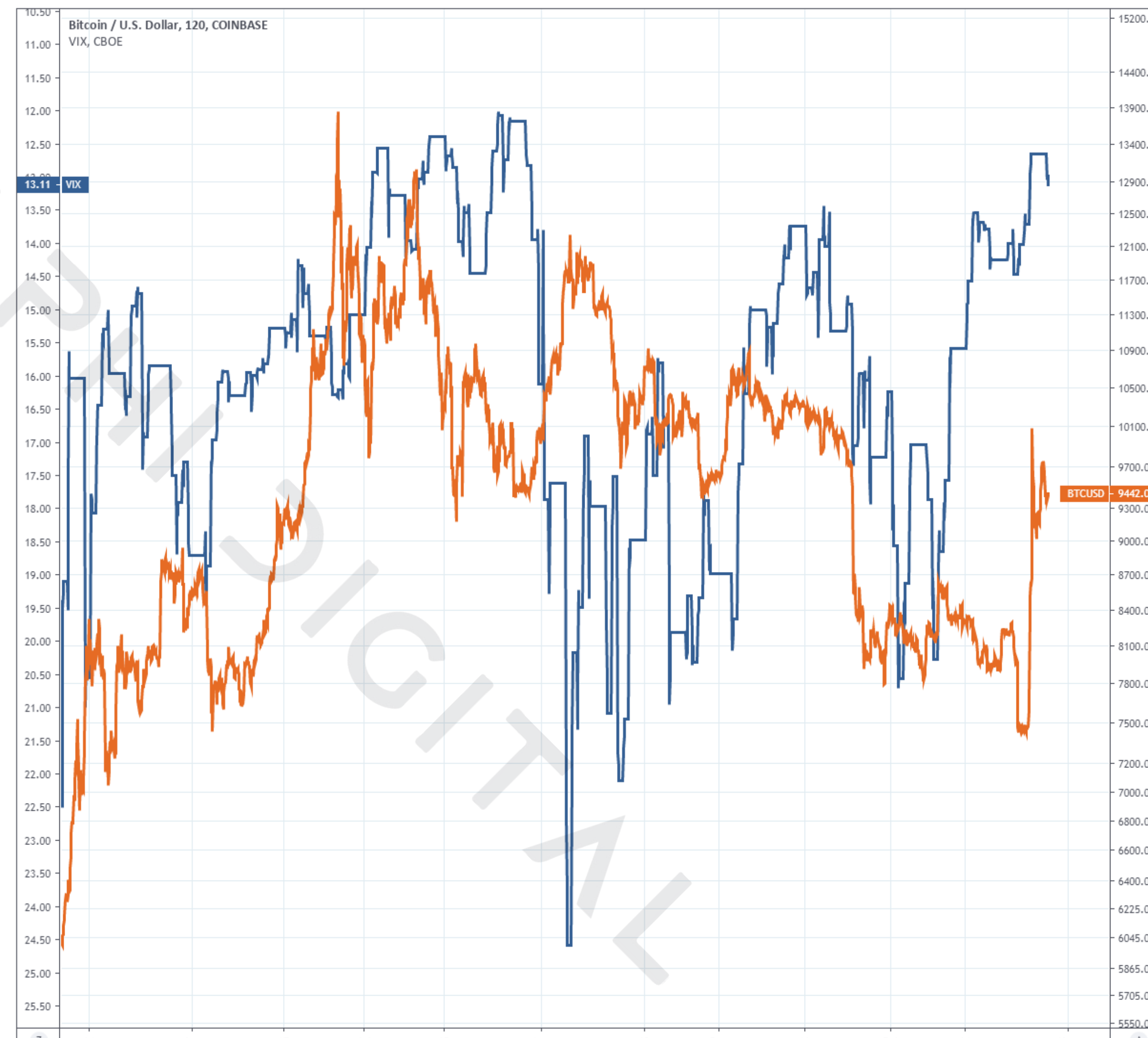
Data as of October 15th, 2019 | Sources: The TIE, CoinMetrics

Risk Asset or Safe Haven?

Risk-on or risk-off? That is the question. The quick answer for bitcoin over shorter time horizons: **it depends.** Earlier this summer, bitcoin rallied alongside physical gold as investors fled risk assets in the face of escalating trade tensions between the U.S. and China. Part of the move in BTC was reflexive; **the closer it traded with gold, the more people bought into the macro narrative fueling its rally.** This relationship proved to be short-lived though; bitcoin topped out in late June just shy of $14,000 while gold went on to rally another 10% over the next three months, peaking just above $1,550/oz (its highest level in more than six years). **Fast forward to the rally late last week and we see BTC's move higher also coincided with a retest of the S&P 500's all-time high, indicating a broader risk-on move in markets.**

<u>*Bitcoin (Orange) vs. S&P 500 (Green)*</u>

<u>*Bitcoin (Orange) vs. Inverted VIX (Blue)*</u>

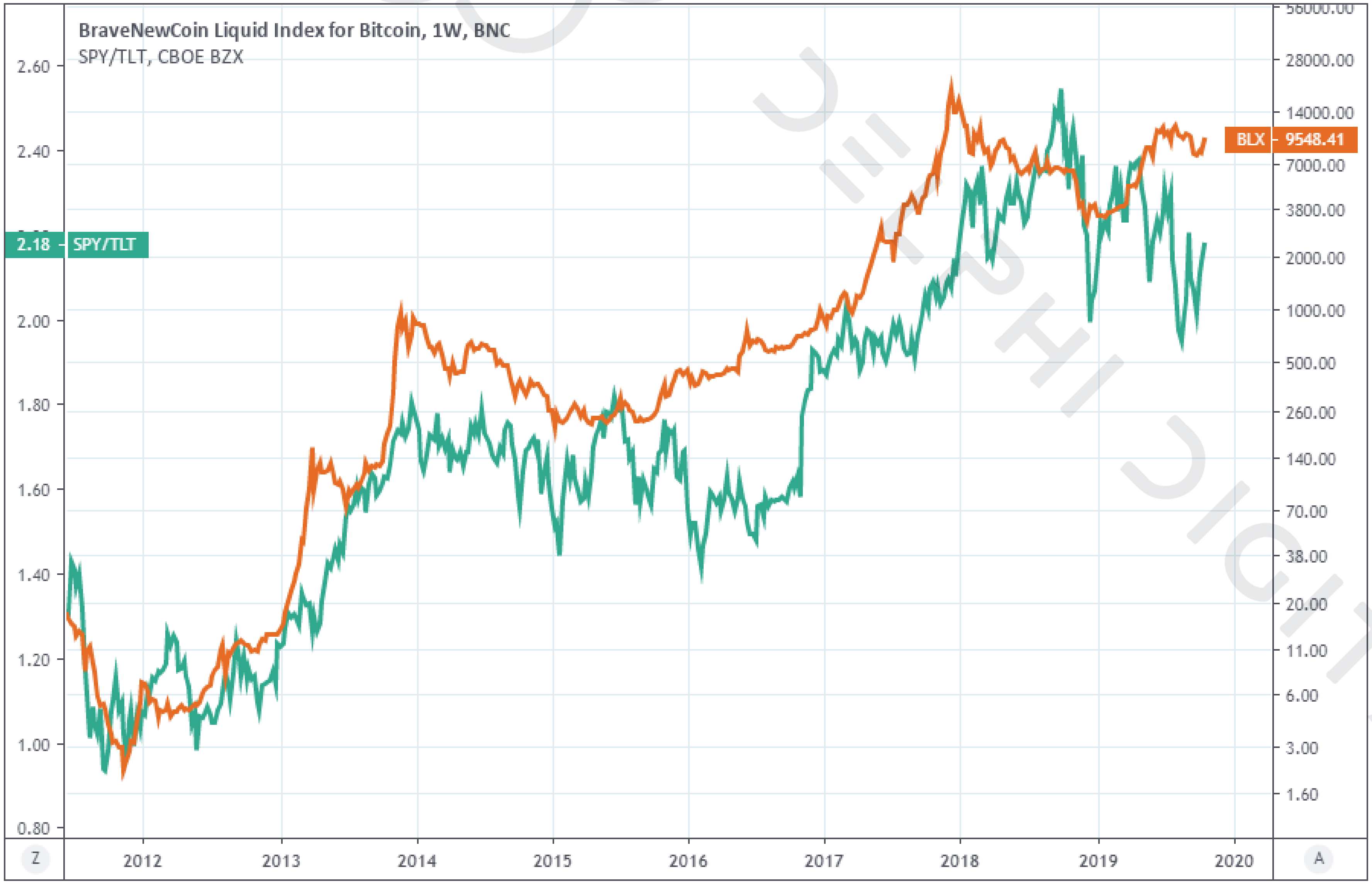


Data as of October 28th, 2019 | Sources: Coinbase, IDC, TradingView

Risk-On Rally May Boost Bitcoin

The pitch for bitcoin often includes its ability to serve as a hedging instrument against today's increasingly unsustainable monetary and fiscal policies, which is why we remain steadfast in our view that **broad-based currency devaluation will inevitably prove bitcoin's long-term value proposition.** However, we've expressed our view that BTC may be more tethered to the performance of risk assets in the short run given its reputation as a highly volatile, speculative asset.

BTCUSD (Orange) vs. S&P 500 / Long-Dated U.S. Treasury Bond ETF (TLT)



Prior bitcoin bull runs were characterized by a gradual decline in equity market volatility, which runs counter to the argument that BTC will thrive during the next major stock market correction.

Many may argue this misses the crux of the argument for bitcoin but it's important to understand current market consensus and how most investors perceive the $150 billion crypto asset.

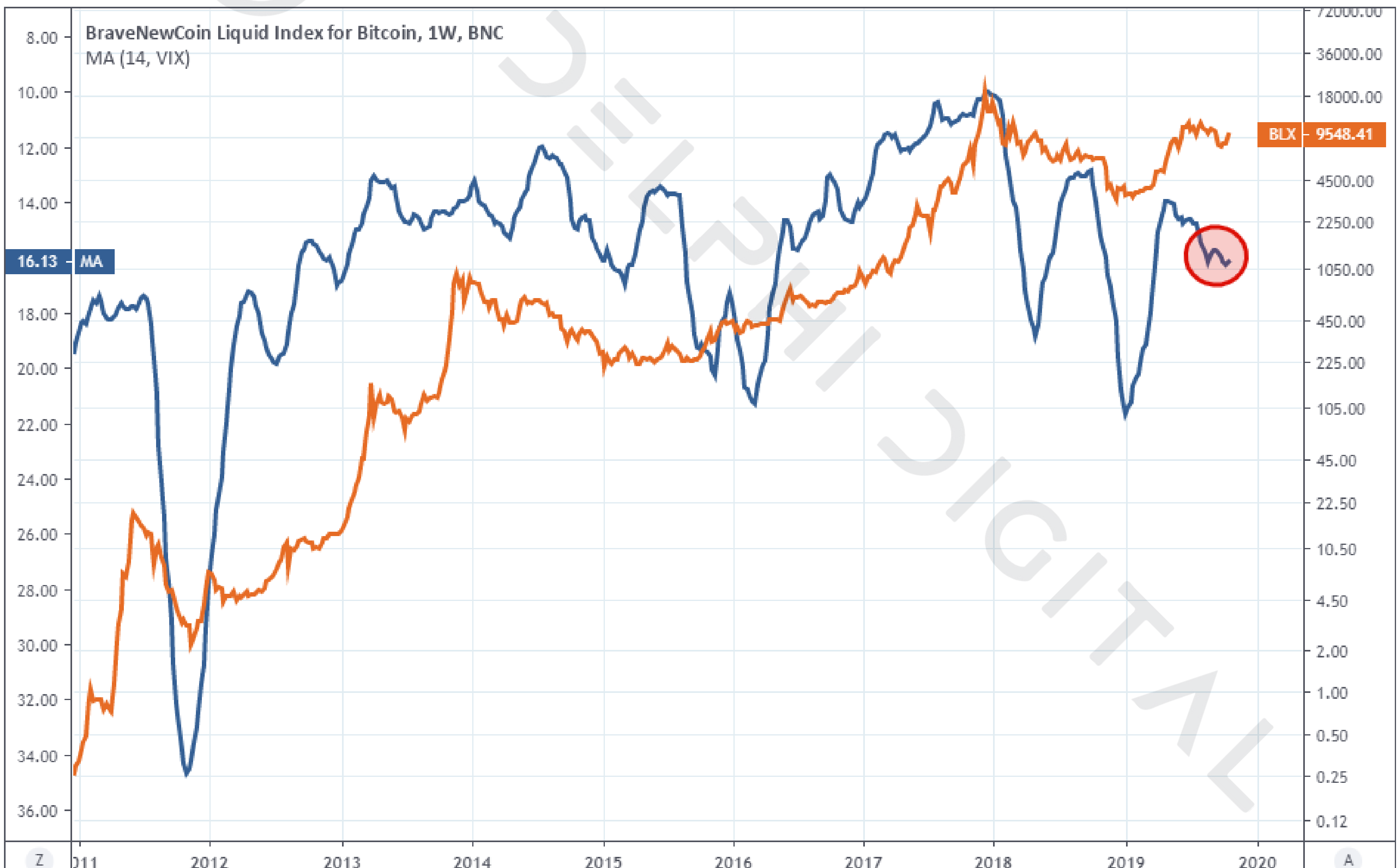
This doesn't mean bitcoin can't outperform other conventional asset classes during the next downturn, **we just view the risk of a vicious drawdown as higher than many are discounting.**

Data as of October 28th, 2019 | Sources: Brave New Coin, TradingView, SPDR, BlackRock

Bitcoin Thrives in the Calm

This brings us back to our initial question: is bitcoin more of a risk-on or risk-off asset? Often it seems as if BTC has a mind of its own, surging or dumping when you least expect it. However, although its history is limited, **we find bitcoin tends to perform well during periods of declining market volatility.** For example, we've noted its, albeit imperfect, inverse relationship with the VIX Index over longer time horizons (i.e. the 2017 run up). Intuitively, this isn't a big surprise given how relatively young and immature the market for bitcoin is. It wouldn't be a stretch to say most market participants still view BTC as a risky, speculative asset. **But given how early we are in its potentially long life cycle, that's entirely okay.**

Bitcoin Price (Orange) vs. Inverted VIX (14-Week Avg.)



Data as of October 28th, 2019 | Sources: Brave New Coin, TradingView, Cboe

Credit Spreads Narrowing

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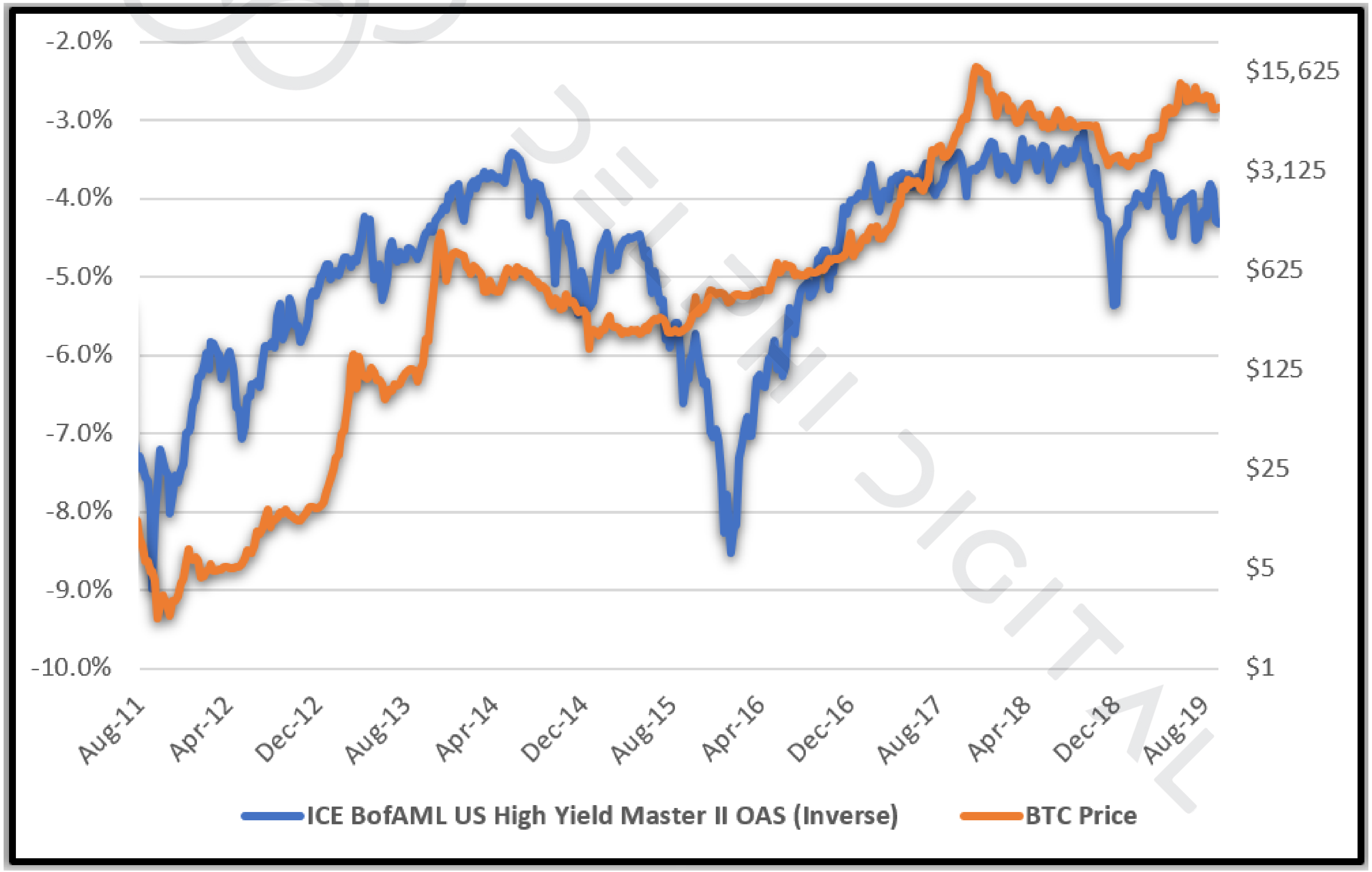
Credit spreads also serve as early indicators of market stress; narrowing spreads usually coincide with risk asset outperformance while widening spreads are a sign of rising uncertainty among market participants. Interestingly, **bitcoin tends to trend higher when credit spreads are narrowing, adding further support to its risk-on narrative.** Unsurprisingly, the most recent blow out of U.S. high yield credit spreads coincided with the sell-off in risk assets nearly a year ago.

Bitcoin vs. U.S. High Yield Option-Adjusted Spreads (OAS)



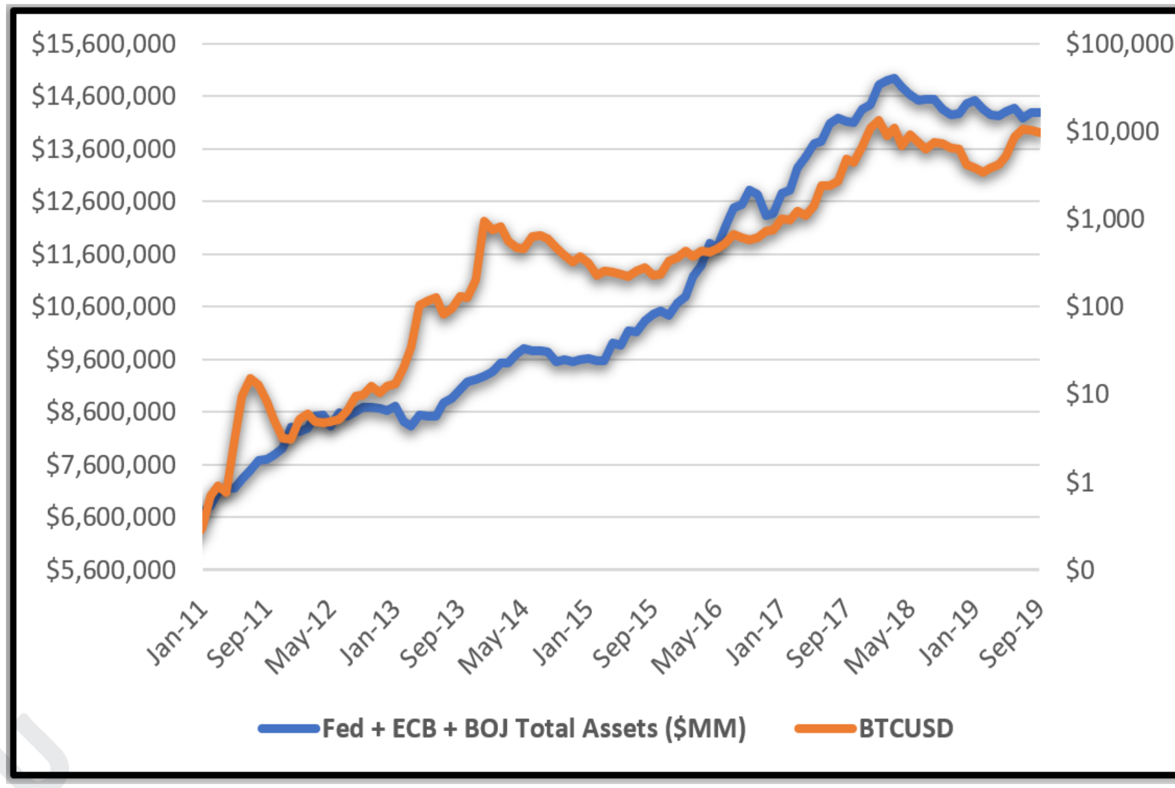
Data as of October 23rd, 2019 | Sources: CoinMetrics, The Federal Reserve Bank of St. Louis, Bank of America, ICE

Central Banks Restart Stimulus

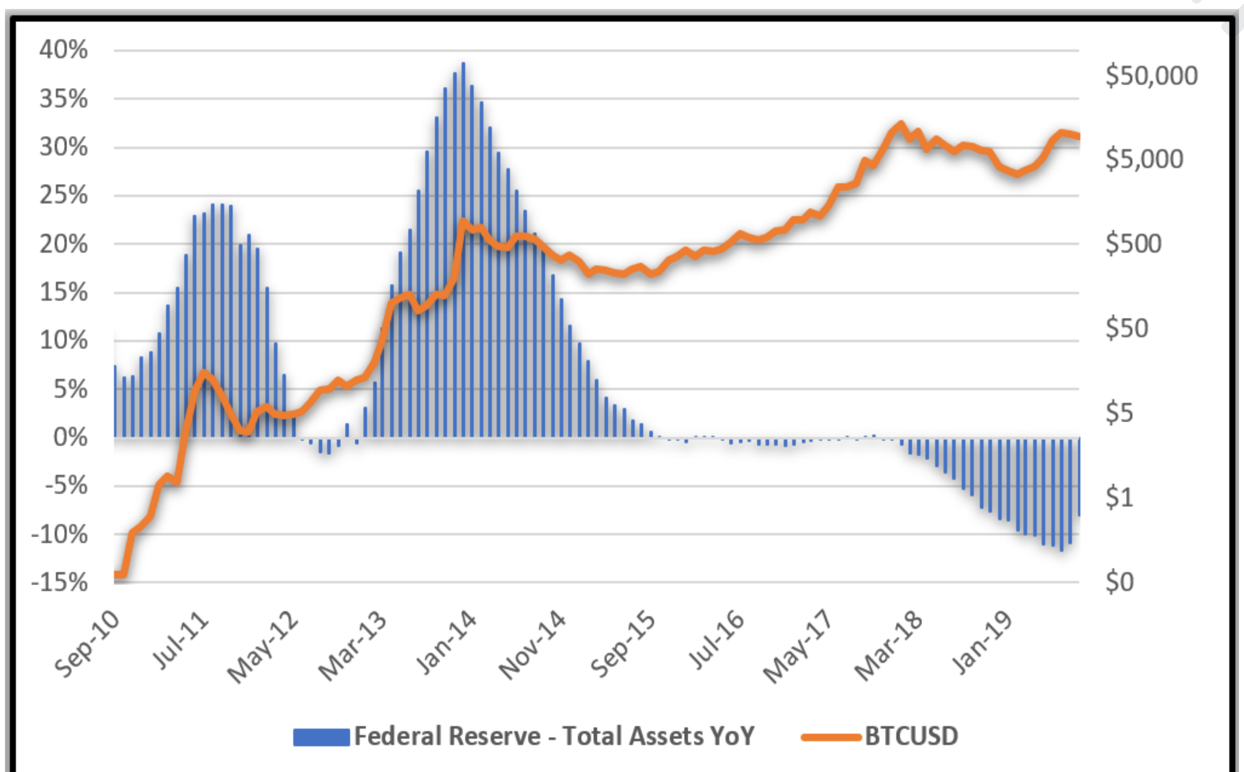
It's no secret accommodative central bank policies have played a critical role in the extensive run up in asset prices this cycle. Sizable rate cuts and large-scale asset purchase programs pushed investors further and further out the risk curve as yields on everything from Treasury bills to high yield corporate debt collapsed.

However, central banks transmit their policy decisions indirectly through open market operations and commercial banks, so naturally **much of the capital intended to stimulate economic growth wound up staying in the financial system, pushing up asset prices across the board.**

Bitcoin vs. Major Developed Central Bank Assets



Bitcoin vs. Federal Reserve Total Assets Growth



This environment has undoubtedly contributed to the rapid rise in bitcoin's value over the last several years. Aside from the Bank of Japan (BOJ), major developed central banks have taken their foot off the asset purchase pedal the last few years, most notably the Fed. **However, central bank policymakers made a drastic pivot back towards more accommodative policy this year, including the ECB's new bond-buying program set to begin next month.** The Fed is also in the early stages of balance sheet expansion, largely driven by the repo market's recent debacle. We view the U.S. central bank's move as the **natural start of further monetary easing assuming economic conditions do not also reverse their current course.**

Data as of October 23rd, 2019 | Source: CoinMetrics, The Federal Reserve Bank of St. Louis, Bank of Japan, European Central Bank

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