Quarterly Macro Outlook
Q1 2019

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Introduction

Time horizons are critical when evaluating opportunities, whether it's a career choice or how you decide to allocate your time and capital. Understanding differences in short-term and long-term expectations can keep you nimble yet disciplined. Markets are no different, but deciphering between the two is incredibly difficult, even for the savviest investors.

In the near-term, the backdrop for risk assets appears to be favorable as global central banks walk back plans for tighter monetary policy. The Federal Reserve's dovish pivot in recent months has fueled a rebound in public equities as "risk-on" sentiment continues to proliferate through markets. There are many who remain skeptical of the recent rally, and for good reason, but the "TINA" effect (There is No Alternative) appears to be making a strong comeback given historically low yields across fixed income counterparts. Couple this with a weakening outlook for the global economy and it sets up a constructive environment for growth to outperform, which in turn could prove supportive of bitcoin and crypto assets.

These same themes, however, provide a more dire outlook long-term. Investors are pushed further out the risk curve when rates, and therefore yields, are this low. This is one of the critical arguments for any investor considering an allocation to crypto in my opinion. There are mandates that prevent many institutions from directly investing in this space, but if your goal is a 7-8% annual return, what's the plan to get there? Sovereign bond yields near historic lows essentially serve as a drag on portfolios if your target return is close to that range, as it is for most pension funds, for example. Even overweighting stocks won't get you there because expected returns over the next decade are drastically lower than historical average (see report for more detail).

Enter Bitcoin.

Crypto is not just a hedge against the potential devaluation of major global currencies burdened by excessive debt and lackluster economic growth. It can also serve as a hedge against underperformance too.

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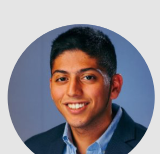

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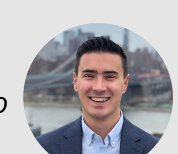

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Thematic Overview

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Fundamental Growth

UTXO Trends Progressing as Expected While Lightning Network Continues to Grow

Long-term holders continued to accumulate bitcoin throughout Q1, while its underlying fundamentals improve. In this section, we'll explore the recent growth in the number of bitcoin payments, the capacity of the Lightning Network, and the amount of ETH locked in DeFi applications. In addition, we'll provide a brief overview on the current status of important infrastructure and financial products waiting to launch including physically settled futures, improved custody solutions and bitcoin ETFs.

Macro Backdrop

"Risk-On" Environment Supports Bitcoin

Despite its long-term value proposition as digital gold, bitcoin continues to be viewed further out on the risk curve than traditional safe haven assets (physical gold, Treasuries, etc.). The short-term correlation between BTC and U.S. stocks, for example, has tended to rise when volatility strikes as bitcoin sells-off with equity markets.

Interestingly, the short-term correlation between BTC and physical gold has been on the rise as well, but that trend is not one we expect to continue as equities and gold tend to move inversely with one another. Institutional capital wading into this market will eventually suppress crypto asset volatility, boosting bitcoin's appeal as investors flock to safety, but we see this as a longer-term trend unlikely to materialize in the foreseeable future.

Sector Updates

Development Strengthens Across A Wide Array of Sectors

We assess a few of the most prominent digital asset sectors and the key projects within them to determine how they fared in Q1. By project, we analyze performance, correlations, and recent notable events, as well as highlighting potential future events to keep an eye on moving forward. The following sectors are covered: smart contract platforms, payments, privacy, gaming, decentralized finance, and security tokens.

Contributor Pieces

Unique Perspectives Presented By Various Members of the Space

We present four contributor pieces giving our subscribers some additional insight into a variety of topics including: network effects, regulatory considerations, crypto narratives, and a thorough Asia market outlook.

We thank Tony Sheng, Andrew Lom, Rachael Browndorf, Nathaniel Whittemore, and Joyce Yang for their input!

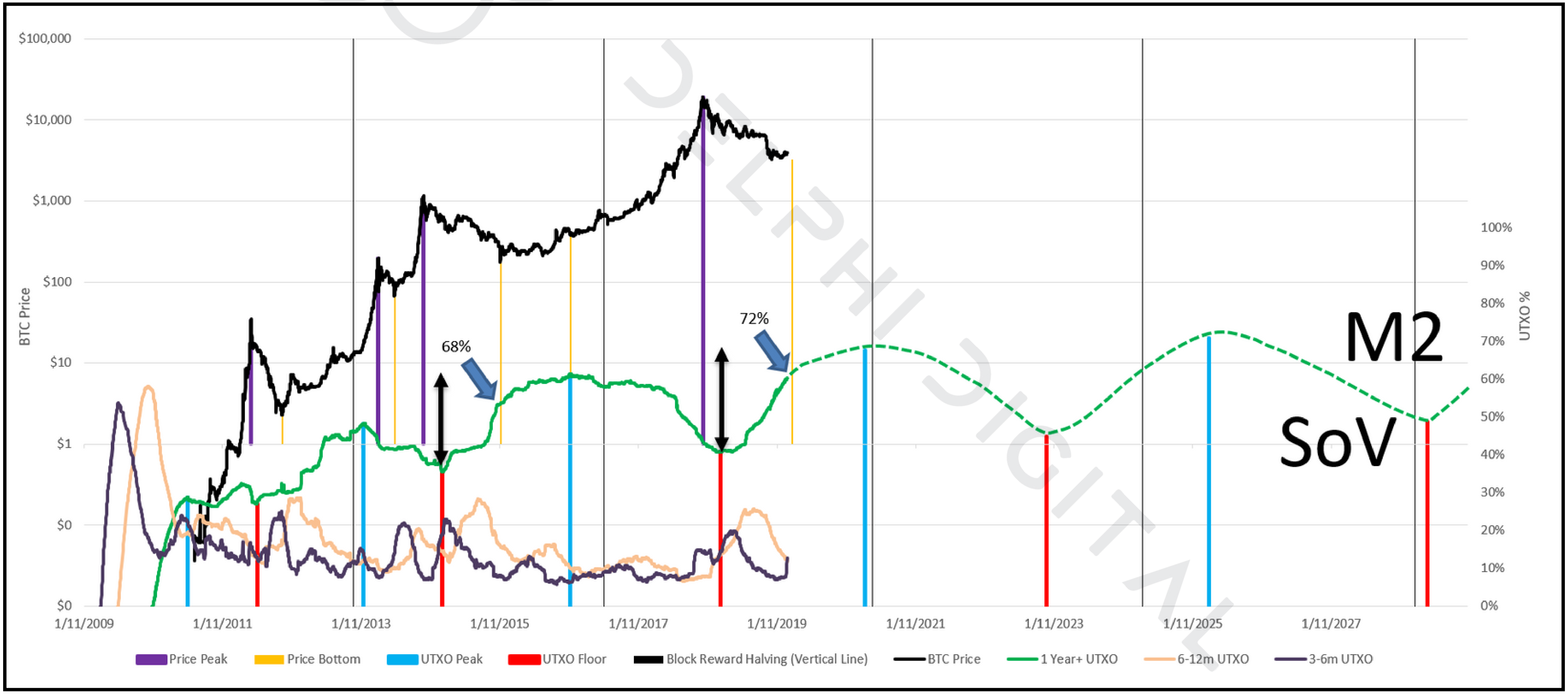
We will delve into each section individually while providing the necessary data to support our opinions. It's important to note that investing in cryptocurrency is risky and any decision made should be evaluated in the context of an individual investor's capability and appetite to take risk.

Fundamental Growth

Bitcoin Outlook

Each month, we release a refreshed version of our UTXO analysis, which we first published back in December 2018. Based on this analysis, **we stated in the initial report that we believed Bitcoin would bottom by the end of Q1 2019**.

As we outlined in our March update (available on our Member's Portal), **trends have continued to progress as we originally expected** with the continued accumulation, and general selling exhaustion, from long-term holders. We will provide an in-depth look on current UTXO dynamics in our upcoming April report.



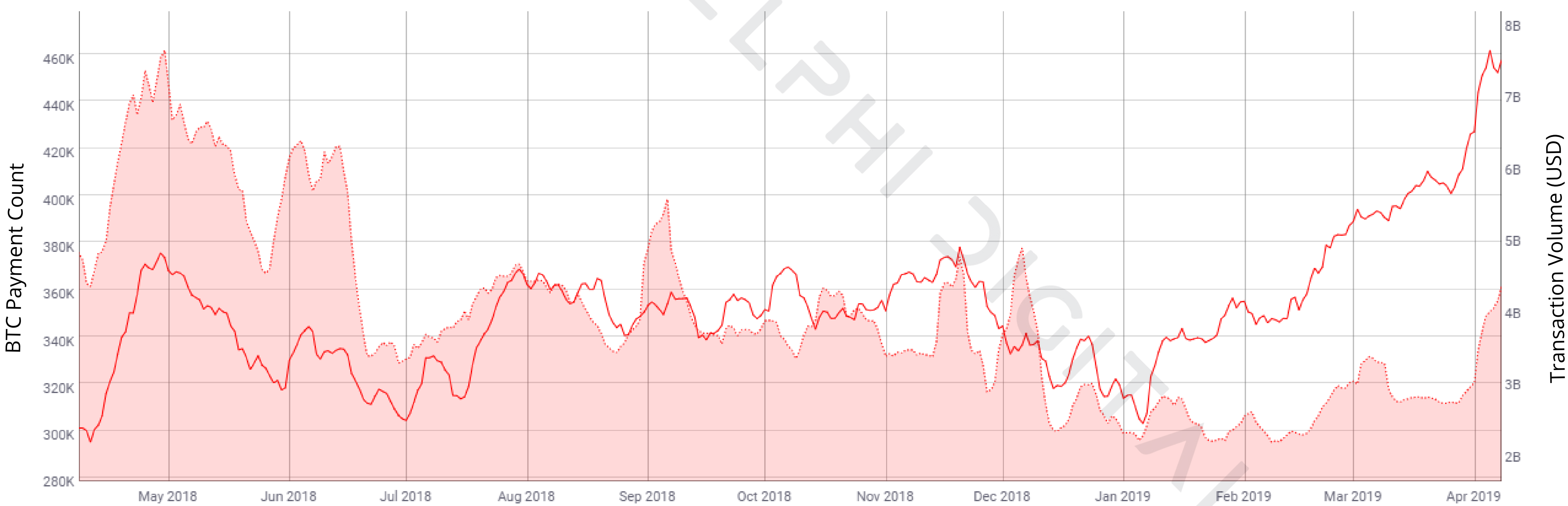
Data as of March 8th, 2019
Sources: Unchained Capital

Bitcoin Payments Growth

Assessing adoption is critical and should be a core component of any forward looking analysis, however, gauging it can be difficult. While the total number of Bitcoin transactions has trended higher over the past year, the number can be misleading due to batching, which groups many payments into a single transaction for greater efficiency. Hasu previously wrote a detailed analysis on batching, which can be read here. Coinmetrics provides adjusted data for this that isolates the total number of Bitcoin payments, which we have charted against the total value of network transaction volume below.

In the first quarter, we saw a gradual yet significant increase in the **total number of Bitcoin payments, rising roughly +40%**. This is impressive growth especially when you take into account the fact that lightning network transactions are excluded in this figure.

Bitcoin Payment Count vs Transaction Volume (USD)



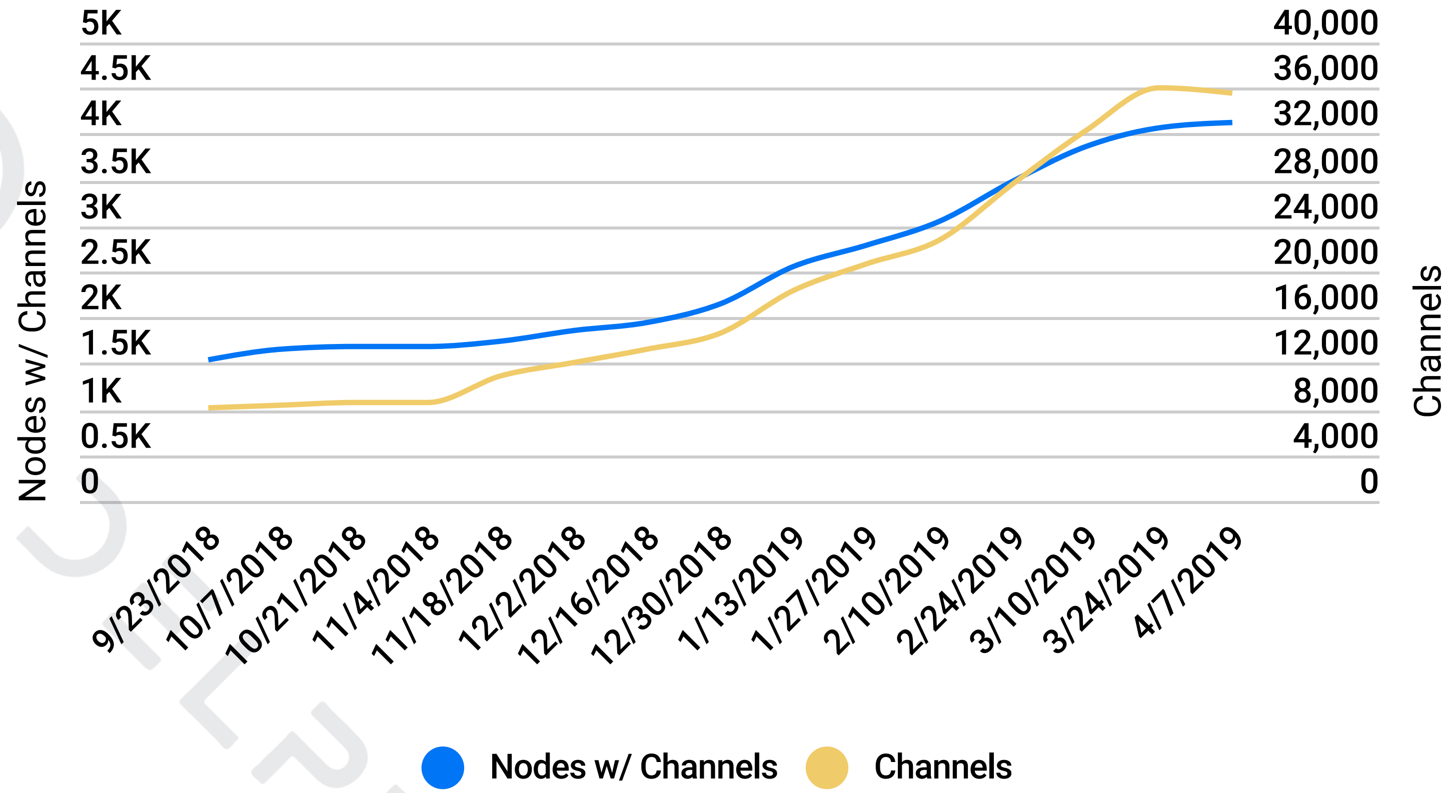
Data as of April 9th, 2019
Source: Coinmetrics, Hasu,

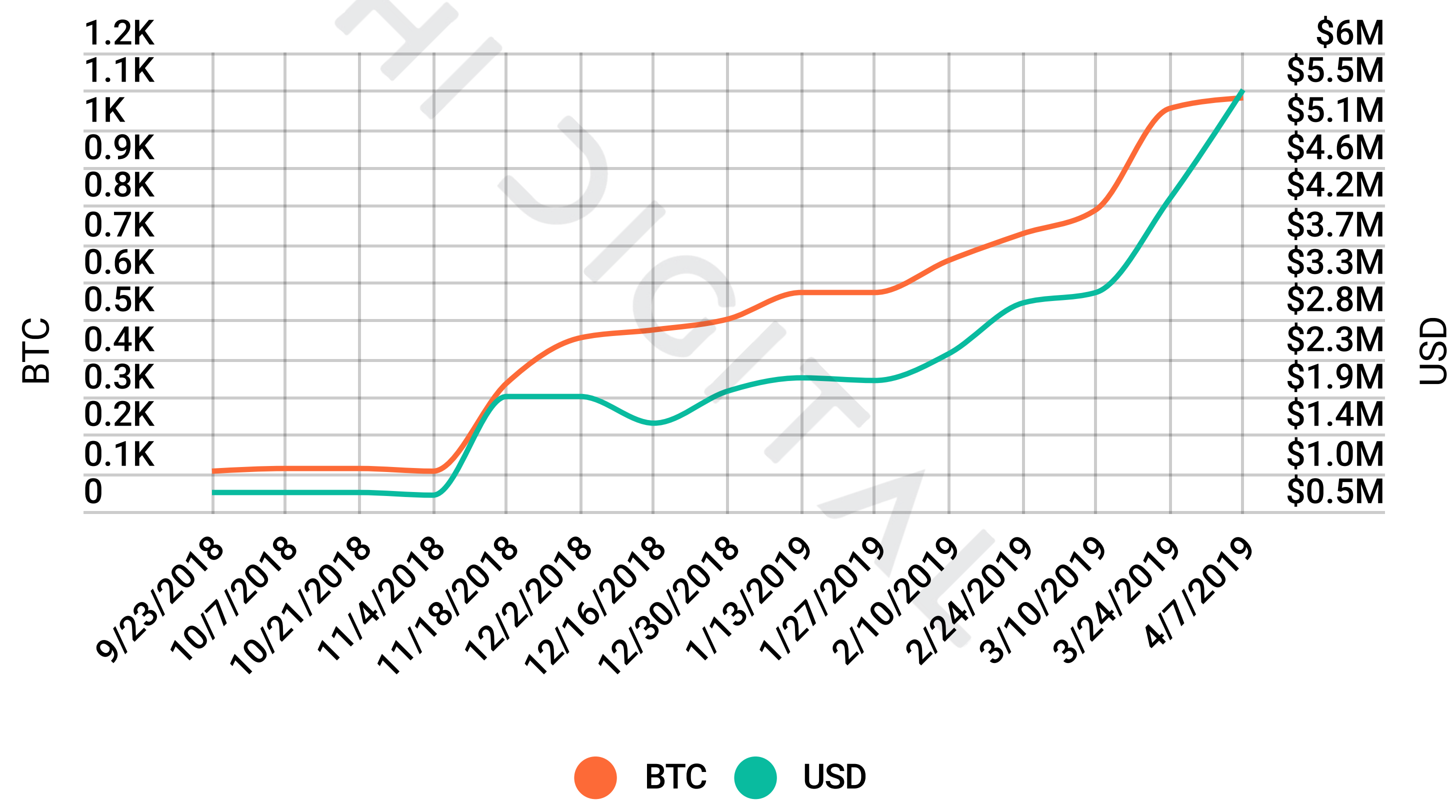
Lightning Network Growth

On-chain payments haven't been the only area of growth for Bitcoin, however. We've seen the off-chain, layer 2 scaling solution Lightning Network begin to seriously get off the ground in Q1.

The number of **nodes supporting the network grew +92%**, while the **total number of payment channels rose by +142%**. In addition, **the network's capacity (liquidity) in BTC grew by +114%** equating to a current level of roughly $5.6 million.

While Lightning Network still can't handle the large transaction sizes possible on-chain at this stage in its development, its recent growth is cause to be optimistic. Bitcoin's near-term adoption as a payment method will be closely tied to the success of the Lightning Network and its reassuring to see its development trend in the right direction.





Data as of April 7th, 2019

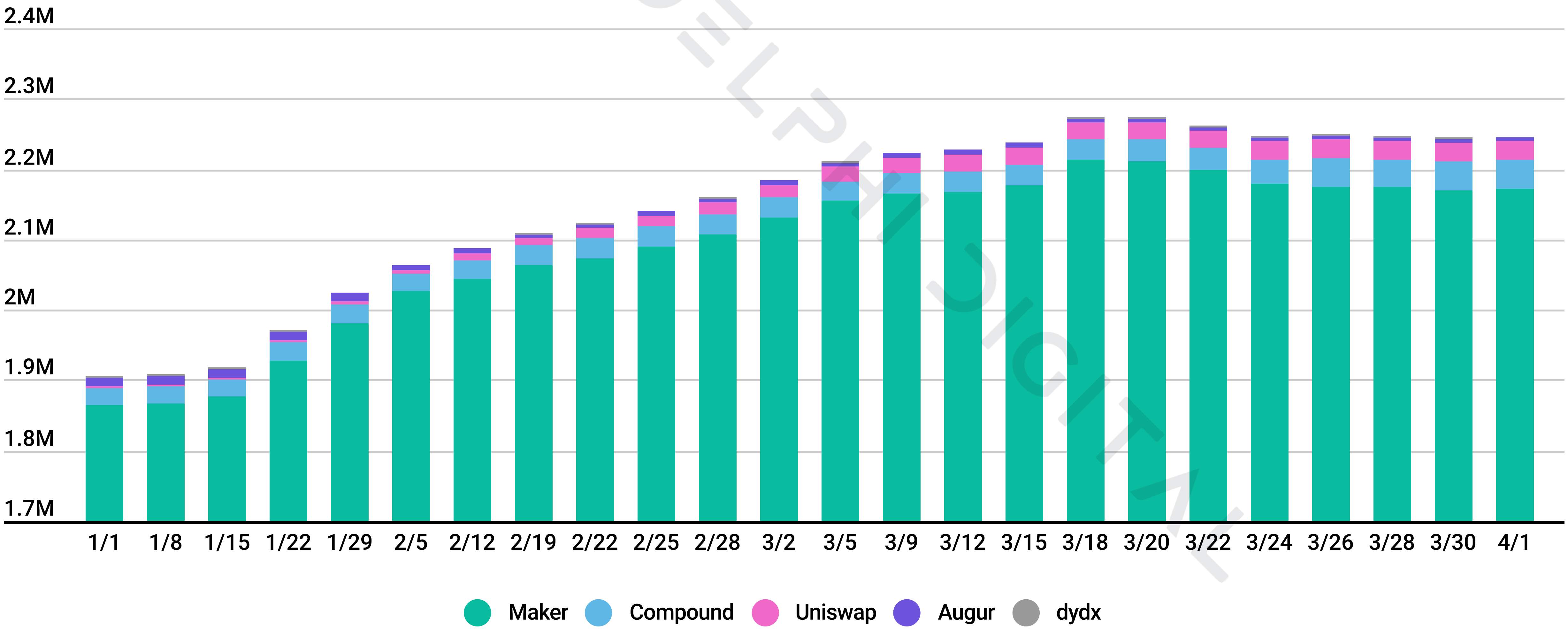
Source: Bitcoin Visuals

Emergence of Decentralized Finance

While the ICO boom and bust of prior years drove demand for ETH, in the absence of these token sales there ceased to be a killer use case to help maintain momentum and drive adoption. This recently began to change with the emergence of decentralized financial ("DeFi") applications built on Ethereum. This sector experienced its greatest growth in Q4 of 2018, however, it has continued to trend higher to start the new year, **increasing +18% in Q1**.

As seen below, the most prominent of these has been MakerDAO, which allows anyone to borrow against their ETH and receive a stablecoin loan in return. It accounts for roughly 97% of the ETH locked up in DeFi. In total, there is **~2.25 million ETH locked in the DApps** highlighted below, which represents ~**2.13% of the total ETH supply**. We recently released a report on Decentralized Finance (which can be read here) and this continues to be an important theme our team will be tracking closely.

ETH Locked in DeFi



Data as of April 1st, 2019

Source: Mike McDonald

Infrastructure & Financial Products

The market has been focused on the launch of new financial products and key infrastructure that will be necessary for broader institutional and retail investment. The most anticipated of these are physically settled futures, improved custody solutions and crypto ETFs. Below, we've outlined a few of the companies working to bring these to market and a brief update on their progress.

	Bakkt	Fidelity	VanEck / Bitwise
Description	Bitcoin trading and custody platform that plans to offer 1 day physically settled Bitcoin Futures. Launched by ICE, parent company of the NYSE.	Enterprise-grade custody and execution services for institutional investors. Operating as an agent, not using internal liquidity. Starting with Bitcoin.	The only asset managers with proposals for a Bitcoin ETF still awaiting SEC approval.
Notable Events in Q1	After the first delay moved the launch date from December 12th to January 24th, ICE announced an indefinite delay on New Years Eve pending CFTC approval.	As of March, a portion of the platform is now live for a few clients with plans to gradually onboard more.	SEC has extended its deadlines for approval to May 16th and 21st for Bitwise and VanEck, respectively.
Looking Forward	The launch is likely still months away given the uncertainty around the CFTC's approval and the subsequent 30 day window required for public review.	Expand their coverage to other digital assets, with Ethereum expected to be added next.	The SEC will likely extend the deadlines to their full capacity, making the final decision dates October 13th and 18th.

Sources: Baakt, BitWise, Fidelity, Jake Chervinsky, VanEck

Macro Analysis

Current State of Crypto Market

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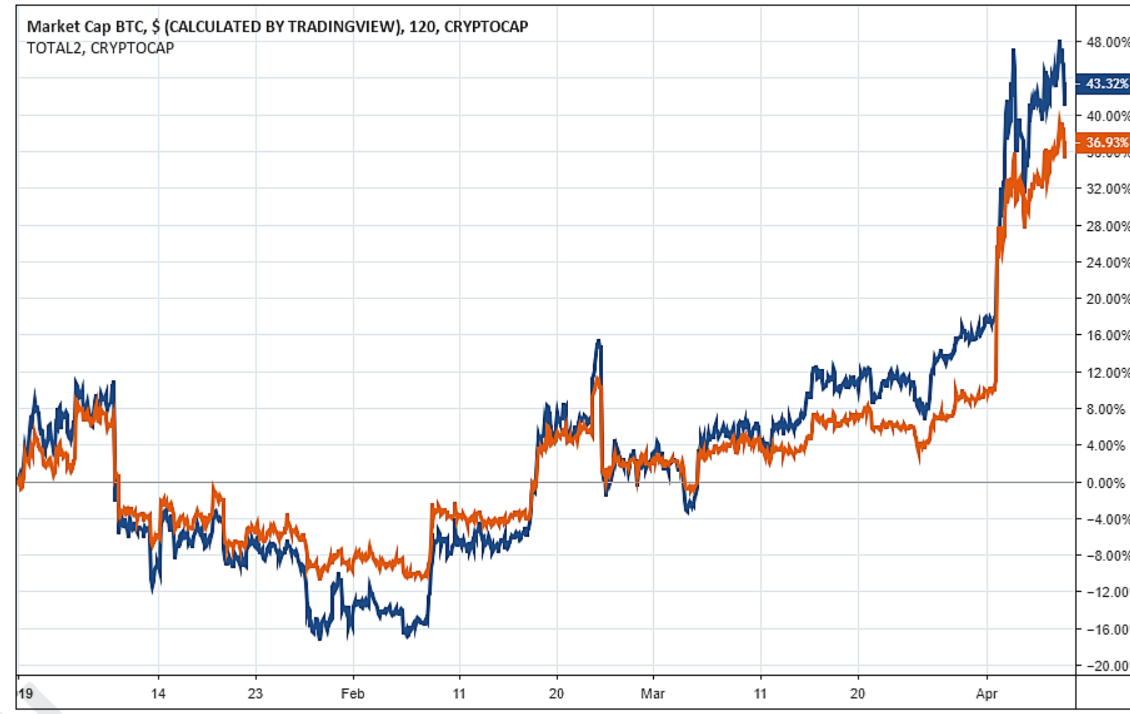
The public crypto market rebounded in the first quarter with bitcoin and alternative crypto assets rising +10% and +19%, respectively. This modest recovery pales in comparison to the bloodshed of last year, when the overall crypto market collapsed roughly 75%. Many crypto assets headed into the new year down over 80% from their all-time highs, while bitcoin, the holy grail of decentralized digital currency, lost almost 70% of its value in 2018 alone.

Given the magnitude of last year's declines, it's safe to say Q1's gains were a much-needed sigh of relief for this battered market.

BTC vs. Total Market ex-BTC Performance YTD



BTC vs. Total Market ex-BTC Performance Since 2018

The crypto market appears to be approaching a critical inflection point. It is widely known among many investor circles the substantial losses the market has suffered over the last 12-15 months. However, we have seen some signs of life the last several weeks. **Return dispersion among different crypto assets has grown as more idiosyncratic factors start to drive individual performance** (i.e. partnership announcements, mainnet launches, live staking).

We are not out of the woods yet, and the market's recent pop may wind up being just another bear rally. Regardless, it is safe to say bitcoin and crypto is far from "dead" despite what the headlines may lead you to believe.

Data as of April 8th, 2019

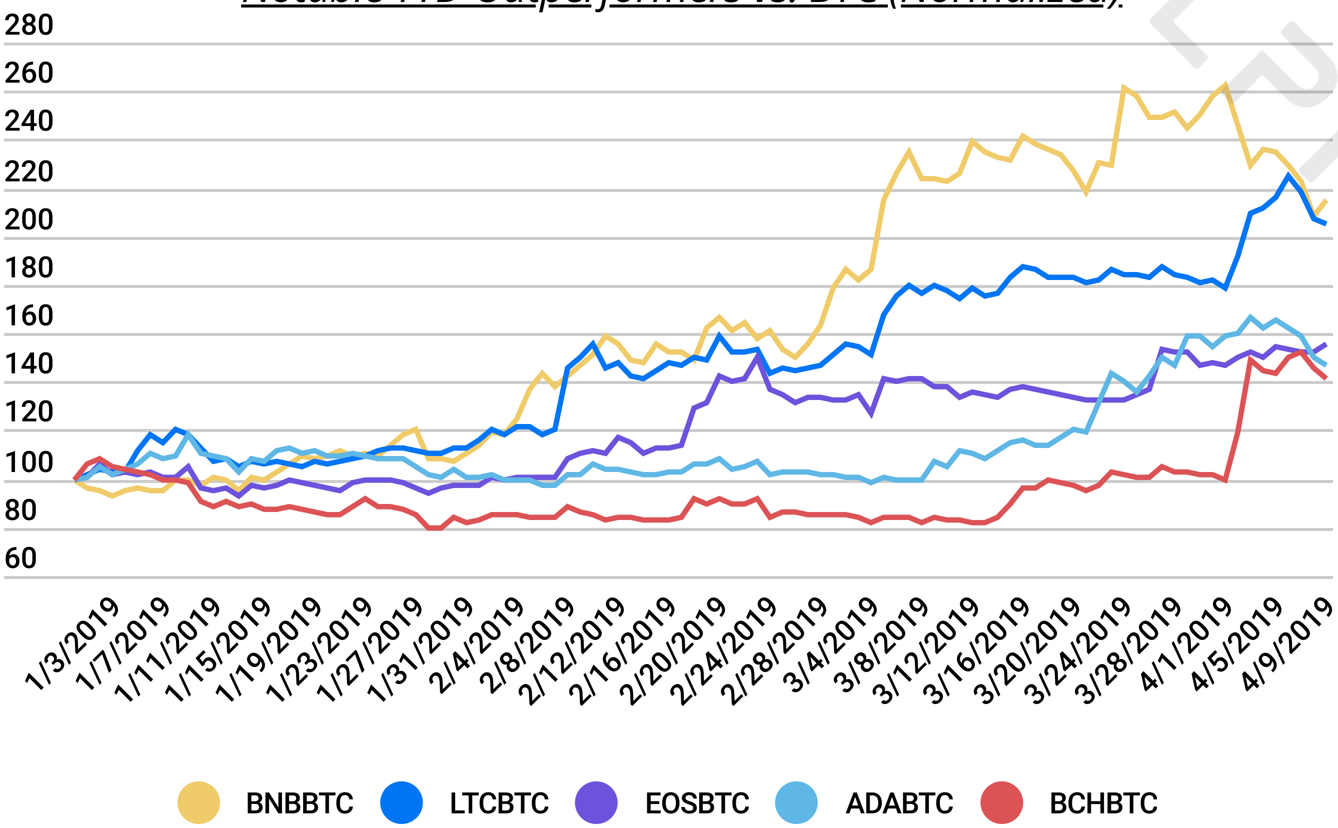
Source: TradingView, CryptoCap

Q1 Performance Recap - Top Assets

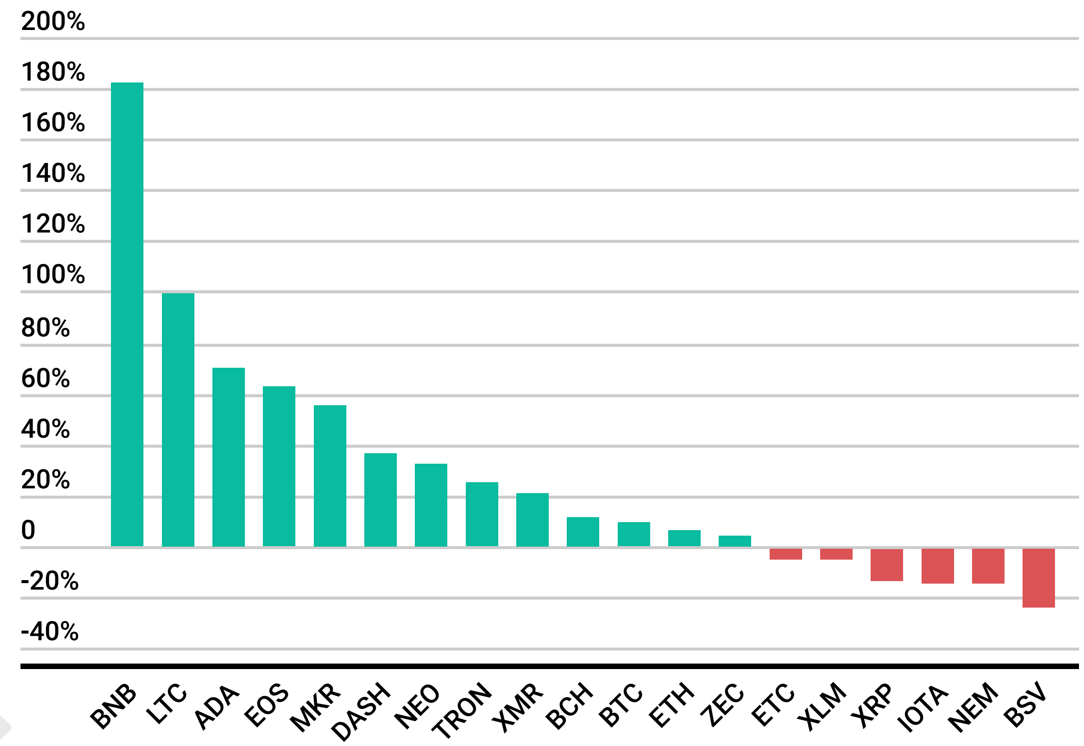
Many large crypto assets outperformed bitcoin in the first quarter, led by notable names like Binance Coin (BNB), Litecoin (LTC), and Cardano (ADA). As general price volatility trends lower for bitcoin, upside volatility has returned for some large alternative crypto assets. After spending much of the last year underperforming BTC, upside volatility in assets like Litecoin has returned in dramatic fashion as the 4th largest crypto asset is one of the best large-cap performers in 2019.

Upside beta, measured as the volatility of a crypto asset relative to BTC on days when both exhibit positive gains, has jumped for many assets since the beginning of the year, drastically outpacing downside beta.

Notable YTD Outperformers vs. BTC (Normalized)



Top Crypto Asset Q1 Returns



Risk-on sentiment appears to be re-emerging in the crypto market, evident in recent price surges from more volatile alternatives like Litecoin and Bitcoin Cash (BCH). While much of the recent gains are driven by speculation, we are beginning to see market participants demand more than just a whitepaper and a dream from projects. Skeptics are the new enthusiasts, which will likely shift the focus this year from hype and speculation to real world applications with actual development progress.

We welcome this inflection point with open arms.

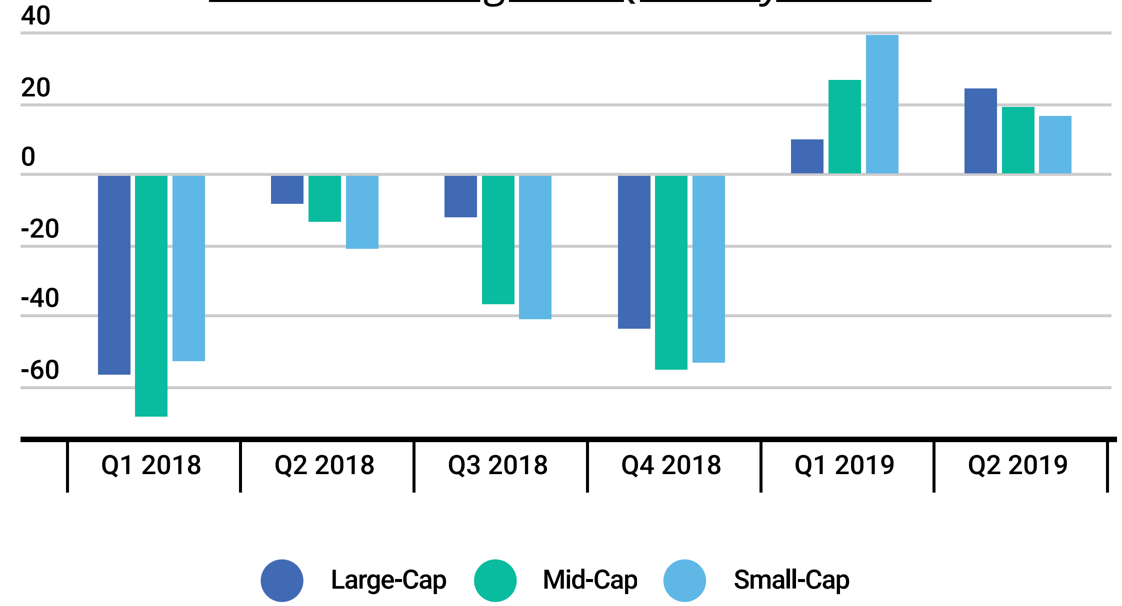
Data as of April 8th, 2019
Source: Binance, Bitfinex, Bittrex, Kraken

Q1 Performance Recap - Size Segments

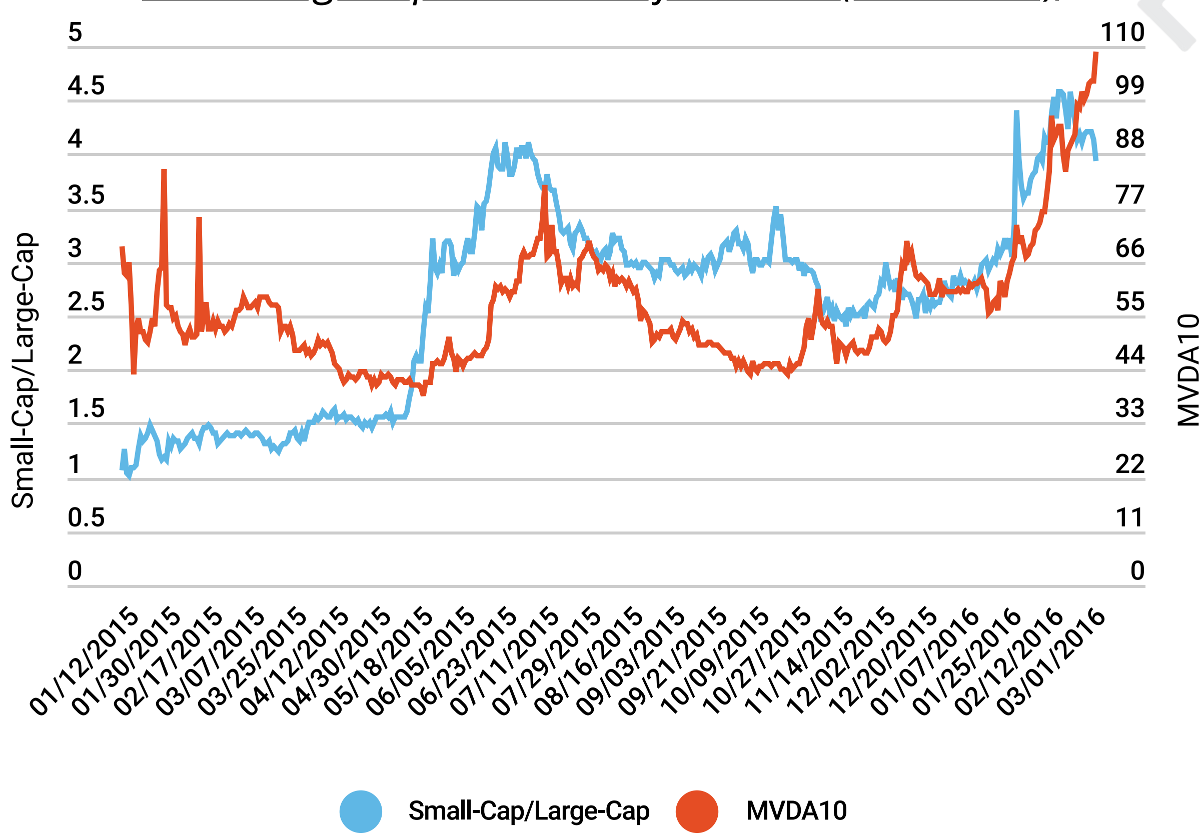
This year's rally has been led by smaller value names, a similar trend we saw in the first half of 2015 following bitcoin's 85% drawdown from its prior peak. The MVIS CryptoCompare Digital Assets 100 Small-Cap Index began showing signs of life in May 2015, significantly outperforming its large-cap counterpart as the entire crypto market started to reverse its downward trend.

We are beginning to see similar signs in today's price action as small-caps have led larger peers for much of the year thus far. However, its important to remember the market was considerably smaller back in 2015 and the road to recovery was not a straight line up-and-to-the-right.

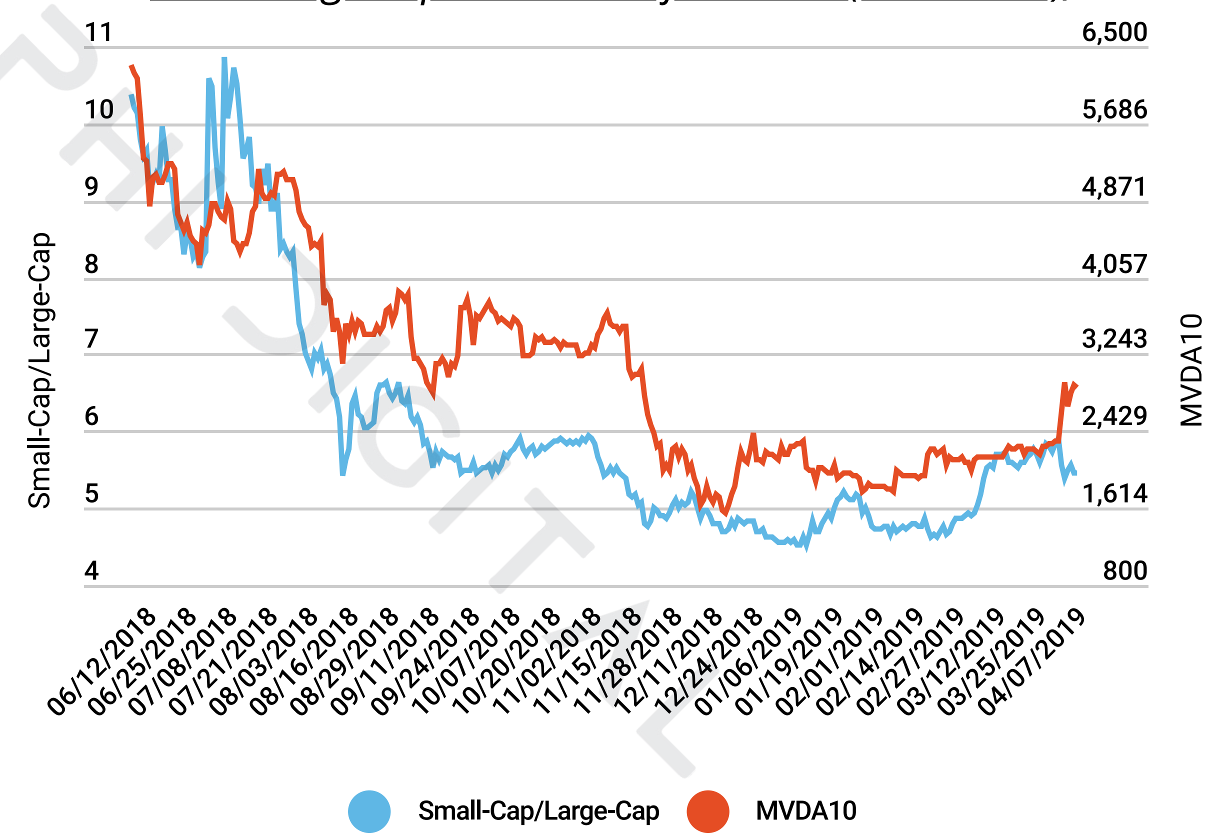
MVIS Market Segment Quarterly Returns



Small/Large Cap Relative Performance (2015-2016)



Small/Large Cap Relative Performance (2018-2019)



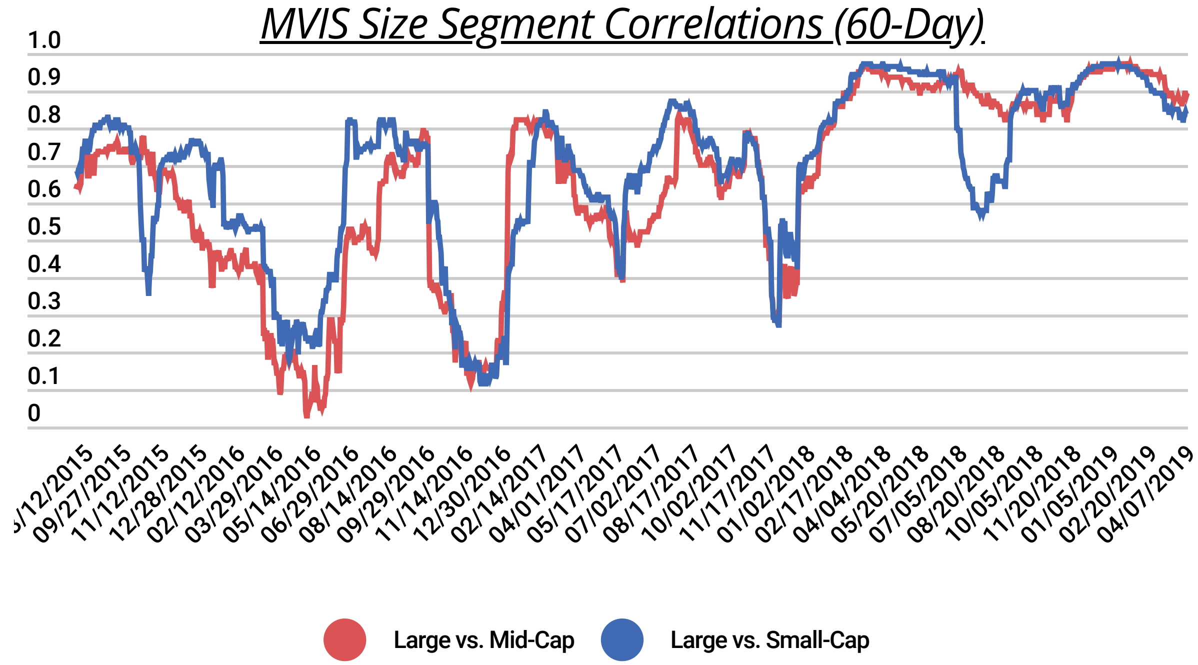
Data as of April 8th, 2019

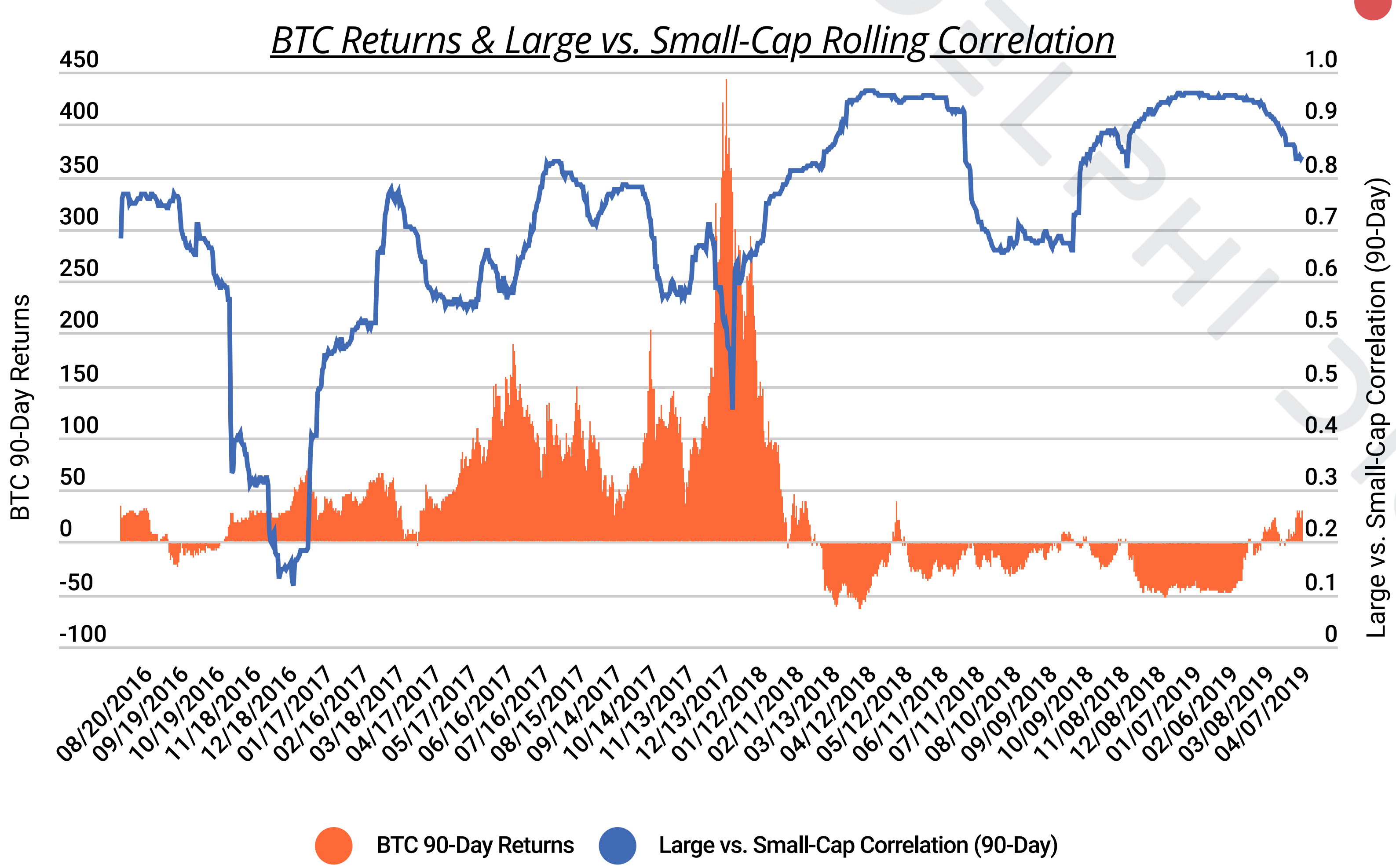
Source: MVIS CryptoCompare Digital Assets Indices

Correlations Elevated

Intra-market correlations remain near all-time highs, though return dispersion among individual crypto assets has grown substantially in the last couple months. We have seen correlations begin to rollover, though the recent market surge has pushed many names up in sync. **Periods during which intra-market correlations are in decline tend to be bullish overall for crypto assets.**

For example, after the March 2017 peak, correlations fell through June as BTC more than doubled, gaining over 120% in the three month period.





Correlations between crypto assets trended lower during the parabolic price run up in Fall 2017, but quickly rose as asset prices across the entire market collapsed. We also saw a bit of a dip last year when the market rebounded from March-May 2018, but the bear rally was short-lived.

We are seeing a similar trend emerge in the last couple months as return dispersion among crypto assets increases (see next page for examples). If this trend continues it could be an indication that further price appreciation lies ahead, especially for those in the smaller segment of this market.

Data as of April 8th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

Correlation Breakdowns

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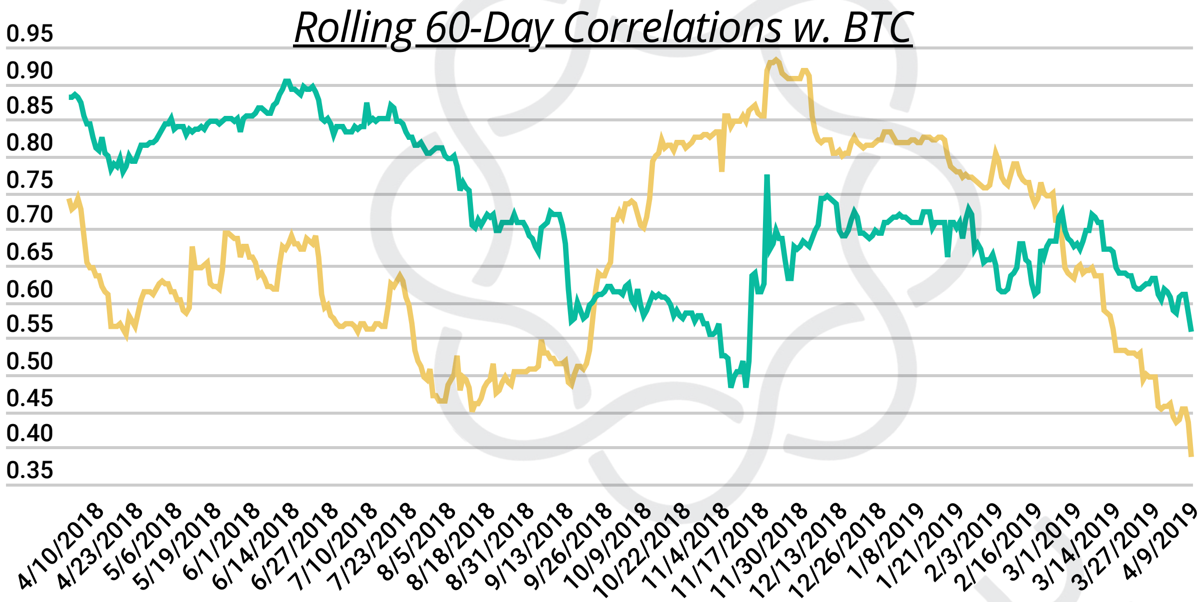
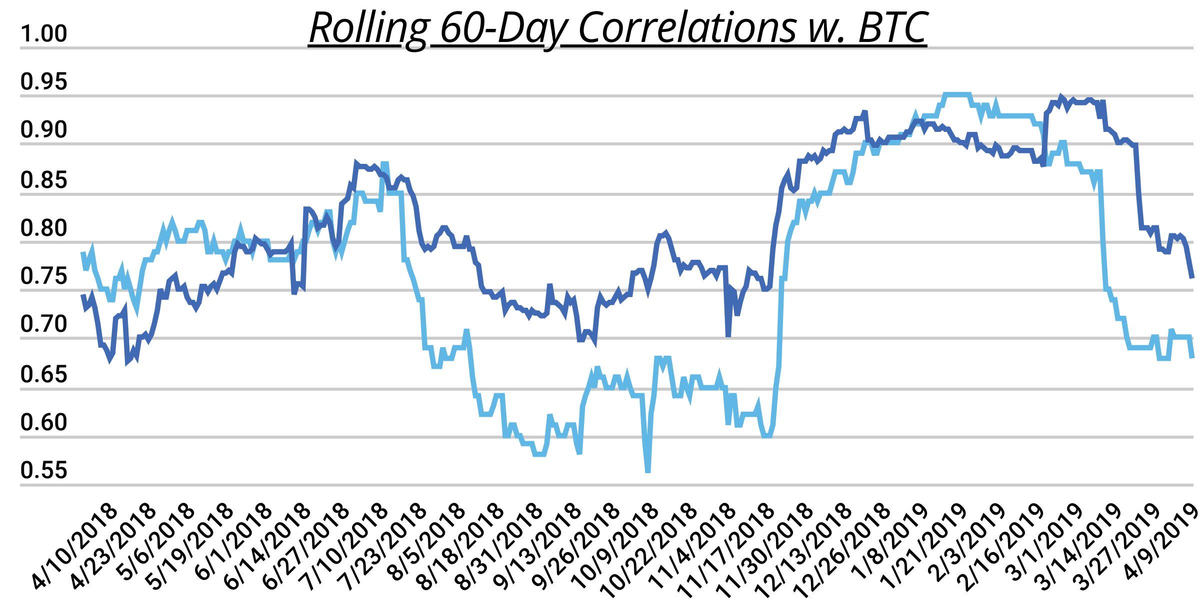


*BNB = Yellow; MKR = Green



*XLM = Light Blue; ADA = Dark Blue

60-Day Correlations

	BTC	XRP	ETH	EOS	XLM	LTC	BCH	TRON	ADA	XMR	IOTA	BNB	DASH	NEM	ETC	NEO	ZEC	BSV	MKR	
BTC	1.00	0.83	0.89	0.82	0.68	0.85	0.88	0.71	0.76	0.81	0.74	0.39	0.68	0.81	0.62	0.73	0.75	0.81	0.56	BTC
XRP	0.83	1.00	0.83	0.73	0.72	0.72	0.65	0.71	0.70	0.82	0.78	0.37	0.70	0.71	0.59	0.69	0.74	0.76	0.60	XRP
ETH	0.89	0.83	1.00	0.84	0.66	0.79	0.71	0.73	0.74	0.81	0.80	0.41	0.69	0.74	0.66	0.76	0.74	0.74	0.66	ETH
EOS	0.82	0.73	0.84	1.00	0.61	0.82	0.72	0.62	0.70	0.72	0.75	0.45	0.69	0.60	0.51	0.71	0.69	0.64	0.62	EOS
XLM	0.68	0.72	0.66	0.61	1.00	0.54	0.55	0.62	0.56	0.69	0.63	0.29	0.57	0.60	0.56	0.55	0.54	0.57	0.46	XLM
LTC	0.85	0.72	0.79	0.82	0.54	1.00	0.86	0.56	0.75	0.67	0.66	0.50	0.59	0.65	0.50	0.70	0.65	0.77	0.48	LTC
BCH	0.88	0.65	0.71	0.72	0.55	0.86	1.00	0.55	0.75	0.59	0.56	0.25	0.53	0.66	0.51	0.66	0.60	0.77	0.42	BCH
TRON	0.71	0.71	0.73	0.62	0.62	0.56	0.55	1.00	0.61	0.74	0.68	0.24	0.61	0.65	0.62	0.51	0.68	0.62	0.36	TRON
ADA	0.76	0.70	0.74	0.70	0.56	0.75	0.75	0.61	1.00	0.66	0.69	0.31	0.58	0.70	0.50	0.72	0.69	0.69	0.54	ADA
XMR	0.81	0.82	0.81	0.72	0.69	0.67	0.59	0.74	0.66	1.00	0.78	0.45	0.77	0.74	0.58	0.65	0.84	0.65	0.57	XMR
IOTA	0.74	0.78	0.80	0.75	0.63	0.66	0.56	0.68	0.69	0.78	1.00	0.38	0.68	0.65	0.66	0.66	0.76	0.64	0.55	IOTA
BNB	0.39	0.37	0.41	0.45	0.29	0.50	0.25	0.24	0.31	0.45	0.38	1.00	0.48	0.27	0.26	0.38	0.42	0.27	0.44	BNB
DASH	0.68	0.70	0.69	0.69	0.57	0.59	0.53	0.61	0.58	0.77	0.68	0.48	1.00	0.63	0.50	0.65	0.85	0.61	0.55	DASH
NEM	0.81	0.71	0.74	0.60	0.60	0.65	0.66	0.65	0.70	0.74	0.65	0.27	0.63	1.00	0.52	0.66	0.73	0.65	0.52	NEM
ETC	0.62	0.59	0.66	0.51	0.56	0.50	0.51	0.62	0.50	0.58	0.66	0.26	0.50	0.52	1.00	0.44	0.62	0.54	0.47	ETC
NEO	0.73	0.69	0.76	0.71	0.55	0.70	0.66	0.51	0.72	0.65	0.66	0.38	0.65	0.66	0.44	1.00	0.66	0.69	0.67	NEO
ZEC	0.75	0.74	0.74	0.69	0.54	0.65	0.60	0.68	0.69	0.84	0.76	0.42	0.85	0.73	0.62	0.66	1.00	0.66	0.58	ZEC
BSV	0.81	0.76	0.74	0.64	0.57	0.77	0.77	0.62	0.69	0.65	0.64	0.27	0.61	0.65	0.54	0.69	0.66	1.00	0.57	BSV
MKR	0.56	0.60	0.66	0.62	0.46	0.48	0.42	0.36	0.54	0.57	0.55	0.44	0.55	0.52	0.47	0.67	0.58	0.57	1.00	MKR

Data as of April 8th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

Bitcoin Sentiment Positive

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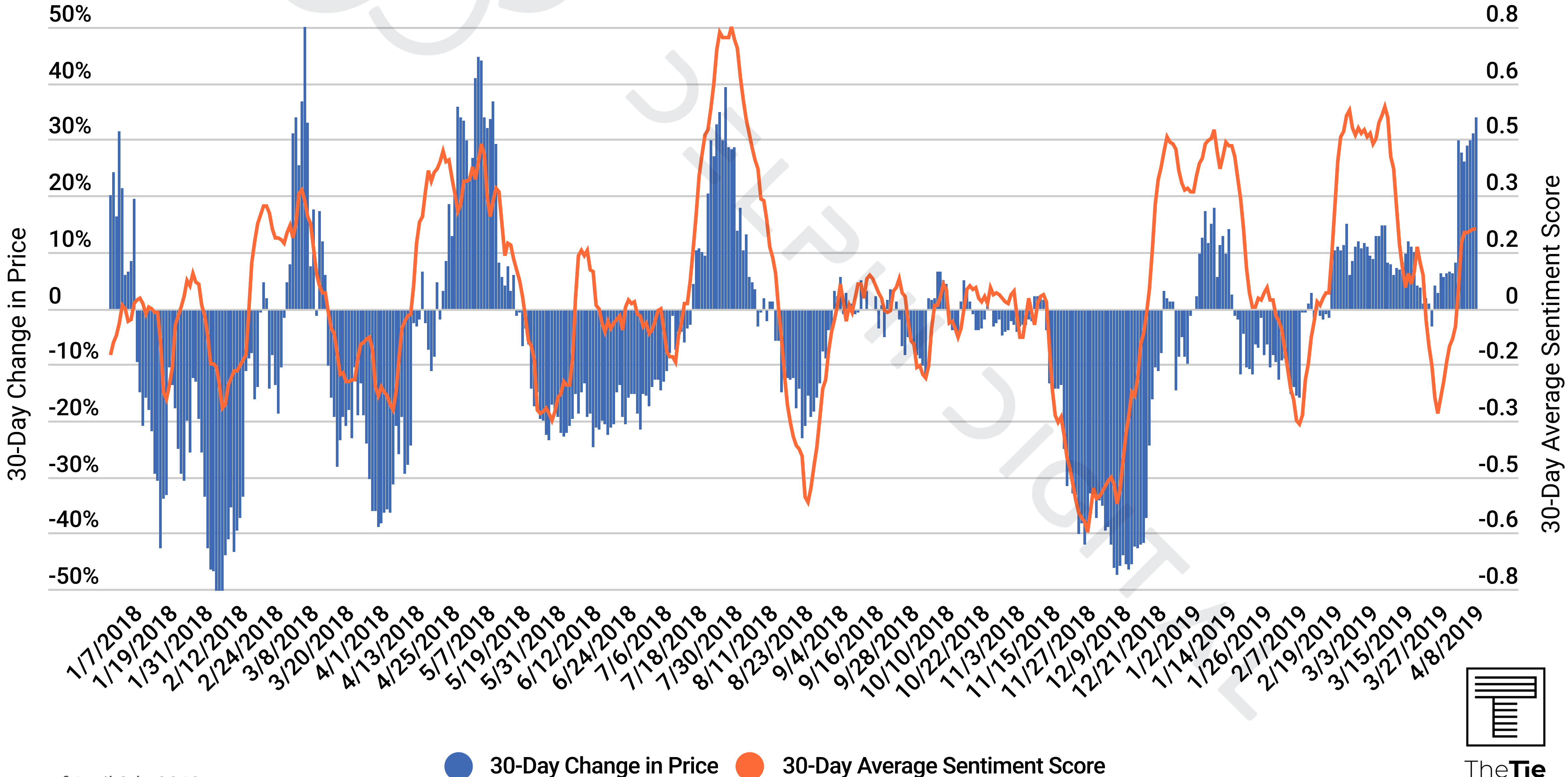
Interestingly, **sentiment has led price in almost all of BTC's moves since the beginning of 2018**. Recently, average sentiment score has rebounded for Bitcoin as it broke above $5,000. **There is a strong correlation between Bitcoin's 30-day average sentiment score and its 30-day price change**, according to data and analysis conducted by TheTie.io.

Further price appreciation is likely to continue if average daily sentiment score continues to trend higher. The growing trend of optimism towards Bitcoin is encouraging for its near-term outlook.

30-Day Change in BTC Price vs. 30-Day Average Sentiment Score



TheTie

Data as of April 8th, 2019

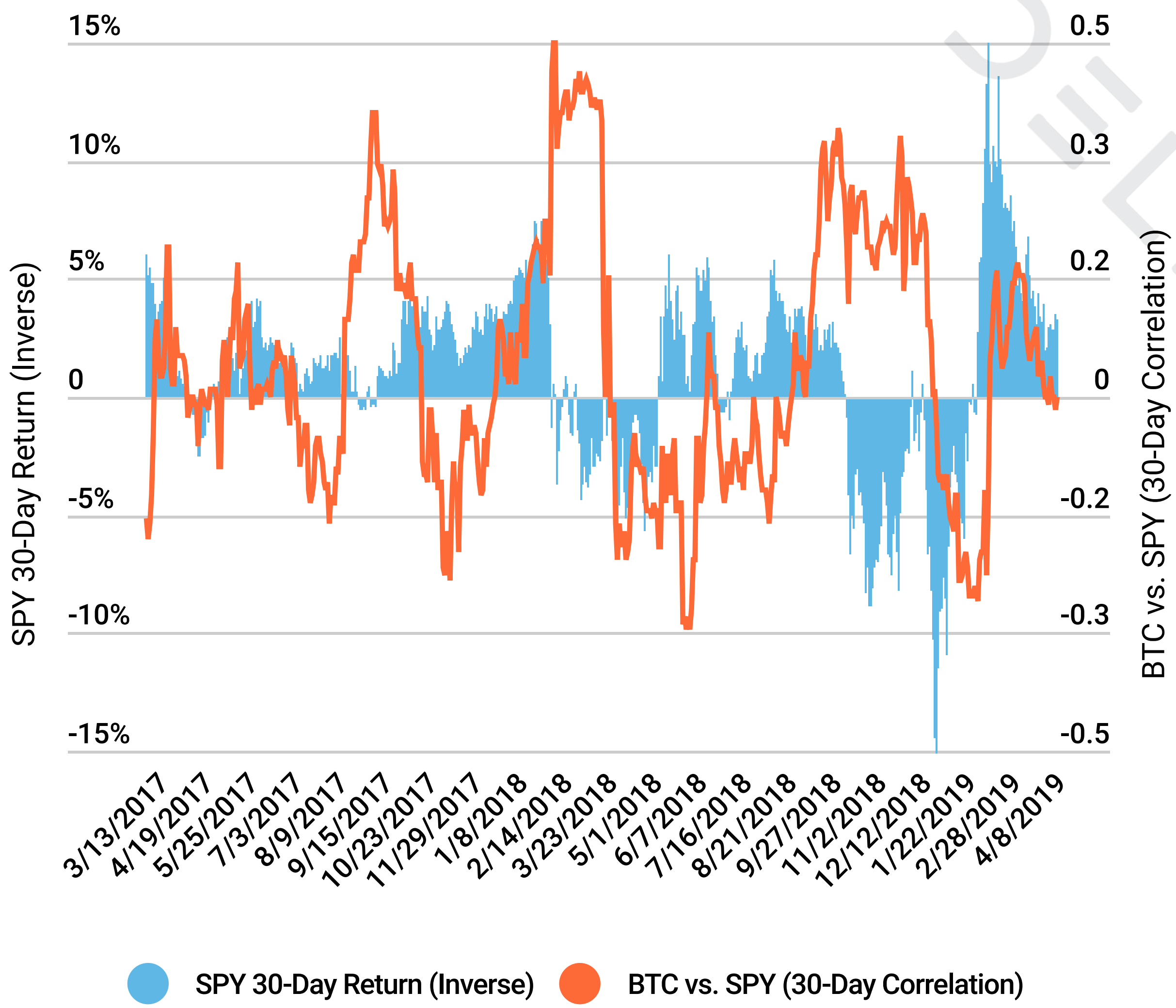
Source: TheTie.io

Risk-On Asset

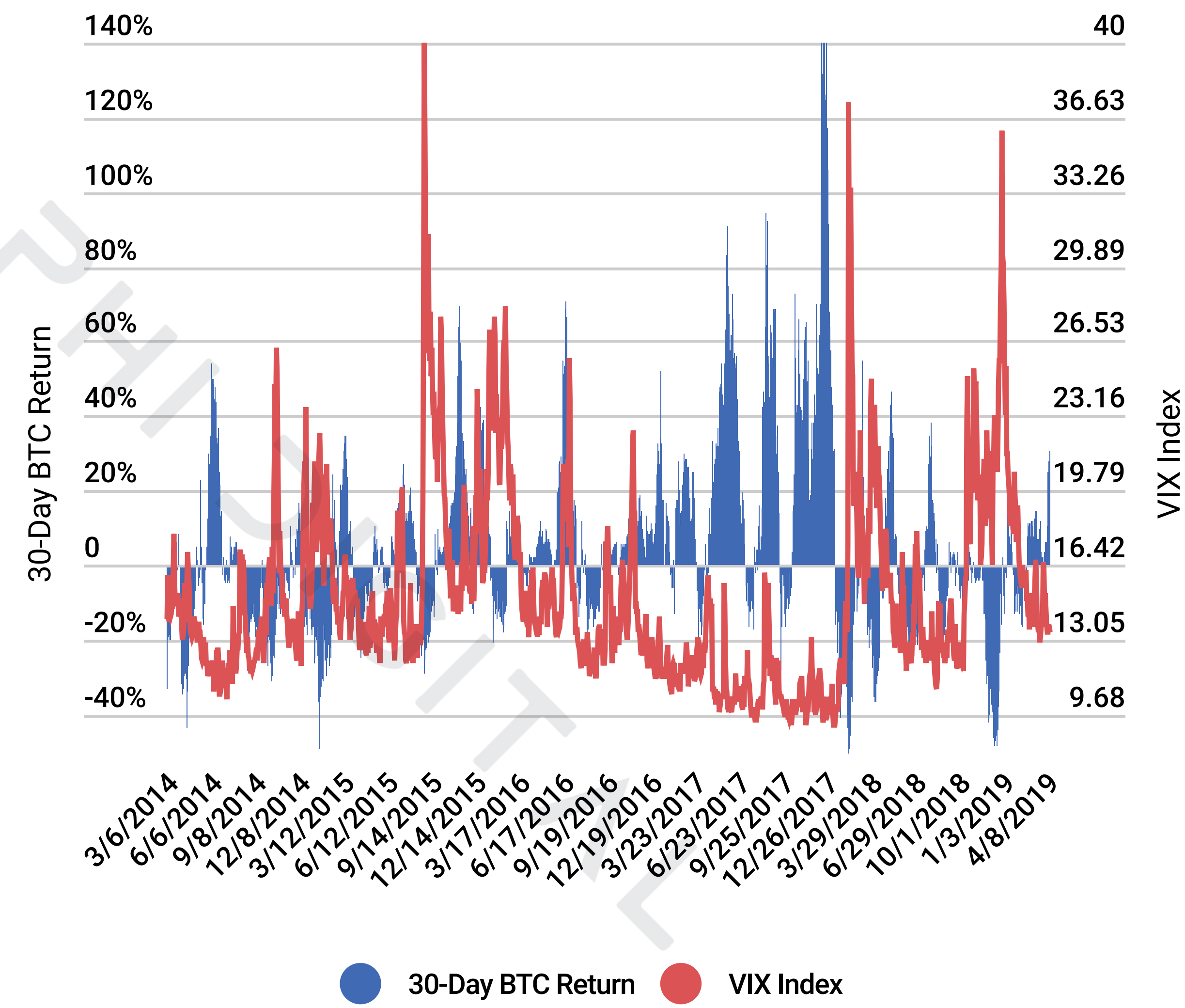
The turnaround in Q1 was accompanied by a strong rebound in traditional risk assets, notably global equity markets. We hold the view that bitcoin, and other crypto assets for that matter, are still widely viewed as risky assets given their brief track record, volatility, and general lack of understanding by the broader market.

An interesting trend we've been harping on is the fluctuating relationship between bitcoin and riskier asset classes like stocks. **For example, over the last few years significant spikes in U.S. equity market volatility have typically coincided with a sell-off in bitcoin as market uncertainty rises**. Looking more closely at the recent price performance, we that find **short-term correlations between BTC and equities rise when volatility jumps** as investors rush to traditional safe-haven assets like gold and Treasuries.

BTC Correlation w. S&P 500 Returns (Inverse)



BTC 30-Day Return vs. VIX Index



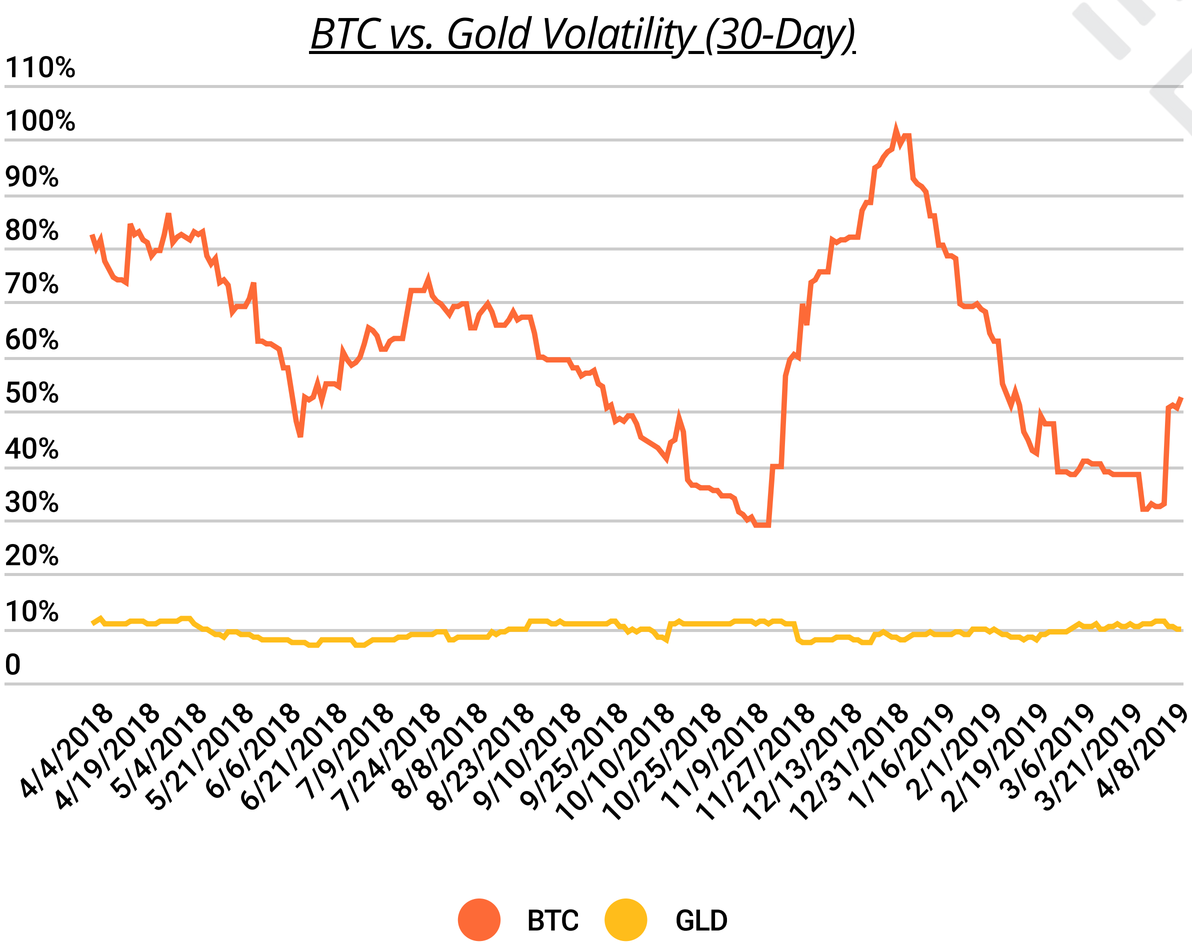
Data as of April 9th, 2019

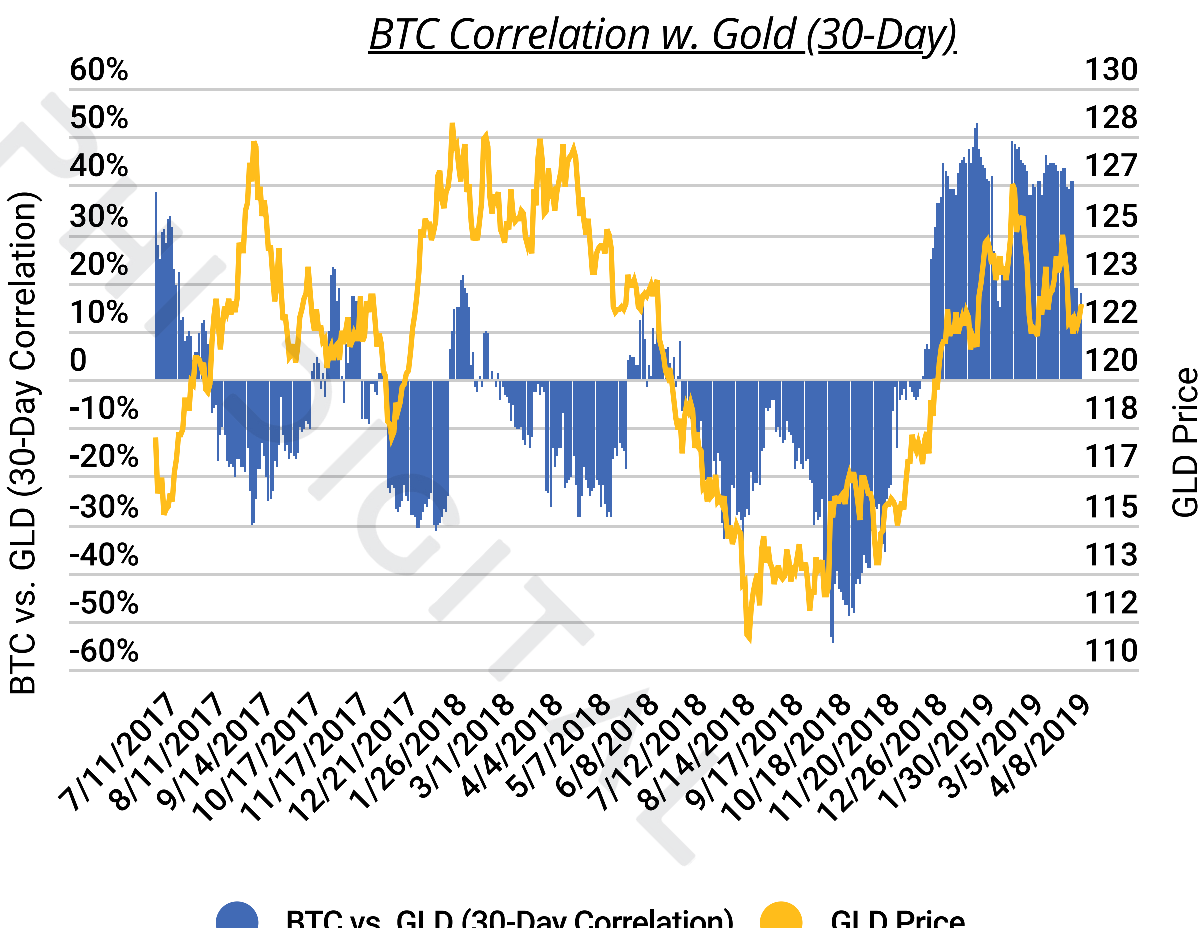
Source: SPDR State Street Global Advisors, Binance, Blockchain.com

Option on Digital Gold

During recent periods of market turmoil, the correlation between bitcoin and stocks has risen as BTC sells-off with traditional risk assets. This price dynamic runs contrary to the “digital gold” narrative many have latched onto, highlighting the importance of time horizons and the distinction between short and long-term expectations. While we are firm believers in the long-term value proposition of bitcoin as a digitally-native store-of-value asset, we expect most investors will consider bitcoin more of a “risk-on” asset for the foreseeable future, especially as institutions wade into this market. The lack of accessible, liquid investment vehicles has served as a headwind for institutional investors who, in times of uncertainty, have turned to traditional safe haven assets like physical gold and U.S. Treasuries.

A counter-argument to our "option on digital gold" narrative is the rising positive correlation between BTC and physical gold prices. While the relationship between the two has certainly strengthened the last couple months, it is important to note the correlation between physical gold and equities was on the rise as well through March. We noted last month something was likely to give as stocks and gold tend to be negatively correlated, which is what we've seen play out in the last six weeks as gold prices dropped from $1,340 to just under $1,300/oz.





Data as of April 9th, 2019

Source: SPDR State Street Global Advisors, Binance, Blockchain.com

Recovery in Risk Assets

Global equities have recovered substantially since their Q4 2018 collapse, with many stocks plunging 20% or more, resulting in a sizable correction for many market indices. The S&P 500, the standard benchmark for U.S. equities, rose 13% in Q1 after one of the worst Decembers since the Great Depression, boasting its best quarter since 2009 and its best first quarter performance since 1998. Over the last 30 years, the S&P 500 has gone on to post further gains in the final nine months of the year in each instance when the first three months (Jan, Feb, Mar) all produced positive returns.

Other risk assets have also rebounded this year, including high-yield bonds in both developed and emerging markets.

While there has been much to cheer about in the equity markets this year, its important to understand the primary drivers behind the recovery in stocks. **The tone from the Federal Reserve has shifted quite drastically in the last 6-9 months away from tighter monetary policy to a more neutral stance as inflationary pressures have failed to emerge and the outlook for global growth weakens.**

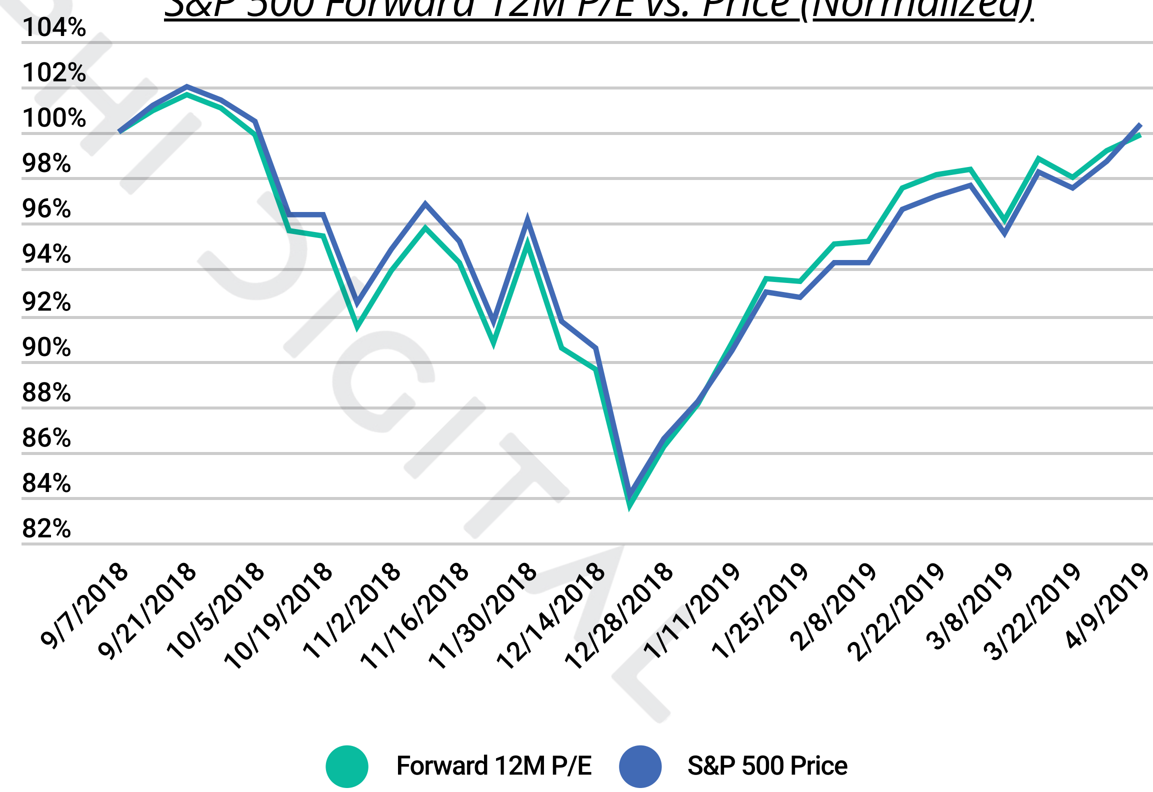
Most of the recovery in U.S. stocks can be explained by multiple expansion rather than improved earnings expectations, a notable trend to watch as long-term equity prices are largely driven by earnings growth and improving expectations. The lack of inflation, however, has provided a suitable backdrop for margin expansion, though analyst estimates indicate an earnings recession in the first half of 2019 could spell trouble for stocks.

Data as of April 9th, 2019

Source: Blackrock iShares, MSCI, SPDR State Street Global Advisors, S&P Dow Jones

Global Equity Market Returns (2018-Pres)

S&P 500 Forward 12M P/E vs. Price (Normalized)



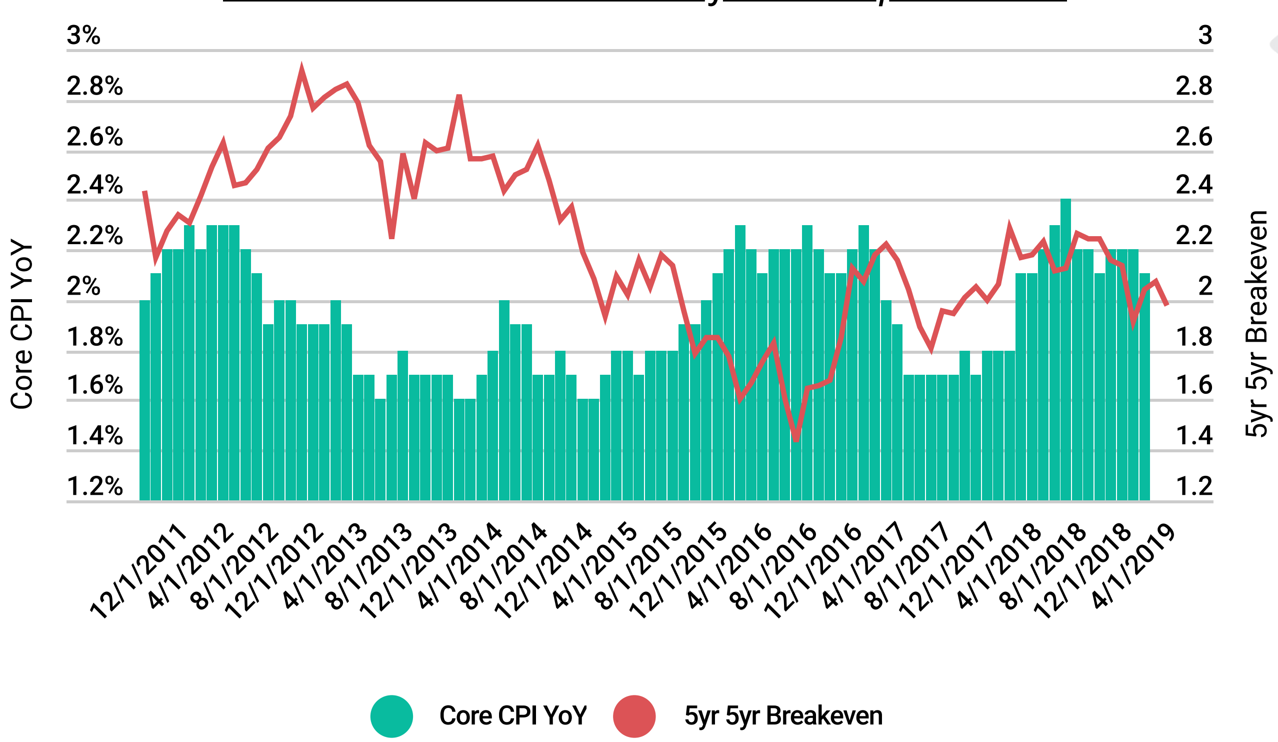
Central Banks Reverse Course

Global central banks are walking back their intentions for tighter monetary policy as recent economic data is showing signs of a global growth slowdown this year and next. **The rationale for this is multi-fold, led by a slowdown in economic data and below-target inflation that's failed to ignite despite the excessive amount of quantitative easing undergone by every major central bank this cycle**. The turning point for the market was the Fed's dovish pivot earlier this year as the central bank noted its hesitation to raise rates further unless inflationary pressures emerge.

The market is now pricing in zero rate hikes from the Fed for 2019. Even more surprising is that Fed funds futures currently show a 50% chance of a rate cut by the end of this year, a drastic shift compared to just six months ago. This bodes well for risk assets as higher rates eventually bleed into tighter financial conditions and higher borrowing costs, which eats away at corporate profits and domestic growth. A more dovish Fed also makes riskier asset classes like stocks more attractive relative to bonds given lower yields on sovereign debt.

The Federal Reserve is not the only central bank taking a more dovish tone. The ECB recently pushed out its forecast for potential interest rate hikes to at least 2020 as the Euro Zone continues to struggle with sluggish GDP growth, tepid inflation, and idiosyncratic risks developing in major member countries like Italy. Further east, the Bank of Japan continues to fuel its asset purchase program ranging from Japanese government bonds (JGBs) to risker exchange-traded-funds (ETFs).

Core CPI YoY vs. Forward Inflation Expectations



Market Expectations for Fed Funds Rate

Meeting Date	Probability Rate Cut	Probability No Change	Probability Rate Hike
5/1/2019	2.5%	97.5%	0.0%
6/19/2019	15.5%	84.5%	0.0%
7/31/2019	20.8%	79.3%	0.0%
9/18/2019	31.7%	68.3%	0.0%
10/30/2019	37.5%	62.4%	0.0%
12/11/2019	50.5%	49.5%	0.0%
1/29/2020	58.1%	41.9%	0.0%

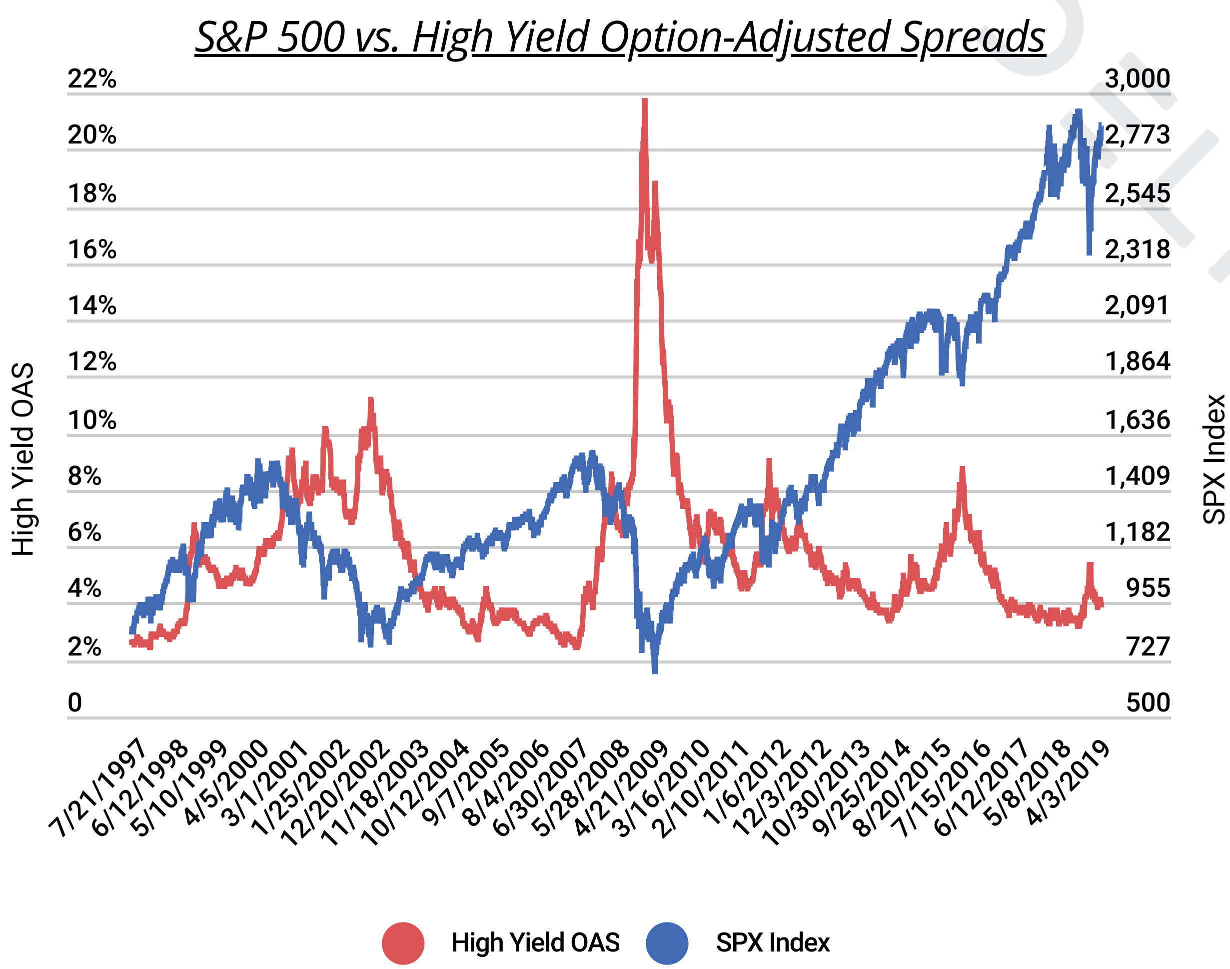
Data as of April 9th, 2019

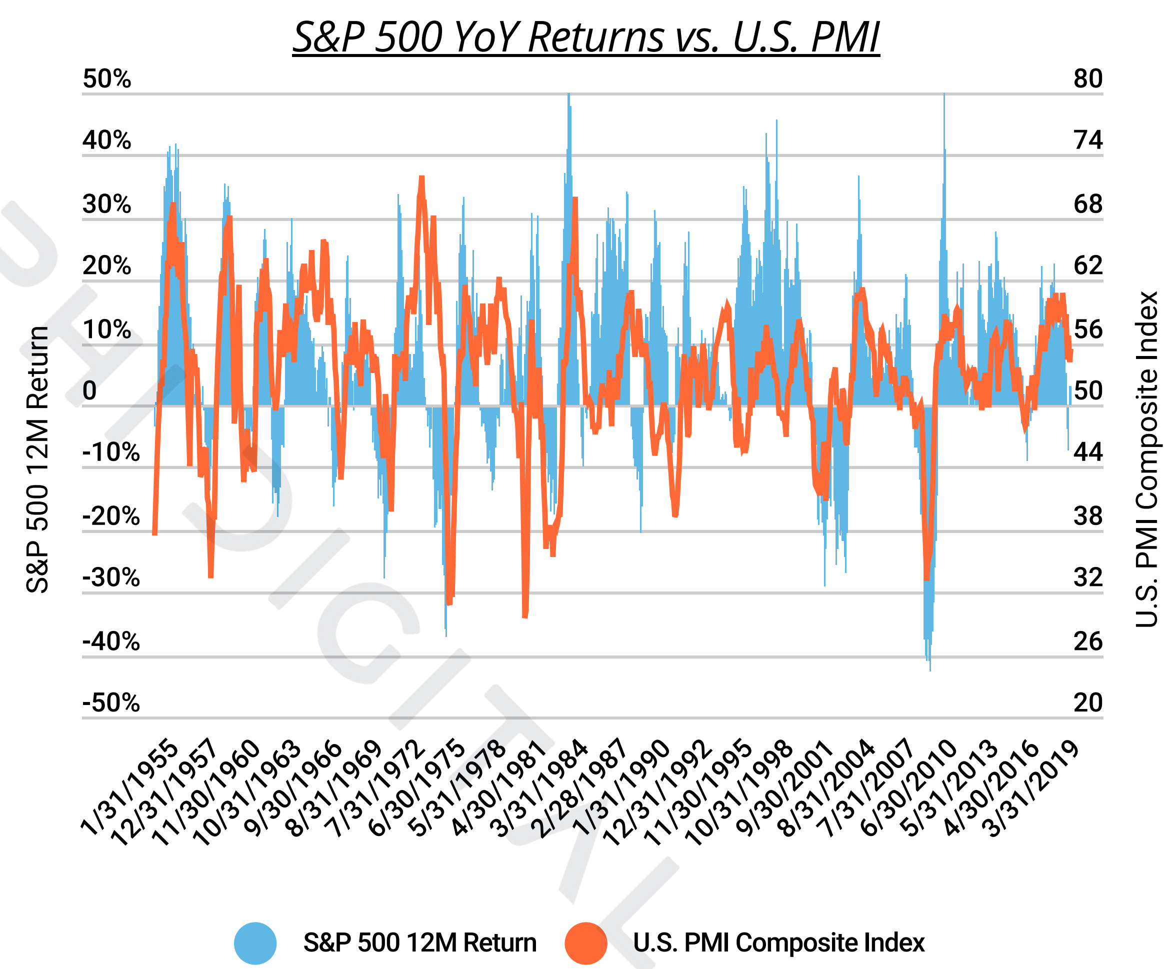
Source: CME Group, Federal Reserve of St. Louis

Data Suggests The Party Isn't Over Yet

The U.S. equity market appears to be the safe-haven market as global economic growth expectations continue to weaken in many parts of the developed and emerging world, but the data is not signaling an end to the rally in stocks yet. High-yield bond spreads are still tight relative to prior market peaks. Typically, high-yield bond spreads widen substantially as the stock market begins to roll over, offering a bit of a warning sign for equity investors that things are heading south. The U.S. PMI Composite Index, often regraded as a reliable gauge for business conditions in the manufacturing and services sectors, continues to show signs of expansion, which typically coincides with stronger equity market performance.

Other notable data points include an unemployment rate hovering near its lowest level in 50 years and a relatively strong U.S. consumer, both of which support the notion that a recession is not quite knocking on our doorstep...yet.





*High Yield OAS represents the ICE BofAML US High Yield Master II Index value, which tracks the performance of US dollar denominated below investment grade rated corporate debt publicly issued in the US domestic market.

Data as of April 5th, 2019

Source: Institute for Supply Management (ISM), S&P Dow Jones, Federal Reserve of St. Louis

Global Growth Slowdown

One of the key drivers behind looser global monetary policy is the weakening outlook for global economic growth. In their most recent World Economic Outlook report released earlier this week, the International Monetary Fund (IMF) lowered its forecast for world output to 3.3% in 2019, a significant decline from its October 2018 forecast of 3.7%.

The revised projections include a reduction in growth expectations for roughly 70% of the global economy, citing several key risks, including, "the escalation of US–China trade tensions, macroeconomic stress in Argentina and Turkey, disruptions to the auto sector in Germany, tighter credit policies in China, and financial tightening alongside the normalization of monetary policy in the larger advanced economies."

"Although a 3.3 percent global expansion is still reasonable, the outlook for many countries is very challenging, with considerable uncertainties in the short term, especially as advanced economy growth rates converge toward their modest long-term potential."

- International Monetary Fund (IMF); World Economic Outlook (April 2019)

IMF Projections (2019 Output Growth)

	Expected Growth (April 2019)	Expected Growth (October 2018)	Difference
World Output	3.3%	3.7%	-0.4%
Advanced Economies	1.8%	2.1%	-0.3%
United States	2.3%	2.5%	-0.2%
Euro Area	1.3%	1.9%	-0.6%
Japan	1.0%	0.9%	0.1%
United Kingdom	1.2%	1.5%	-0.3%
Canada	1.5%	2.0%	-0.5%
Other Advanced	2.2%	2.5%	-0.3%
EM/Developing	4.4%	4.7%	-0.3%
Russia	1.6%	1.8%	-0.2%
China	6.3%	6.2%	0.1%
India	7.3%	7.4%	-0.1%
Latin America + Caribbean	1.4%	2.2%	-0.8%
Sub-Saharan Africa	3.5%	3.8%	-0.3%

Data as of April 8th, 2019

Source: International Monetary Fund - World Economic Outlook

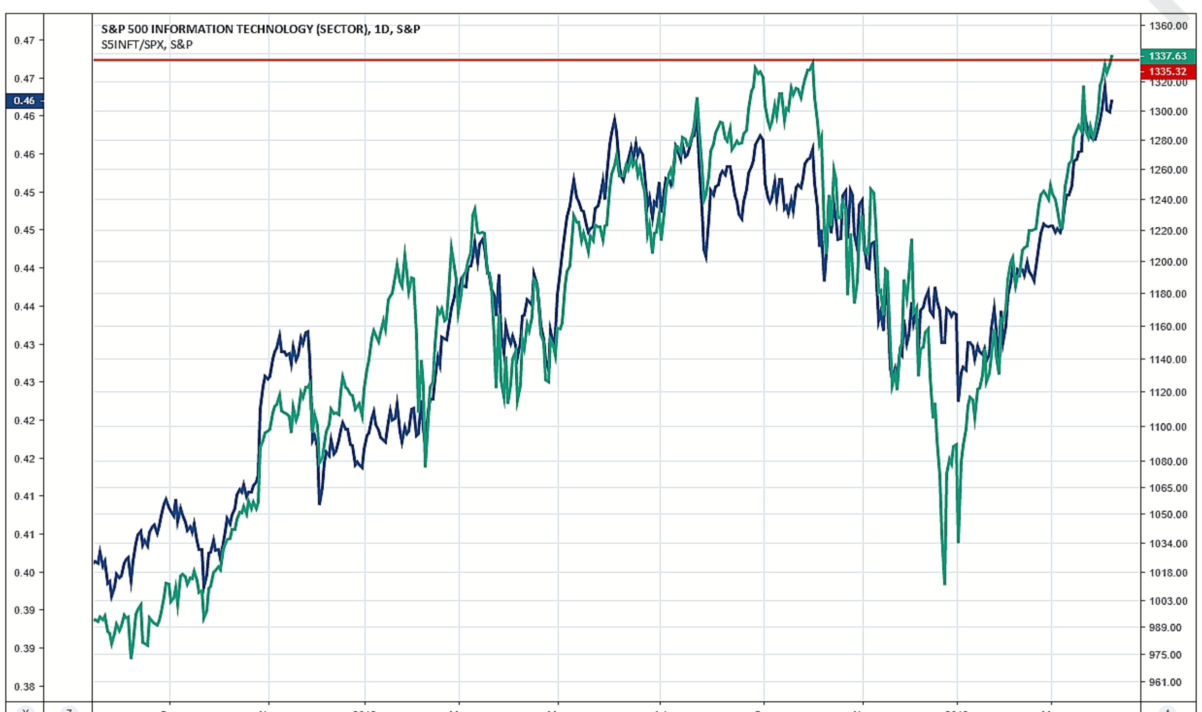
Investors Seek Out Growth

DELPHI DIGITAL

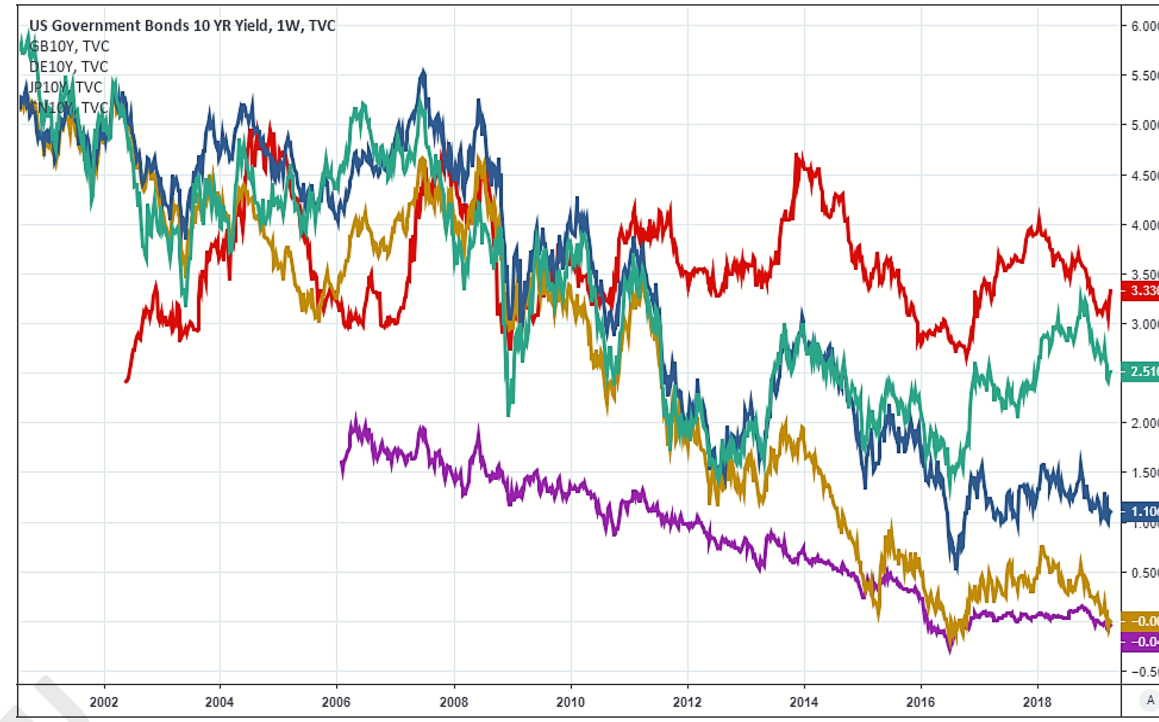
A weaker economic backdrop and the move away from tighter monetary policy supports risk assets in the intermediate-term as investors seek out opportunities with more attractive growth prospects. Global sovereign bond yields have fallen substantially since the beginning of the year with yields on 10-year U.S. Treasuries now offering a mere 2.5% compared to 3.2% less than six months ago.

Lower bond yields push investors further out the risk curve in search of higher returns. For example, the forward earnings yield on the S&P 500, which is often used to compare the attractiveness of stocks to bonds, is almost 6%, offering investors an enticing reason to venture into more risky assets.

S&P 500 Information Technology vs. S&P 500



Global Government 10-Year Bond Yields



It will likely be a while before we see more conservative institutions come into the crypto market en masse, but the opportunities it offers investors with longer time horizons (endowments, pension funds) are substantial. Taking the latter as an example, **many public and private pension funds use discount rates between 7-8% to calculate their future liabilities. A world of sub-3% yields on Treasuries (not to mention the nearly $10 trillion of government debt globally carrying negative yields) is simply not enough to satisfy such requirements**. This is one of the key reasons why technology and emerging markets stocks have performed so well in recent months. The S&P 500 Information Technology Index just broke to a new all-time high this week, marking a swift recovery following December's sharp declines.

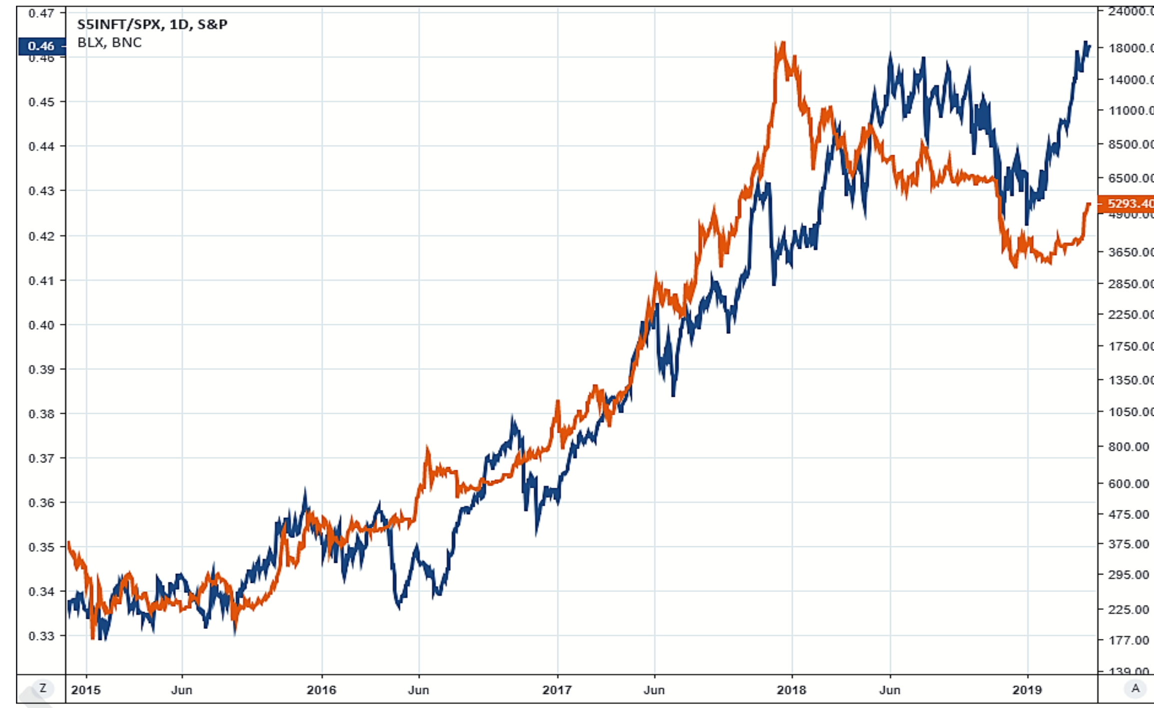
**Negative yielding debt calculation based on bond issues in the Bloomberg Barclays Global Aggregate Bond Index*

Data as of April 8th, 2019
Source: Bloomberg, S&P

Growth Investing Favors Bitcoin

Growth investing is exactly as it sounds: investing in companies with above-average growth prospects relative to their industry or the broad market in an effort to maximize capital gains. Investors using this strategy are not so much concerned with valuation multiples as they are with finding companies that have sizable growth potential. Some of the most prominent examples include the FANG stocks (or FAANG for all the Apple fans out there). Growth stocks tend to outperform during periods of tepid economic activity or weaker expectations for corporate earnings as investors are willing to pay higher multiples for companies with considerable growth potential. **Given the outlook of slower economic growth and subdued earnings forecasts, the backdrop appears favorable for growth to outperform. If so, bitcoin may be poised to catch a bid as investors reach for riskier assets with significant price appreciation potential.**

S&P 500 Info Tech/S&P 500 vs. BTC



EM Tech/MSCI EM Index vs. BTC

Russell 3000 Growth Index vs. BTC

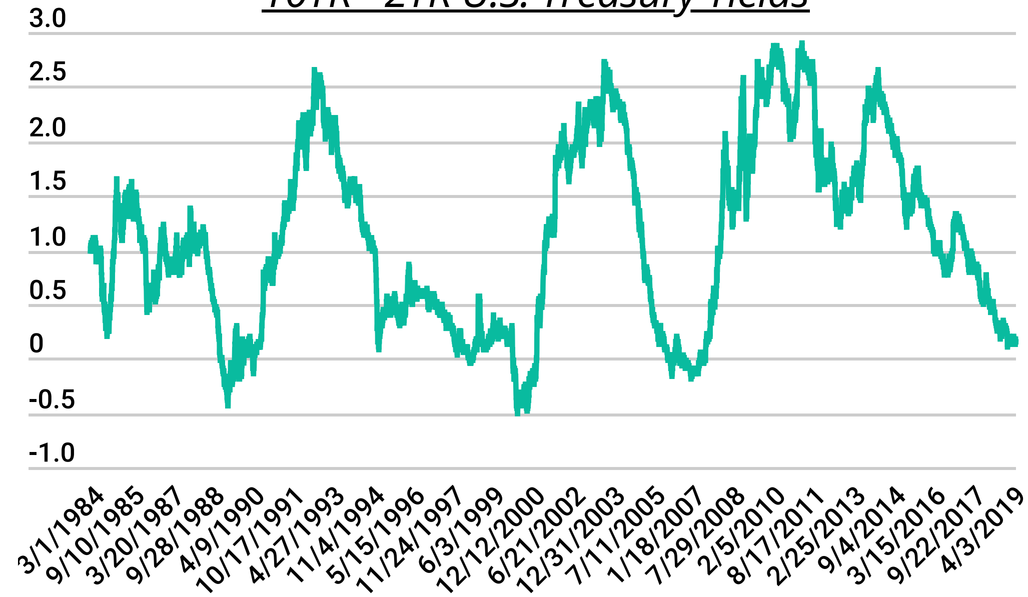
Data as of April 8th, 2019

Source: Tradingview, BraveNewCoin, MSCI, S&P Dow Jones

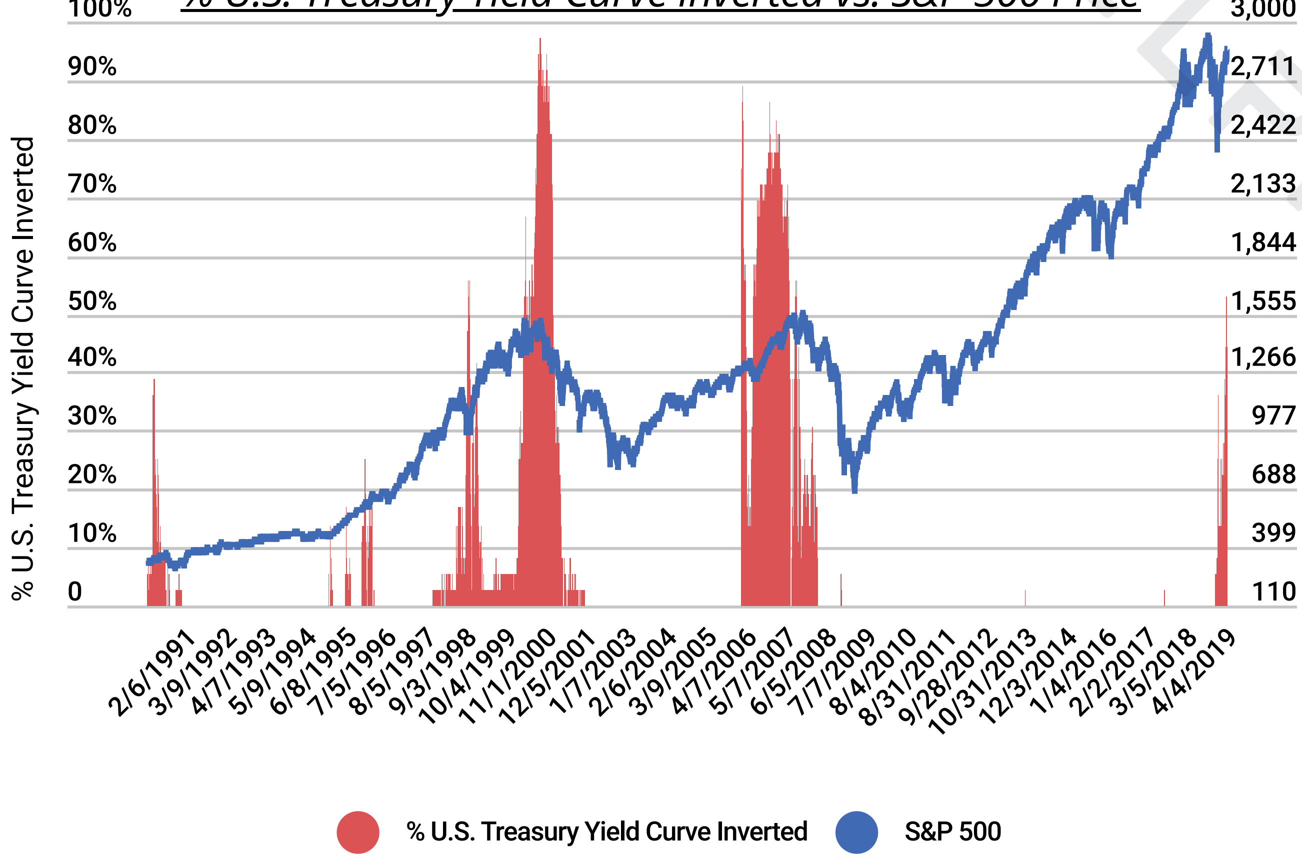
Yield Curve Concerns

There are several key headwinds to the longer-term outlook for risk assets. Currently, one of the most important questions is whether signals from the bond market should be worrying to equity investors. Parts of the yield curve in the U.S. have inverted with yields on 10-year Treasuries dipping below yields on 3-month Treasury Bills recently, sparking a slew of headlines and concerns that this may finally be the nail in the coffin for the decade-long bull run in stocks. However, we have not seen 10-year yields dip below 2-year yields, which is the most closely watched among equity investors. It's important to note even after this occurs, on average a recession does not hit the U.S. for over a year. Stocks also tend to do well in the 12 months following a yield curve inversion, so it may be a little premature to sound the alarm bells.

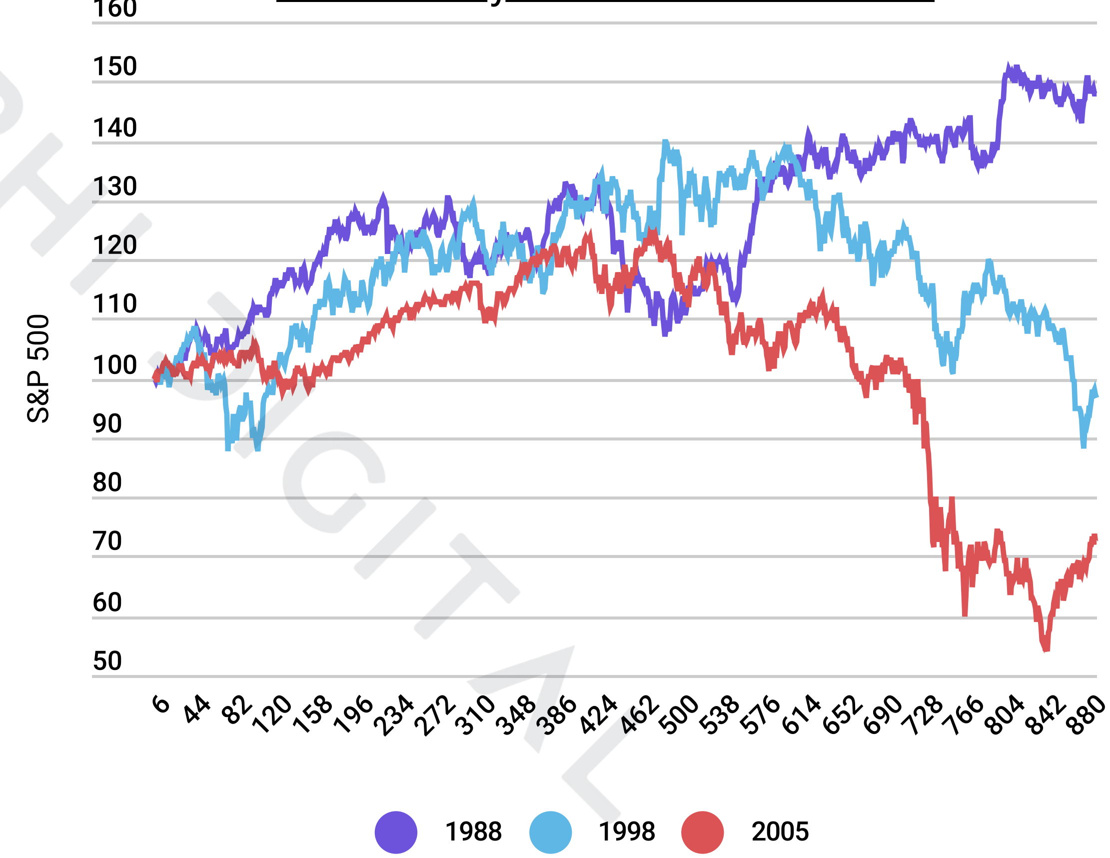
10YR - 2YR U.S. Treasury Yields



% U.S. Treasury Yield Curve Inverted vs. S&P 500 Price



S&P 500 Performance Post-Inversion



Data as of April 9th, 2019

Source: SPDR State Street Global Advisors, Binance, Blockchain.com

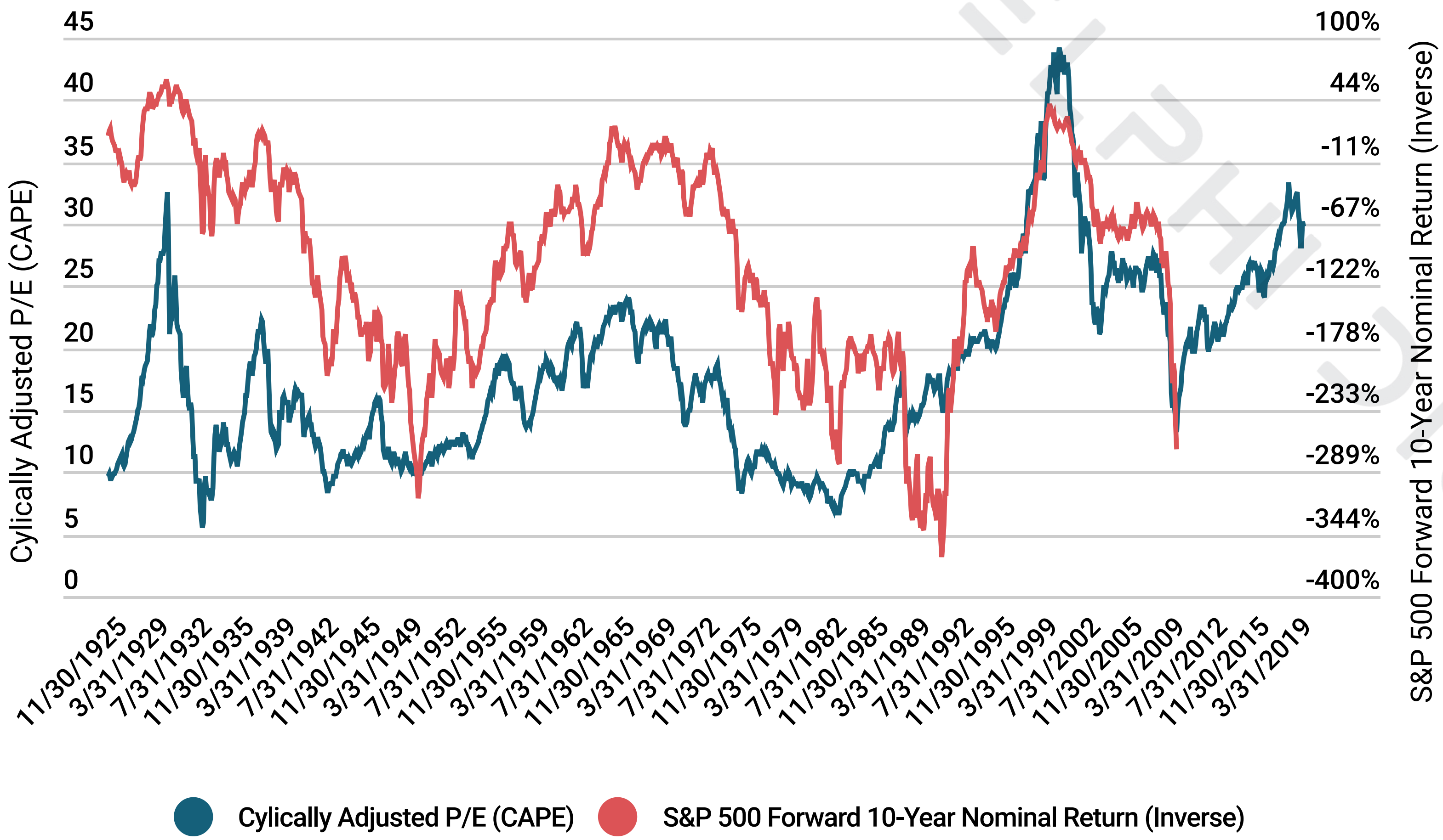
Stretched Valuations

Equity market valuations remain relatively high compared to their historical average but this does not imply stocks will suffer a drastic correction tomorrow, or even this year. Valuation multiples are terrible timing mechanisms because stocks can always go from “expensive” to “more expensive” in the short run, especially if the outlook for slower global growth and corporate profitability remains. The dovish pivot away from tighter monetary policies by the Fed earlier this year has provided some breathing room for valuation multiples, which tend to contract during periods of rising rates. Stocks threw a temper tantrum in Q4 2018 as the Fed appeared to be unwavering in its plans for further rate hikes, which put earnings growth expectations and valuation multiples under pressure.

S&P 500 Returns vs Starting CAPE (Post-WWII Era)

10yr Forward Return (CAGR)	Average (Post WWII)	Median (Post WWII)
Total History	8.1%	7.6%
CAPE > 25	3.4%	4.7%
CAPE 20 > X > 25	4.5%	4.2%
CAPE 15 > X > 20	8.1%	6.6%
CAPE 10 > X > 15	10.8%	10.9%
CAPE < 10	11.6%	11.4%

10YR CAPE vs. Forward 10YR S&P 500 Returns (Inverse)



Starting valuation levels do, however, provide a strong indication of long-term expected returns (i.e. ten years) for public equities. In the post-WWII era, the S&P 500 has an average and median compound annual growth rate of 3.4% and 4.7%, respectively, in the subsequent 10 years when its starting 10-year CAPE (cyclically-adjusted P/E ratio) is above 25. It currently sits just below 30.

As expected, longer-term expected returns for stocks improves significantly as the starting CAPE ratio gets lower. Stocks can get more expensive in the short-term, but are likely to revert back towards their mean over the long run.

Data as of March 31th, 2019

Source: Robert Shiller - Yale University

Sector Updates

Sector Updates: Overview

In this section, we'll take a look at a few of the most prominent digital asset sectors and the key projects within them. It's important to note that the projects we have focused on are not an exhaustive representation for each sector.

Smart Contract Platforms

Payments

Privacy

Gaming

Decentralized Finance

Security Tokens

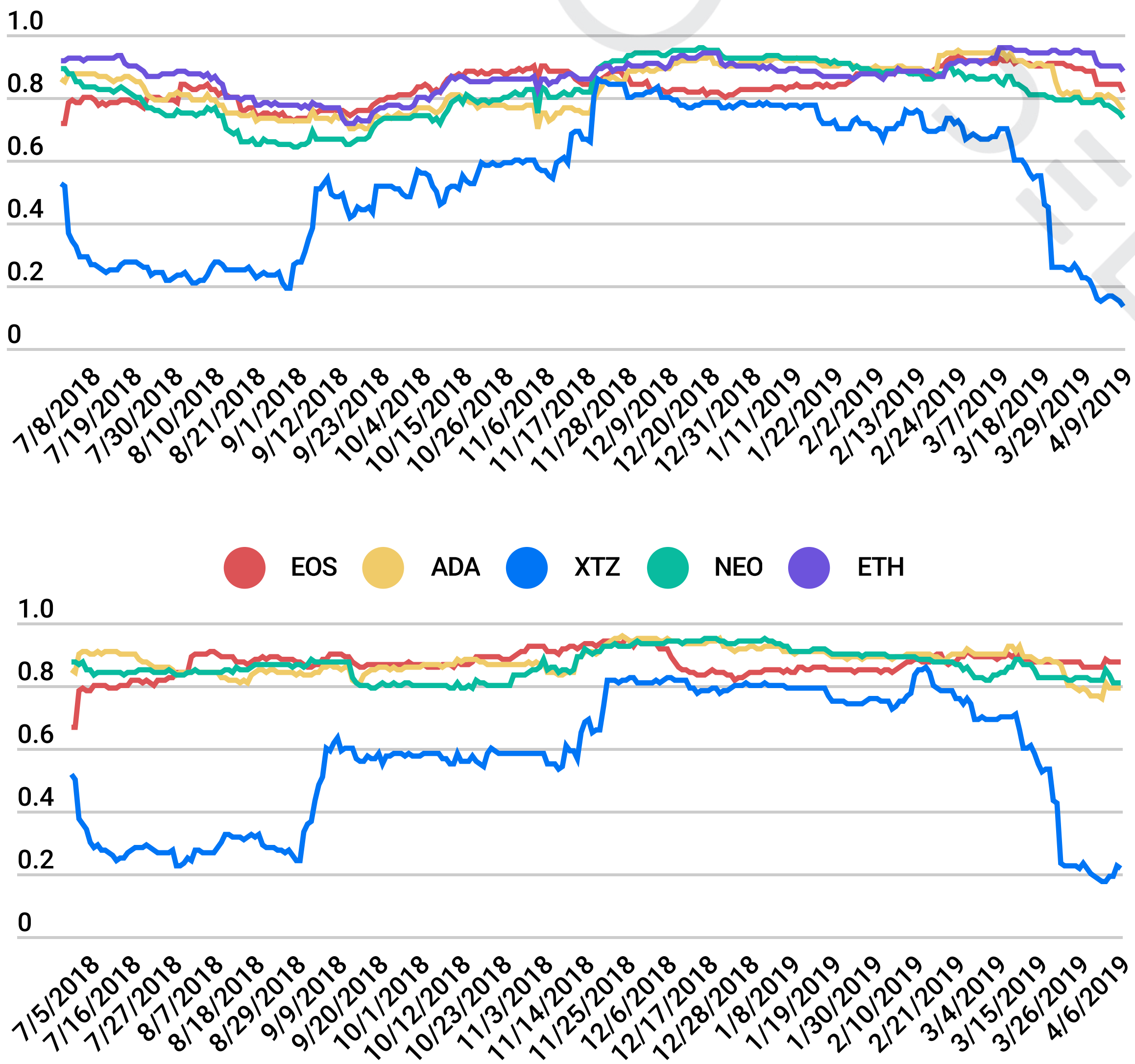
Smart Contract Platforms Update

	Ethereum	EOS	Cardano	NEO	Tezos
Description	***Ethereum*** *is an open-source, public blockchain-based computing platform that empowers smart contract functionality and decentralized applications.*	***EOS*** *uses delegated proof-of-stake as its consensus mechanism. The platform uses 21 validators to potentially achieve higher throughput.*	***Cardano*** *leverages the Ouroboros PoS algorithm for consensus. The protocol's mainnet is not fully launched.*	***NEO*** *uses dBFT as its consensus mechanism and has a dual token structure (NEO and GAS). NEO currently only has 7 validating nodes.*	***Tezos*** *is a public blockchain which leverages proof-of-stake as its consensus mechanism and formalized on-chain governance.*
Notable Events in Q1	• Constantinople upgrade was successfully implemented. • Block rewards were reduced from 3 ETH to 2 ETH and other optimizations took place. • This upgrade was another step on the path to Serenity.	• Huobi Pool announced plans to launch a crypto exchange based on EOS • A hack of 2.09M EOS took place involving a blacklisted account since not all BP's had the same blacklist. • EOS listed on Coinbase.	• Cardano released version 1.5 of its Mainnet. The main update is a move to a new consensus algorithm (Ouroboros BFT) from its original Ouroboros Classic. The upgrade included the change, but it has not been activated yet.	• NEO DevCon took place and numerous upgrades were released. NEO's consensus mechanism (dBFT2.0) saw upgrades to improve stability and make TX's irreversible. L2 scalability and enhancing smart contract functionality were also discussed.	• Tezos' Athens upgrade completed its first vote (exploration phase underway for three weeks) demonstrating the protocol's on-chain governance system works so far. Coinbase and Binance both announced they would both offer staking services for XTZ.
Looking Forward	• Work continues on ETH 2.0's Phase 0 launch; includes launch of Beacon chain, ability for validators to submit deposits & finalize the core chain, addition of the Casper Finality Gadget and a RNG	• EOS NY is seeking approval from block producers to replace the interim constitution with the EOS user agreement. Enforcing non-coded agreements can be very hard.	• Ouroboros Genesis is a future implementation that could offer stronger security.	• NEO is planning to move its latest upgrade from testnet to mainnet in April. This will include dBFT 2.0, upgrade to NEO's consensus mechanism & improved memory pool performance.	• The exploration phase of Tezos' Athens upgrade is set to pass. This upgrade is to raise the gas limit to make it easier to deploy smart contracts on Tezos.

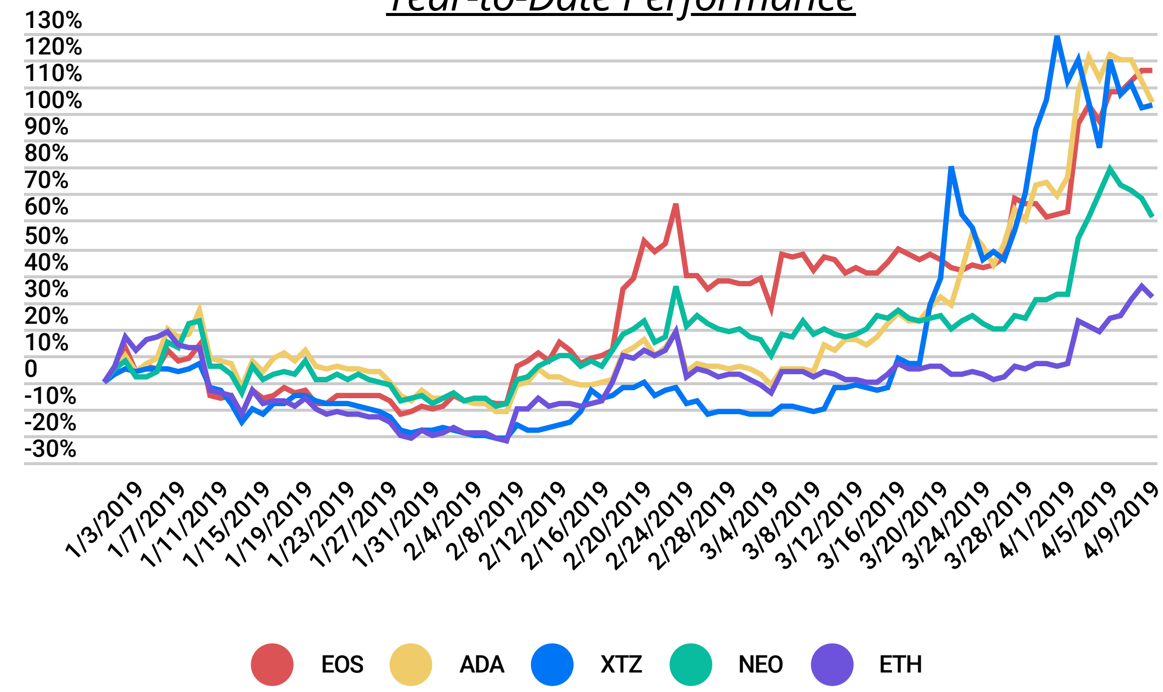
Smart Contract Platforms: Performance

Smart contract platform assets have some notable outperformers this year, led by the recent price swells in EOS, ADA, and Tezos, all of which have more than doubled year-to-date. While much of this market still trades on speculation, there were some key fundamental announcements from the Cardano and Tezos teams in Q1 that may help to explain some of the recent price action.

60-Day Correlation w. BTC (Top) & ETH (Bottom)



Year-to-Date Performance



Returns in USD	7D	1M	YTD	6M
EOS	10.5%	48.7%	116.3%	-5.9%
ADA	-2.0%	83.3%	104.0%	-3.0%
XTZ	-7.8%	107.1%	103.2%	-32.9%
NEO	5.8%	37.4%	61.9%	-33.3%
ETH	7.4%	28.8%	32.0%	-22.8%
BTC	6.7%	31.7%	39.1%	-21.6%

The largest smart contract platform assets remain very positively correlated with one another. The rapid ascension in XTZ, the native digital asset for Tezos, has caused it to break away from the pack over the last month, outpacing its largest peer (ETH) by more than 70 percentage points in the last 30 days. The sector as a whole is trending in the right direction as momentum continues to strengthen for many of these names.

Data as of April 9th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

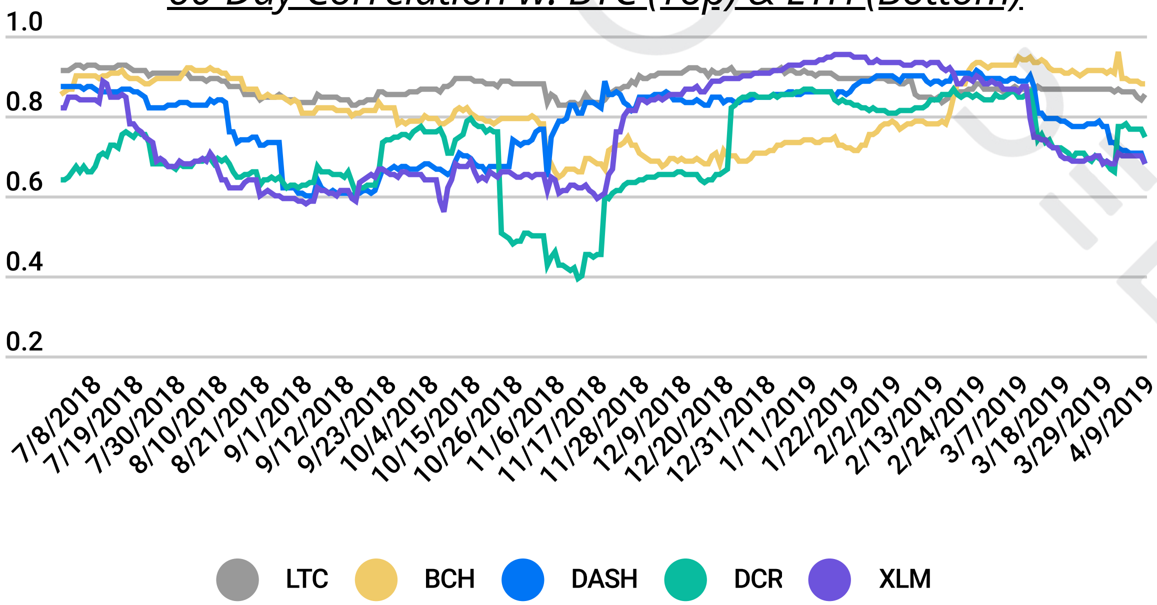
Payments Update

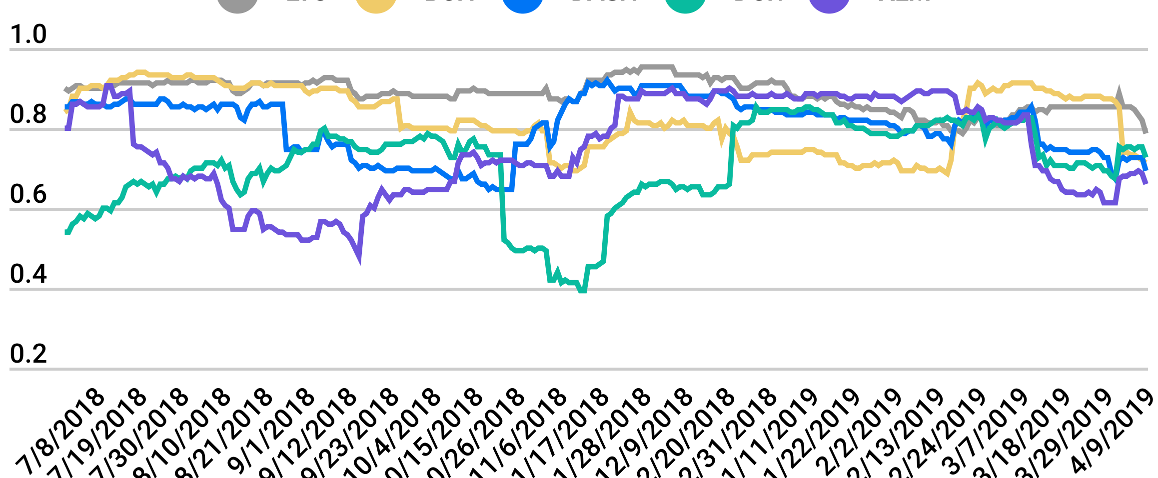
	Litecoin	Bitcoin Cash	DASH	Decred	Stellar Lumen
Description	***Litecoin*** *is a peer-to-peer payments currency. Created by Charlie Lee, Litecoin was based on a fork of Bitcoin.*	***Bitcoin Cash*** *is a fork of Bitcoin due to a group of developers wanting to increase bitcoin's block size limit. It forked in August 2017.*	***DASH,*** *also known as "digital cash", is a fast and semi-private cryptocurrency based off the Bitcoin and Litecoin code base.*	***Decred*** *is a cryptocurrency that prioritizes decentralized governance and decision making on the blockchain.*	***Stellar*** *is a fork of XRP and is a cryptocurrency that settles financial transactions through a peer-to-peer network.*
Notable Events in Q1	• Charlie Lee tweeted the possibility of adding Confidential Txs to LTC. • The number of its Lightning Network payment channels rose from 300 in January to 1,300.	• Bitcoin Cash developers launched Neutrino, a light client wallet available for Android phones, with enhanced privacy protection features.	• DASH had a 0.13 update. This included: InstantSend by default as well as Deterministic Masternodes going live.	• 1.4 Release, which included: smart fee estimation, performance enhancements, as well as improved SPV wallets. • Decred Android Wallet released.	• Stellar Core 10.3.0 released (performance improv. for when nodes first join the network. • Worked on database improvements to their Bucket List.
Looking Forward	• Litecoin's halving event will take place in August. On 8/8, the mining reward will be reduced from 25 LTC to 12.5 LTC.	• Bitcoin Cash's roadmap can be viewed here.	• Update 0.14 will bring ChainLinks for security and Long Living Masternode Quorums. • Dash Core 1.0 expected this year.	• Working to add support for Lightning Network. • Independent Contractors Released 2019 Roadmap	• Focused on improving the semantics of fee paying. • Improve decentralization by allowing nodes to run on medium-range hardware.

Payments Sector: Performance

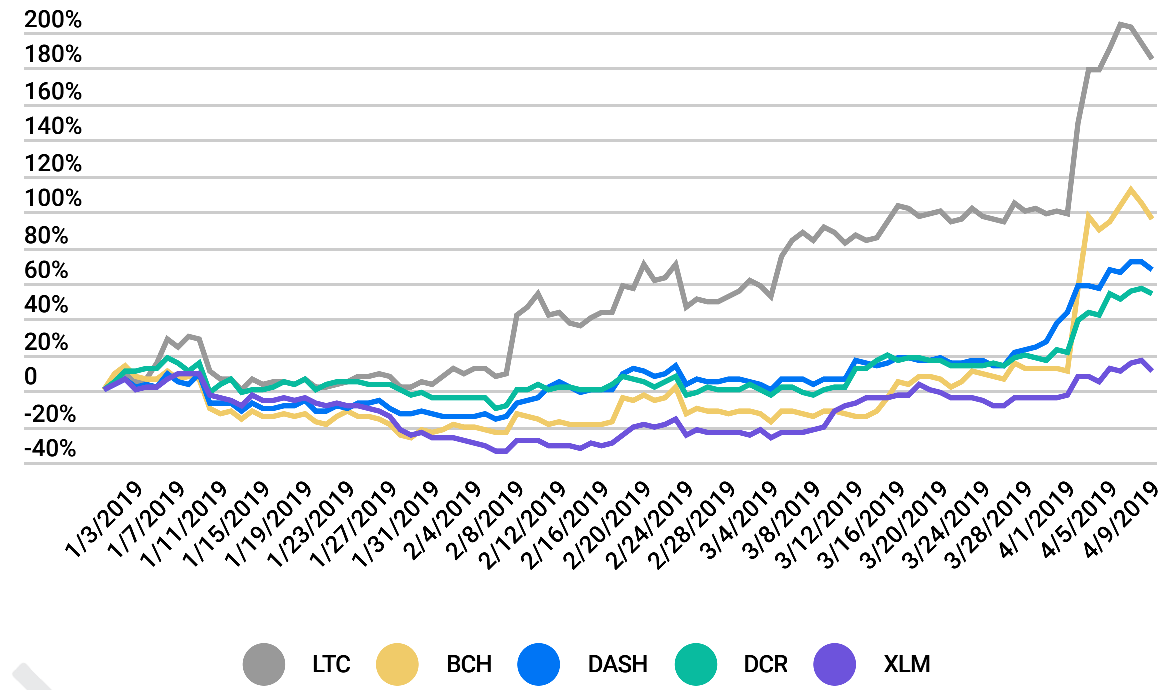
Some of the best performing crypto assets have come out of the payments sector this year, led by substantial gains in LTC and BCH, the latter of which has more than doubled in just the last 30 days. Decred is one of the most popular up-and-coming projects as of late, with many praising its unique blockchain-based governance model as an innovative way to democratize decision making. Its native digital asset (DCR) has appreciated roughly 50% in the last month.

60-Day Correlation w. BTC (Top) & ETH (Bottom)





Year-to-Date Performance



Returns in USD	7D	1M	YTD	6M
LTC	13.9%	51.8%	184.8%	47.8%
BCH	25.4%	122.9%	96.0%	-42.8%
DASH	6.1%	58.0%	67.3%	-26.9%
DCR	9.7%	50.1%	53.3%	-38.2%
XLM	2.9%	25.3%	11.1%	-48.6%
BTC	6.7%	31.7%	39.1%	-21.6%

Correlations in the payments sector are a bit more dispersed given the strong gains many of these assets have experienced year-to-date. The rapid advance in LTC in mid-February was an early indication that a more "risk-on" environment was beginning to take hold as the first quarter progressed.

Data as of April 9th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

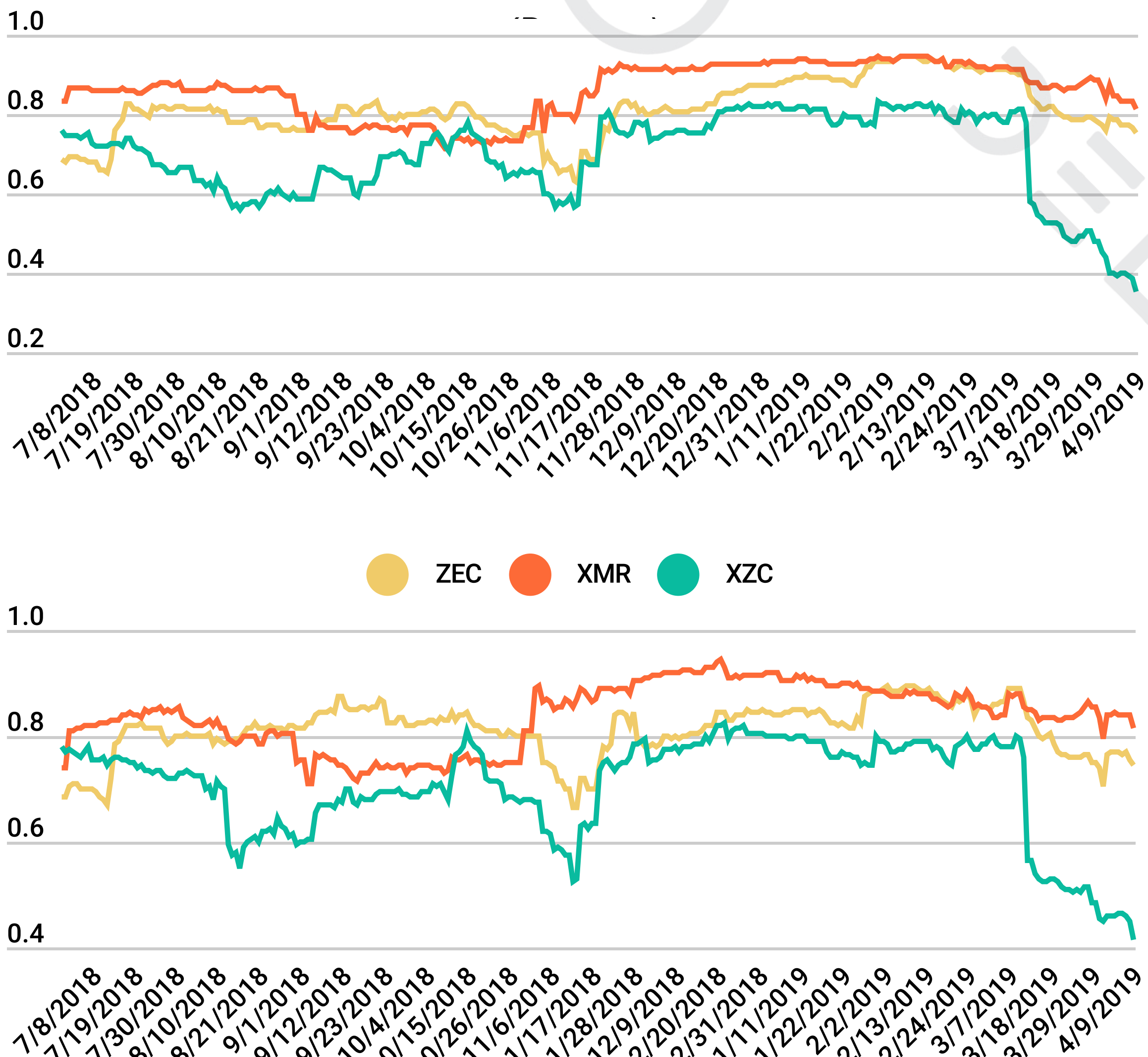
Privacy Update

	Monero	Zcash	Zcoin	Grin
Description	***Monero*** *uses ring signatures, ring confidential transactions, and stealth addresses to obfuscate the origins, amounts, and destinations of all transactions.*	***Zcash*** *is a bitcoin-derived blockchain that uses zk-SNARKs to provide strong privacy guarantees for shielded transactions. It was the first widespread application of SNARKs.*	***Zcoin*** *utilizes the Zerocoin protocols. It allows users to burn their coins and receive new, untraceable ones without any prior history associated with them.*	***Grin*** *is a new cryptocurrency that implements the MimbleWimble protocol allowing it to have a private and highly compressed blockchain.*
Notable Events in Q1	• CNV4 Fork launched to stifle ASIC miners. • Introduced an extra payment ID to each transaction	• NU2 Blossom Network Upgrade (scheduled for Oct'19) Goals were announced • Counterfeiting vulnerability remediated	• XZC spendable via PolisPay's Mastercard • Introduced Lelantus, Zcoin's approach to privacy using zk proofs without trusted set up. • Sigma private testnet went live	• Mainnet was released in January. • Grin accepted as forum payments on Bitcointalk. • Grin Block Explorer launched.
Looking Forward	• Working on Tari, which will be a merge-mined sidechain to Monero and allow for NFTs to be created.	• Light Client Protocol being developed as well as reference wallet for mobile devices. • Blossom Network Upgrade	• Sigma (Zcoin's upcoming replacement to Zerocoin) will remove trusted set up, reduce proof size, and improve security.	• Grin is working to support better wallet infrastructure, stamp out minor bugs, and increase the security of interactive tx building.

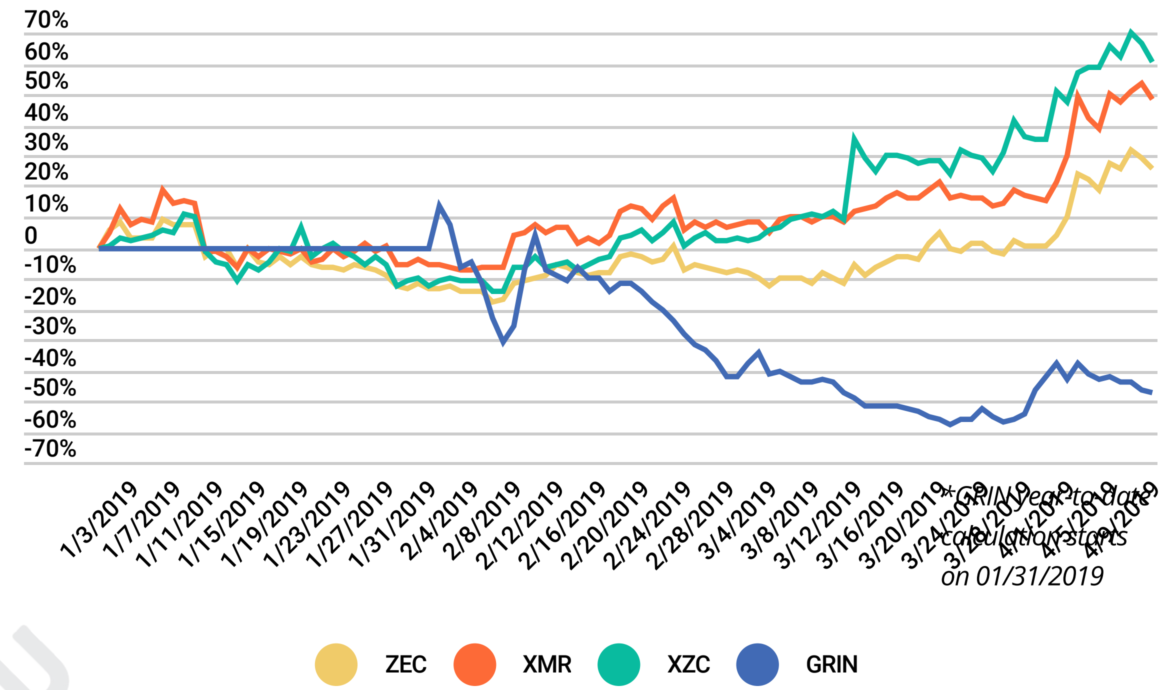
Privacy Sector: Performance

Privacy coins have lagged the rest of the crypto market for much of this year, though most are in positive territory year-to-date. ZEC and XMR, the two largest and most prominent names, have gained 40% and 35% respectively. Newcomer Grin has lost almost 50% of its value since the beginning of the year.

60-Day Correlation w. BTC (Top) & ETH



Year-to-Date Performance



Returns in USD	7D	1M	YTD	6M
ZEC	1.3%	39.1%	25.3%	-43.8%
XMR	-1.0%	34.2%	47.9%	-39.9%
XZC	2.2%	43.2%	60.0%	-15.6%
GRIN	-15.5%	-6.7%	-47.8%	N/A
BTC	6.7%	31.7%	39.1%	-21.6%

Correlations between privacy coins with both BTC and ETH were relatively flat for most of 2019 until they started to disperse over the past few weeks. XZC, which has gained 60% year-to-date, has seen its correlation with BTC and ETH drop due to their recent partnership with PolisPay's Mastercard.

Data as of April 9th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

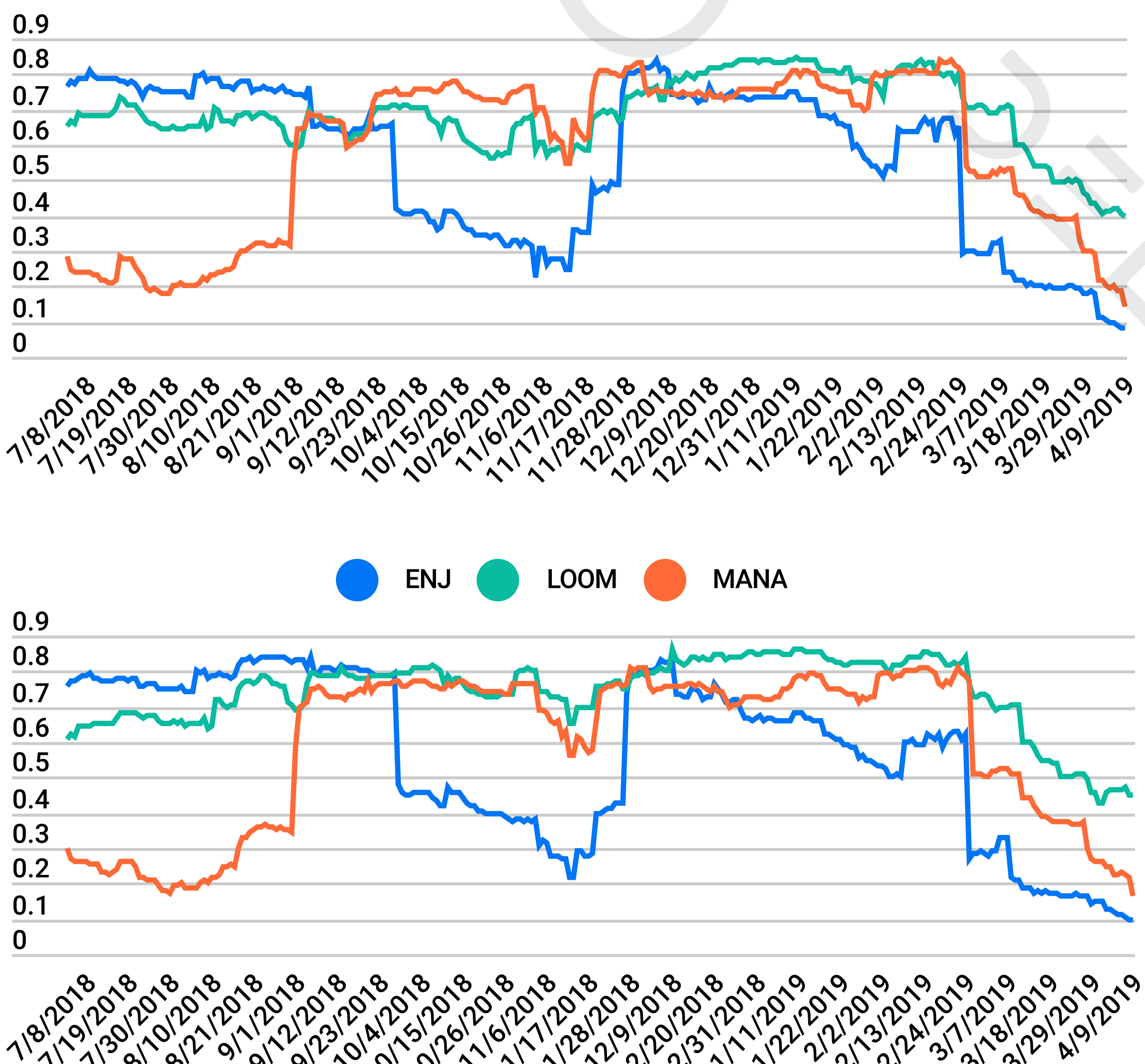
Gaming Sector: Overview

	Enjin Coin	Loom Network	Decentraland
Description	***Enjin Coin** is an ecosystem built on Ethereum that facilitates the development of blockchain-based games. **ENJ** is used within their ecosystem to create and trade blockchain-based game items.*	***Loom Network** is a layer 2 scaling solution that allows developers to build DApp specific sidechains ("DAppChains") on top of Ethereum. **LOOM** is used in a variety of ways within their ecosystem, with its primary utility derived from staking.*	***Decentraland** is a virtual world where you can build and explore 3D creations, play games and socialize. Decentraland is divided into a limited number of parcels, known as **LAND**. They also have a token used for trading goods and services called **MANA**.*
Notable Events in Q1	• Enjin's SDK Goes Live On the Unity Asset Store • Samsung Galaxy S10 Blockchain Keystore Wallet Supports Enjin and CryptoKitties	• PlasmaChain Staking Officially Goes Live (As Of 4/4 Over 14% of Total Supply Already Staked) • Loom Network Announces Integrations for Tron and EOS into PlasmaChain	• Decentraland Launches $55K Creator Contest • HTC EXODUS 1 To Offer Decentraland's Marketplace
Looking Forward	• Games leveraging Unity SDK launching • Additional SDKs: Godot, Unreal • Enjin Cloud and Platform API • Upgrades to DApps Browser for Wallet • Developer Wallet Mode & Notifications • ERC-1155 and ERC-721 Support for EnjinX	• New game launches (Neon District, Axie) • Launch of 1st token bridge for EOS & TRX • Major Wallet Integrations • On board a few more validators • Additional CryptoZombie Lessons • Ramp up marketing & promotions	• Launching the Unity Client for Decentraland • Allow users to easily create interactive content in the builder • Release Decentraland Avatars and ID management • Improve Developer Experience w/ SDK 5.1

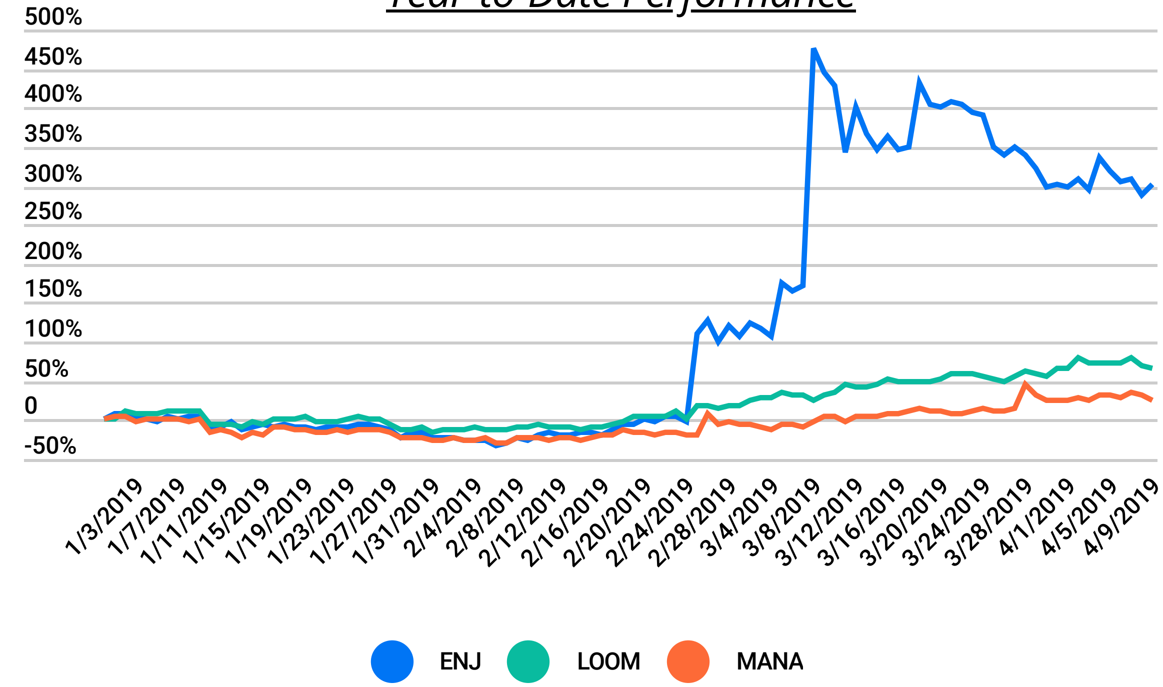
Gaming Sector: Performance

Enjin Coin has been the clear winner in the gaming sector this year with a +300% return year-to-date. ENJ initially jumped on rumors of a partnership with Samsung in late February, which was confirmed by the Enjin team in the following weeks. It has pulled back quite a bit from its recent high in March, but still boasts one of the best returns YTD of any crypto asset.

60-Day Correlation w. BTC (Top) & ETH (Bottom)



Year-to-Date Performance



Returns in USD	7D	1M	YTD	6M
ENJ	-1.4%	-23.7%	302.0%	183.4%
LOOM	-7.8%	22.7%	65.3%	-33.9%
MANA	-1.0%	20.1%	26.3%	-24.0%
BTC	6.7%	31.7%	39.1%	-21.6%

Loom Network staking also went live for delegators in February, which has driven up demand for LOOM in the last six weeks. As of April 9th, there are over 140 million LOOM tokens being staked (roughly 18% of circulating supply), an impressive feat in such a short period of time.

Correlations between ENJ, LOOM, and MANA with both BTC and ETH have been falling drastically over the last several weeks after ending the year at elevated levels (between 0.7 and 0.8 for 60-day period).

Data as of April 9th, 2019

Source: Binance, Bitfinex, Bittrex, Kraken

DeFi: Lending & Borrowing

DELPHI DIGITAL

	MAKER	Compound	dharma
Description	**MakerDAO** is a borrowing platform built on Ethereum. It allows users to open a collateralized debt position (CDP) by posting ETH as collateral to borrow against.	**Compound** is a protocol for algorithmic, efficient money markets on Ethereum. Users can supply assets to the protocol and earn interest, or borrow from the protocol and pay interest.	**Dharma** is a platform for building lending products on Ethereum. Dharma Lever is one these products and provides instant marging loans for traders.
Notable Events in Q1	• Stability fee increased from 0.5% to 7.5% • First Dapp created on the xDai sidechain • Published "Dai in Numbers" • imToken introduced 12K users to CDPs	• Announced V2 of the protocol • Compound spent a majority of the first quarter of 2019 focused around strategic planning for the rest of the year.	• Dharma Lever went live in closed Alpha • Originated over $650k in borrow volume • Had over $1.25M in total lend volume • Added DAI Support
Looking Forward	• Multi-collateral DAI coming soon • DAI Savings Rate • Upgrades to the Maker Ecosystem Foundation Structure	• Granular Risk Modeling: Each asset will have its own collateral factor. • Asset Gateways: Will allow Compound to support Ether without 'wrapping' it first • Governance Improvements: mechanics for each asset can be upgraded over time.	• Dharma Public Release in April • Adding support for USDC, BTC, etc. • New Loan Structures

Security Tokens Update

For insights into the security token market, we reached out to a few leaders within the space. Given how early it still is, we asked them what has them most excited for 2019.

Mason Borda
CEO of TokenSoft

"Moving into Q2 of 2019, we're enjoying the broad market focus on technology and infrastructure across providers and industry participants alike. 2019 reminds me of 2015. We're starting to see results from the efforts being put into technology. Emerging examples include privacy solutions like Aztec Protocol, standards for asset-backed tokens like ERC-1404, and Coinbase's entry into staking services. We hope that the work being done in the next quarter will set up the industry for a strong foundation as we enter 2020 and the coming years."

Chris Pallotta
CEO of Templum

"As Templum looks forward to the balance of 2019 we are most excited about the institutionalization of the smart security sector. In conversations with prospective issuers, we're starting to see both an increased recognition and willingness, to pursue digitization as a strategic alternative for private placements they would have previously conducted in a non-digital form. We've had significant inbound interest from issuers & investors for yield-based products which we think will be the first to gain traction in this evolving market. Finally, we're starting to see the willingness for existing financial institutions to take part in this ecosystem as long as there's the appropriate technological and regulatory construct."

Carlos Domingo
CEO of Securitize

"What excited me the most about 2019 is to see a traditional financial institution supporting an STO from an established business so that it brings legitimacy to the space."

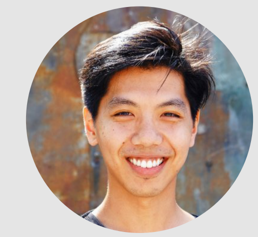
Contributor Pieces

Introduction

For the following section, our team reached out to a few people we respect and enjoy keeping up with across the space. We wanted to thank each and every one of them for their time and for sharing their unique perspectives with our clients!

Bootstrapping A Crypto Network

Independent crypto analyst **Tony Sheng** discusses the importance of network effects for projects in the space.



Regulatory Considerations

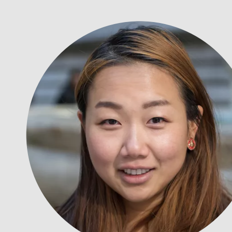
Andrew Lom and **Rachael Browndorf** of Norton Rose Fulbright outline some regulatory considerations investors should be aware of when trading altcoins.

Narrative Watch

Long Reads Sunday Curator **Nathaniel Whittemore** walks through five emerging narratives he believes are shaping the conversation around crypto.

Asia Market Outlook

Finally, **Joyce Yang** of Global Coin Research ends our quarterly report by giving an in-depth look into the ongoing developments of Asia's market.



Bootstrapping A Crypto Network

Tony Sheng

Tony Sheng is an independent crypto analyst and angel investor. He publishes biweekly essays on the business and strategy of crypto for investors and operators.

We recommend that you become a member at tonysheng.com/membership.

Paul Graham wrote that [startups = growth]. Getting growth right, he argued, could make up for getting a lot of other things wrong. This philosophy has served his firm Y Combinator (and the rest of Silicon Valley) well.

The most valuable startups build network effects. Each user gets more value from the startup every time the startup adds another user to the network. Successfully growing a company with a network effect leads to the massive impact enjoyed by companies like Facebook, Google, Uber, and Airbnb.

By and large, the projects in the crypto space aspire to build massive and sustainable networks. Whereas companies that operate network-effect businesses can run into conflicts of interest (the interests of the company run counter the interests of the user), a "decentralized" network has no operator, so naturally takes a form that satisfies the interests of all its participants.

If this logic holds, crypto projects have the same imperitive to grow as startups. Grow fast and obtain an insurmountable lead over competitors. Fail to grow and the network effect never materializes.

Growing a network tends to require subsidizing one side of the network. For example, Airbnb and Uber subsidized the "supply side" of their marketplaces by providing homes and cars to their users at a discount. This is often called "bootstrapping" the network.

Most crypto projects want to encourage people to build things on top of their protocol. The most common example of this is a "smart contract protocol" like Ethereum. In this case, ones intuition would say, bootstrap the network by subsidizing developers.

Ethereum has successfully bootstrapped the supply of developers (compared with competing protocols). Hundreds of teams raised money through Initial Coin Offerings (many are still very active today) and even more have built various apps and utilities without issuing their own token. Ethereum accomplished this in a variety of ways--enabling capital formation through ICOs (probably the biggest way), direct funding through grants, and more.

Bootstrapping A Crypto Network

But perhaps the most interesting way they bootstrapped supply was to generate a sort of mass movement around Ethereum itself, growing a community of Ethereum supporters, some of which were developers or interested in becoming developers. The simple self-interest of feeling excited about Ethereum combined with the financial incentive of wanting to see their own Ethereum holdings increase in value formed a pool of early adopters willing to build on a platform with no clear demand for the things they were building.

Now, two years after the big ICO boom of 2017 and over five years (wow) after Ethereum's founding, a substantial developer community continues to build--see DeFi, crypto games--but I hesitate to say that it has successfully grown a network effect. There appears to be a surplus of products and services created by developers and a shortage of users.

Perhaps it's the demand side of the marketplace (actual users of stuff) that needs subsidizing.

That's happening. The users that we see tend to be drawn from the same pool of Ethereum supporters as the early-adopter developers that decided to build on an immature platform without users. They are enthusiasts with a financial incentive. They are willing to suffer the inefficiencies and costs of using crypto products and services today, even if they aren't benefitting much beyond speculation.

In the case of Ethereum, both sides of the marketplace--developers and users--are being subsidized by believers in the network itself, paid in gas fees and tedious user experiences.

This year, we will see the launch of several highly anticipated competitors such as Cosmos, Dfinity, Algorand, Polkadot, and literally dozens of other projects that have raised tens of millions (oftentimes more) of dollars.

<u>What I'm curious about:</u>

Will true believers in those platforms bootstrap their networks the same way Ethereum did or will these projects successfully recruit developers or users that couldn't care less about the underlying protocol, attracting them with direct benefits. If the winning growth model is continuously expand the population of believers, some of whom will bootstrap both sides of the network, eventually reaching some critical mass, Ethereum is squarely in the lead. If it's more like traditional startups, it's anybodys game.

Regulatory Considerations

Rachael Browndorf
Norton Rose Fulbright

Andrew Lom is a partner and US co-head of the firm's Asset and Wealth Management practice. He has been recognized by the National Law Journal as a Fintech Trailblazer. **Rachael Browndorf** is an associate and part of the firm's FinTech team. They advise startup and institutional clients on legal issues surrounding token issuances, blockchain platform governance, on-chain/off-chain interfaces, smart contracts mechanics, ongoing regulation, contract enforcement and tax. Their client's projects have included a system to track the provenance and location of moveable assets, a healthcare information database, a collateralized token lending platform, a distributed ledger for real estate assets, an insurance risk-sharing platform, an OTC power trading platform, and several cryptocurrency funds.

Andrew Lom
Norton Rose Fulbright

Altcoin Trading: Regulatory Considerations

When discussing US regulation of cryptocurrencies, blockchain and digital assets, or altcoins other than Bitcoin, it is hard not to mention the name "Howey." The key focus in many circles and the hot topic of debate among SEC commissioners and staff has been whether it's feasible to cover these new technologies under the existing securities laws – the "Howey test" – or instead whether a new regulatory framework is needed. While many token projects have tried to distinguish themselves from securities issuers by promoting their so-called "utility tokens," what an issuer labels its tokens has no bearing on the actual "economic reality" of the tokens or their regulatory treatment.

At the same time, the decentralized nature of many token projects makes it difficult to fit squarely under the SEC's regulatory framework. While traditional securities offerings generally have a management team and underwriters, token offerings tend to have a number of unaffiliated people or no one to fulfill such roles on a regular or ongoing basis. Moreover, special challenges arise with regard to the disclosure regime for a token project. For these projects, most of the important information and terms – arguably what could be considered the "material" information – are found in a white paper, describing how the platform and token work (or intend to work), risks factors of participating in the project and governance structure (if any). This white paper is highly technical and may be difficult for even the most sophisticated investor to understand. Conspicuously absent are the audited financial statements usually seen in an investment prospectus.

The rare exception in this debate is Bitcoin: SEC Chairman Jay Clayton has stated that cryptocurrencies acting as currencies used for carrying out transactions, or which are substitutes for fiat currency, will not be regulated by the SEC, in part because it would add little value to attempt to apply the federal securities disclosure regime to the offer and resale of Bitcoin.

Regulatory Considerations

While the focus has centered on whether or not a certain token is a security and how it is used in token project fundraising, less attention has been paid to the regulatory regime with respect to secondary market trading of tokens. Once a token project successfully raises money, develops its platform and token and then delivers such tokens to investors, there are additional ongoing restrictions if the holders of the tokens want to go into the market and resell such tokens. It is more difficult to trade these tokens than it is to buy and sell Bitcoin.

Trading of crypto-assets is regulated in the US by numerous agencies at both the federal and state levels. A platform that offers trading in digital asset securities or operates as an "exchange" needs to understand the various broker-dealer rules, registration requirements and exemptions to determine whether and where it fits in the SEC and/or FINRA regulated categories of broker, dealer, alternative trading system, bulletin board or something new.

Those who advise on the trading of crypto-asset securities may be subject to regulation under the Investment Advisers Act and advising on crypto-asset commodities may require registration with the National Futures Association as a commodity trading adviser or a commodity pool operator.

If a token is meant to be non-transferable to ensure it does not run afoul of certain securities and commodities regulations, is it the developer's responsibility to have included such transfer restrictions into the smart contract – the code that governs the token? If a token is a security and transferable but not compliant with securities laws, do the traders of such tokens assume any liability for the tokens they sell? Can buyers reverse purchases of non-compliant crypto-asset securities if the price drops later? The answers to these questions are often, generally, yes.

Before purchasing crypto-assets other than Bitcoin, investors would be well-advised to consider the differences between these crypto-assets and Bitcoin, not only in terms of what the token does (or is supposed to do) but also the ways in which the token is regulated and traded.

About NORTON ROSE FULBRIGHT

Norton Rose Fulbright is a global law firm with more than 4000 lawyers and other legal staff based in more than 50 cities across Europe, the United States, Canada, Latin America, Asia, Australia, Africa, the Middle East and Central Asia. Their global FinTech practice advises clients on the legal, regulatory and policy challenges related to the development and deployment of technology in the financial services sector.

Narrative Watch

Nathaniel Whittemore
Curator of LRS

About Nathaniel Whittemore

Nathaniel Whittemore is the curator of Long Reads Sunday, a livestreamer, and independent consultant for crypto projects and companies. Before diving headlong into crypto, Whittemore brokered startup partnerships with Fortune 100s, invested as a VC in education tech startups, helped launch Change.org, and built a global program design center for high impact student service at his alma matter Northwestern University.

Narrative Watch: 5 Emerging Narratives Shaping The Cypto Conversation

Like any nascent industry, one of the key features of crypto is the never-ending battle for the narrative. Narratives are both how we make sense of new phenomenon as well as attempts at self-fulfilling prophecy, designed to incept the community into seeing the world in such a way that is beneficial to one’s position. In other words, market narratives are marketing.

Understanding this does not diminish the importance of narratives, but it does help us contextualize them and in so doing, reduces their ability to make us over react as one narrative subsumes another.

The narratives below represent a snapshot of the emergent conversations. Each is still developing but has something interesting to tell us about the state of crypto today.

1. **The Return of Token Sales**
2. **Ethereum Competition**
3. **Who Cares About Governance?**
4. **Fair Launches vs. Dev Incentives**
5. **Fund Consolidation**

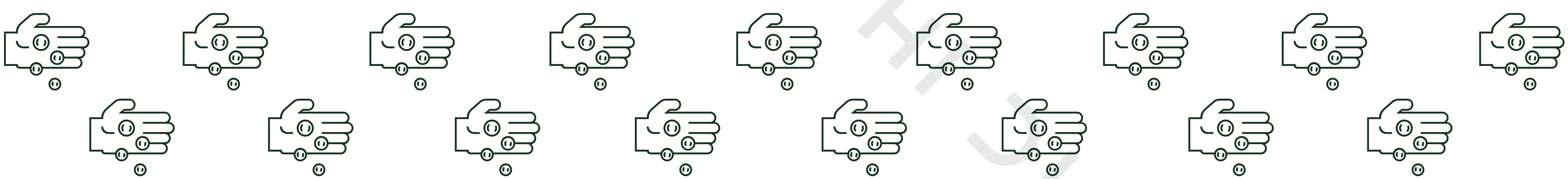
Narrative Watch

1 The Return of Token Sales

As the narrative of token sales goes, so goes crypto. 2017 was the Cambrian explosion. 2018 was the stragglers to 2017 racing to suck all the marrow from the bone of the ICO before its star faded. Since the back half of last year, token sales have been fundamentally off narrative, with even many of the hedge funds that emerged shifting their strategy to focus on equity investments. Although security token offerings (STOs) were heralded by some as the next coming, they've yet to really make a dent in the market consciousness other than providing something for former "ICO Advisors" to switch their LinkedIn bios to.

It is interesting then to see a growing frenzy around Initial Exchange Offerings or IEOs. First modeled by Binance with their "LaunchPad" platform, an IEO is more or less just an ICO that goes straight to the exchange hosting it. On the one hand, by incorporating the exchange listing, it offers immediate liquidity. On the other hand, it is even more fundamentally centralized and designed with the incentives of the exchange in mind.

Yet for many in the action-hungry crypto market, the results were hard to ignore. Binance's offering of the Tron-backed BitTorrent Token sold out in two sessions of under 15 minutes each. Their second project Fetch.ai sold out in ten seconds. Subsequently, at Token49 in Hong Kong, The Block's head analyst Larry Cermack noted that IEOs dominated the conversation, with every other exchange racing to catch up. Now, somehow, we find ourselves back in a world where people are competing for the vanity metric of how fast their IEO sold out.



What to watch for:

It is clear that there remains demand - especially globally - for these short term token pops. What's less clear is how sustained that will be as every exchange launches their own version of LaunchPad. If - as seems likely to me - the success of these sales starts to deteriorate rapidly as more exchanges jump in, this trend and narrative could burn itself out almost before it begins. If, on the other hand, they're able to continue to be successful, it could be ICO-all-over-again.

Narrative Watch

2 Ethereum Competition

As the first viable smart contract platform, Ethereum had a significant window in which it was the only game in town. This allowed it to build significant moats, particularly around its developer network.

This has changed, as a wave of base layer competitors all purporting improvements on some vector - be it throughput or scalability or governance - come online, often with big war chests to start trying to incentivize developers to move.

The challenge of this new competitive presence is compounded by two factors. The first is frustration with the project around the speed of shipping upgrades and improvements, exemplified this past quarter by the delay in the Constantinople hard fork, and even more importantly in the current roadmap that doesn't have Eth 2.0 coming online until 2021.

The second is, for many, that the competitive challenges aren't just from outside but from within. There is a growing conversation about whether interoperability chains like Polkadot that theoretically work with and are of the community are in fact competitors. This has boiled over into some very public crypto Twitter spats in the last month, and seems likely to be a growing point of conversation rather than something which can now be swept under the rug.

What to watch for:

Analyst and investor Arjun Balaji called the community fracture Ethereum is now experiencing part of the public blockchain hero's journey. In other words, it is an inevitable part of growing to the next stage. I tend to agree. It was inevitable that Ethereum would have to compete for developer attention as new solutions come to market - especially in a context with financial stakes as high as those of cryptoassets. The question I'm most interested in is how resilient the edges of the Ethereum developer community are. Do they double down or do they act on a protocol agnosticism to simply find the best solutions for building what they want to build?

3 Who Cares About Governance?

As protocols mature, the implications of their decisions take on increasingly higher stakes. It is no wonder then that governance has emerged as one of the dominant narratives of 2019.

At core is a question of whether protocols should be adopting some form of on-chain, formalized (or at least hybrid governance), versus the semi-formal, social accountability, and governance-by-exit based systems that have animated Bitcoin and Ethereum to date. Like the emergent competition around Ethereum, this narrative is also driven by new market entrants offering on-chain alternatives and forcing existing communities to ask whether something like those systems would give them a better chance to shape the direction of the protocol.

Interestingly, Governance (in particular on-chain governance) has a counter-narrative, which is abysmal voter turn out in the systems where it is currently enacted. Even in high stakes decisions like the recent decision to hike the MakerDAO stability fee significantly, less than 1% of Maker holding addresses actually participated in the vote. Similar results were seen with a recent Aragon Project vote around proposals to deploy approximately $6m to foster protocol development. Just 0.3% of holders (60 out of >20k addresses), representing 9.3% of circulating ANT voted.

What to watch for:

There are many reasons that voter turn out might be low in a governance system. The UX for voting is in most of these protocols doesn't make it clean and easy. What's more, votes are often on highly technical issues that involve significant background knowledge to make an informed decision.

At the same time, it may be that the simple fact of protocols is that they are destined to be a form of crypto plutocracy, with only those with the highest stake caring enough about the outcome of decisions to drive the decision-making. In Tezos, where users who stake delegate their vote to one of a much smaller number of bakers, a first exploration vote hit 82.44% of all stake voting.

Interestingly, Coinbase recently announced that they would be supporting Tezos staking and MakerDao governance natively through their Custody product. A key question around governance will be to see whether improvements in the experience of voting like this actually expand the audience who participates. Yet another will be to see how sentiment evolves around systems that use a form of delegated voting. Are they just plutocratic re-do's of our current centralized systems, or will some find the right balance of decentralization and efficiency?

Narrative Watch

4 Fair Launches vs. Dev Incentives

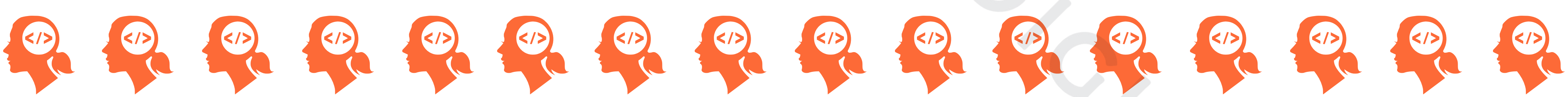
One of the most hyped moments of Q1 was the launch of Grin's implementation of the MimbleWimble protocol. There were many reasons for the excitement, including an interest in privacy coins, a feeling of the mythos of crypto with pseudoanonymous teams, and of course, a healthy dose of Harry Potter lore.

Undeniably, however, the estimates tens of millions in VC-backed mining interest was more about the promise of a "fair launch." Unlike other tokens, there were no pre-mines and no private sales to investors before mainnet went live and became available for mining. Put differently, if you were a VC, no one else in the market could get a better "price" than you if you were first to mine. For the founding team, it wasn't just about bringing in money interest, but about simply the right way to build a global open blockchain protocol and cryptocurrency.

A few weeks after launch, pseudo anonymous project founder Ignotus Peverell took frustratingly to the communities boards to decry how things were evolving. Specifically, he lamented that while big business interests were churning through millions on mining, one of the projects lead devs Yeastplume couldn't get $50,000 through a crowdfunding campaign to support working on the project full time for the next 6 months.

The ensuing debate reignited a conversation about developer incentives that has been consistent background noise around crypto protocols. On the one hand, people want a purity of the economic model that doesn't treat developers preferentially. On the other, they want the protocol to work perfectly.

Questions around dev incentives with open source software development have been around since the beginning of OSS. The stakes are raised and the questions are much bigger, however, when the software being developed is the basis for a digital money.



What to watch for:

The patina of the fair launch narrative has come off a bit after Grin. In that, it has opened narrative space for projects to argue more vociferously and with more justification for some sort of model that aligns incentives between developers and the rest of the market network surrounding a protocol, such as Zcash's founders reward. As new protocols come online, it will be interesting to watch to see if there become new norms of what is acceptable for developer teams to ask in exchange for building an maintaining open protocols.

Narrative Watch

5 Fund Consolidation and the Blurring of Public and Private Markets

ICOs weren't the only thing that popped in 2017. Literally hundreds of new hedge funds arose, all focused on digital assets. Even in the height of the mania, many recognized that the massive market fragmentation was unlikely to persist. As 2018's bear market dragged on, one of the behind-the-scenes narratives was fund withdrawals as lockup periods ended and investors could take their money out.

Today, the fund narrative isn't around withdrawals but an emergent trends towards collaboration and consolidation as top allocators build their roster of talent and skillsets to engage with a market that doesn't easily fit into traditional categories. By way of example, Arrington Capital recently acquired an Australian fund ByteSize that brings with it a suite of proprietary data software to help inform more active investing strategies. Morgan Creek Digital - itself the product of Morgan Creek's acquisition of Full Tilt Capital - announced it would be the lead investor in Ikigai Asset Management - a combined equity and active management fund from former point72 manager Travis Kling.

Part of the context for this trend is a growing recognition of how crypto blurs public and private market strategies. Funds are feeling the pinch of the limits of traditional boundaries and looking at new ways to combine investing disciplines. There couldn't be a better example of this than Andreessen Horowitz recent decision that all staffers would become registered financial advisors.

MORGAN CREEK CAPITAL MANAGEMENT   IKIGAI ASSET MANAGEMENT   arrington XRP CAPITAL   ByteSize CAPITAL

What to watch for:

This feels like an inevitable mega trend. In a space that has includes a full spectrum of assets from public base layer protocol tokens to private equity sales to passive income generating assets through staking, sticking too firmly to anyone strategy could become a liability (or at least seen as so...which in the context of continually fundraising cycles is as good as being a liability). Keep an eye out for allocators not only diversifying strategies but joining forces in unexpected ways to do so.

Asia Markets Outlook

Joyce Yang
Founder of GCR

About Global Coin Research:

GCR is a research firm focusing on Asia crypto and blockchain. We contextualize and analyze current happenings in Asia and share our insights on the markets, regulations and the latest technology developments.

Global Coin Research is founded by Joyce Yang, a former technology equity analyst at Merrill Lynch and China Investment Capital Corporation, China's largest investment bank. Joyce is based in NYC but travels to Asia about once a month to uncover the happenings on the ground.

Asia markets are back to RISK ON mode

On a macro level, China saw GDP expanded 6.6 percent in 2018, the weakest pace since 1990. Chinese regulators recognizes that they need to rebalance their economy away from fixed asset investment and property. However, it appears difficult for President Xi Jinping to push through these changes, and subsequently now we are seeing China returning back to its old trick, and cutting reserve requirement ratio (RRR) for banks to boost liquidity. The National Development and Reform Commission have also released recent reports saying they're going to loosen up the restraint on shadow banking to allow the local governments to get more money to essentially finance property. We highly encourage you to listen to our podcast episode with Leo Weese, the head of Bitcoin association of Hong Kong, talking about shadow banking and bitcoin adoption in China. What this is all pointing to is a risk-ON market environment in China, with ripple effects in the rest of Asia, which I certainly believe is going bolster the crypto market locally and subsequently globally.

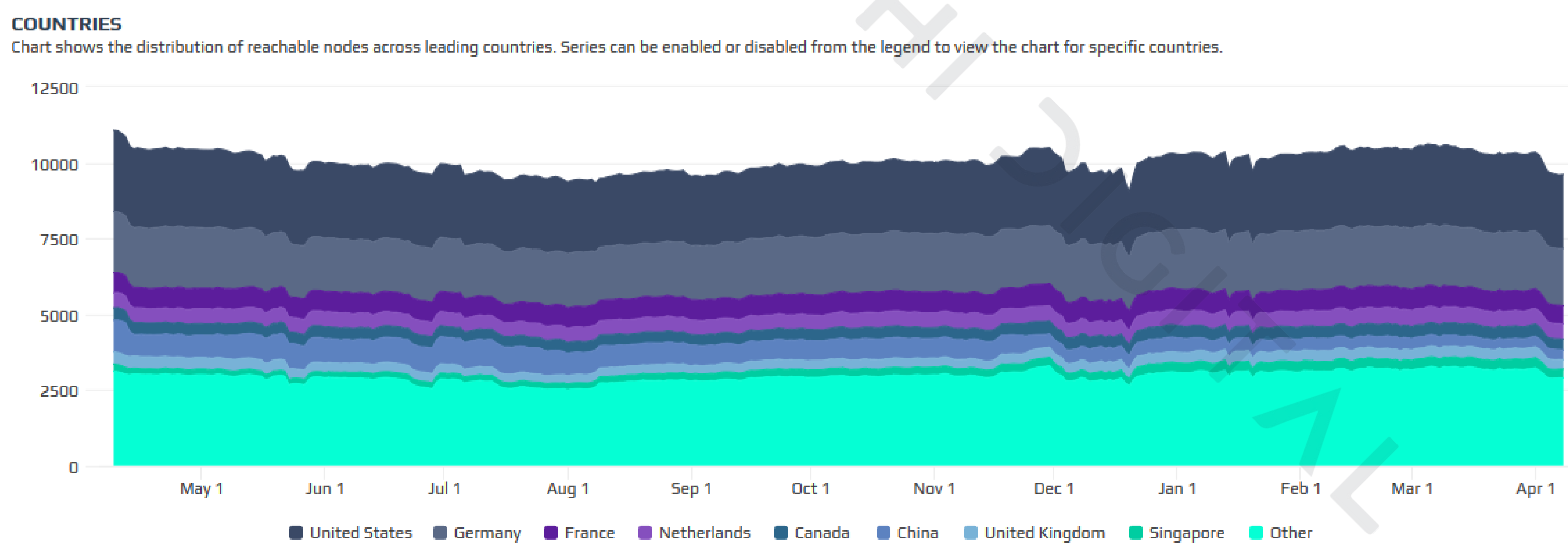
We discuss in more detail about the market environment and provide commentary from Arthur Hayes, CEO and founder of Bitmex, the largest derivative exchange in our report- “On Bitmex and the Current Global Crypto Markets Conditions”. We recently conducted a conference call in collaboration with The Information and Arthur Hayes highlights that Asia is the epicenter of crypto, with most of Bitmex's volume coming from North Asia.

Asia Markets Outlook

China and Mining

Along with the markets, we saw the China mining scene and any involvement with SHA256 declining in the last couple of months. There was a brief period in January when mining Grin was the hot thing in China, but that did not sustain at all. Canaan, Bitmain let its IPO filings lapse in Q1, but we have already written about how Bitmain is diversifying away from asset heavy mining farms and is going through a pretty large transition in its business model to stay afloat. Bitmain just came out with the new Zcash miner and a updated SHA-256 miner, but we haven't seen much reception in the market thus far.

By the numbers, Bitcoin nodes from China declined from 18% to 4% of the total nodes over the last year. Bitcoin full nodes are essentially broadcast centers for the Bitcoin network. After a transaction is broadcasted to the network, Bitcoin miners will confirm the transaction and record it on the blockchain. Running full nodes will not be rewarded and Bitcoin transactions can be successfully completed without full nodes. But full nodes are still the backbone of the network. It’s remarkable how China dropped all the way from 2nd place last year to now 6th, from 2292 nodes to ~400 nodes, which equivalent to a drop of 14 percentage points. It is interesting to note that among the top 6 countries that are running full nodes, no other country saw more than 5 points of change during the same time. The ranking order in which each country are placed also did not change, except for China.



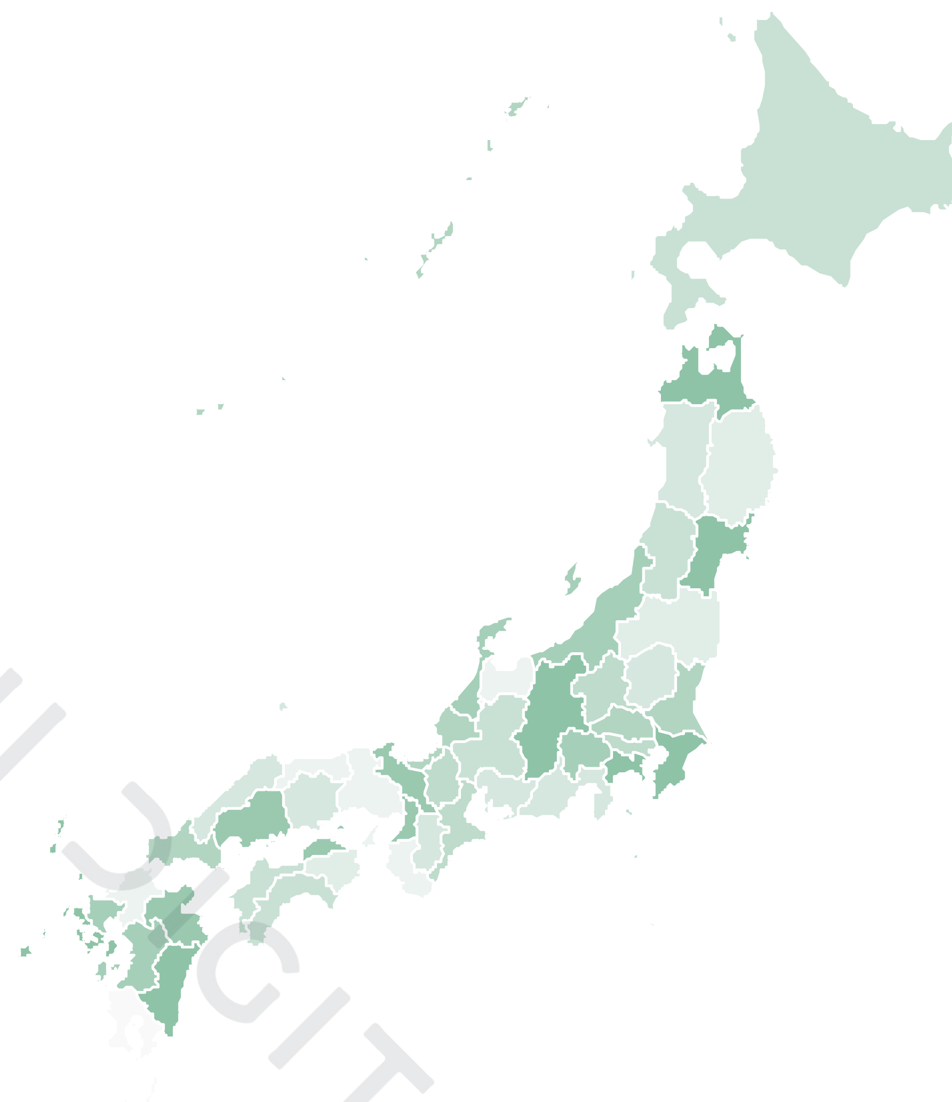
Asia Markets Outlook

Japan

We have been seeing increasing restrictions rather than welcome messages coming from Japan this year, with the regulators imposing limited crypto advertising and margin trading. Simultaneously, under increasing regulatory scrutiny, Japanese exchanges are trying to grow up as they get rolled up by financial and internet service companies.

Japan also just prohibited speculative crypto advertising and solicitations, which will make it difficult for crypto companies to carry out excessive publicity activities. Additionally, the regulators announced that the leverage of cryptocurrency margin trading shall be no more than 4X. Bitmex was originally looking to acquire an exchange in Japan and extend its presence there but now any kind of geographical expansion and business opportunities is capped by ongoing, stricter regulations. An affected party was SBI's new exchange, which was supposed to launch soon but got pushed to July due to regulatory issues surrounding leveraged trading and security.

One of the most popular coins in Japan, NEM, plans to lay off 150 people after realizing the foundation only has 1 month of operating runway, and its predicament and poor cash management (see details below) foreshadow what we may see from other projects in the next few quarters. Despite drawbacks, large corporates and conglomerates in Japan still look to establish more solid blockchain technology through their foreign partnerships.



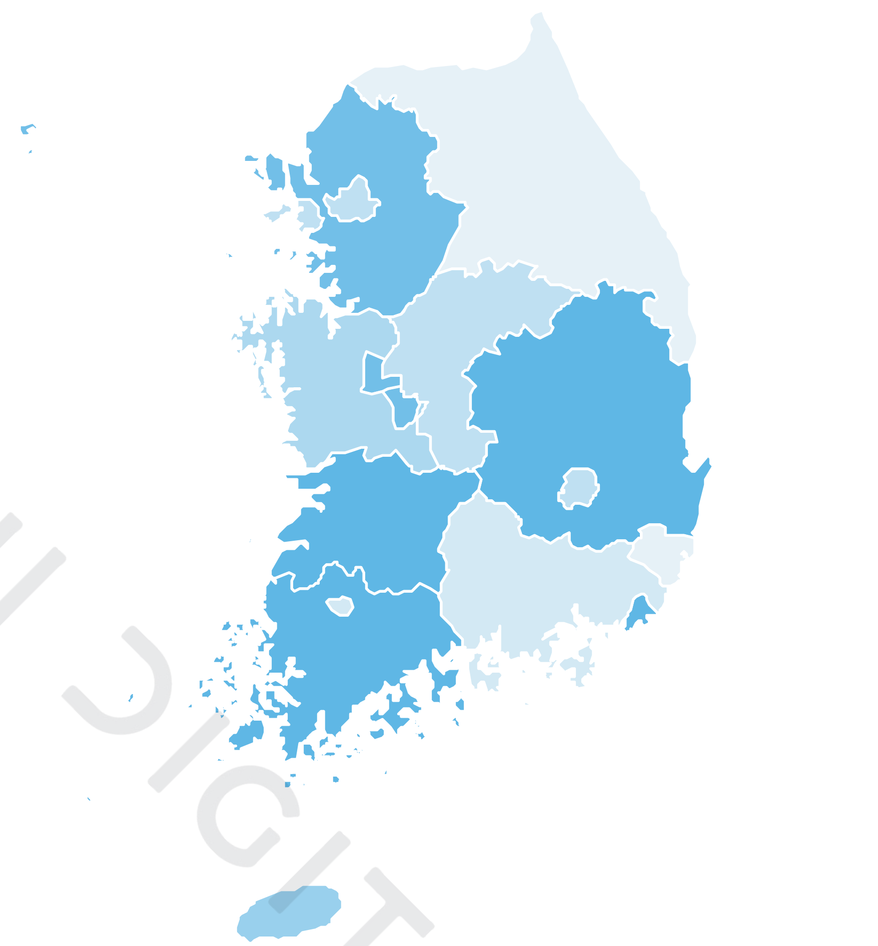
Asia Markets Outlook

Korea

Korea has a highly educated population. I was there in January for the Tezos developer conference and I shared my trip experience with Laura Shin on her podcast Unconfirmed. The educated and financially frustrated young generation in Korea, excited by a glimpse of hope delivered by Ethereum and Ripple when they first entered the market and rallied, essentially drove the crazy crypto Korean market that we saw in 2017 and 2018. However, exchanges seem to be compromising with fast growth, and recently we saw the largest crypto exchange Bithumb getting hacked again for the 3rd time.

And just like the rest of North America, we are seeing projects continue to build and gather developers. For example, Tezos, whom I'm a consultant for, put on a successful conference with executives and developers. As part of their plans to facilitate and accelerate blockchain development, the Korea Tezos Foundation has entered agreements and partnerships with local universities, including a Memorandum of Understanding with the Seoul National University, the number 1 ranked university in Korea, and Yonsei University, also another top university, both around November 2018.

One positive was that Samsung's Galaxy new smartphone S10 started shipping and will incorporate a cryptocurrency wallet. Out of the entire press release about the new phone line, Samsung's only reference to its cryptocurrency wallet was: "a secure storage backed by hardware, which houses your private keys for blockchain-enabled mobile services".



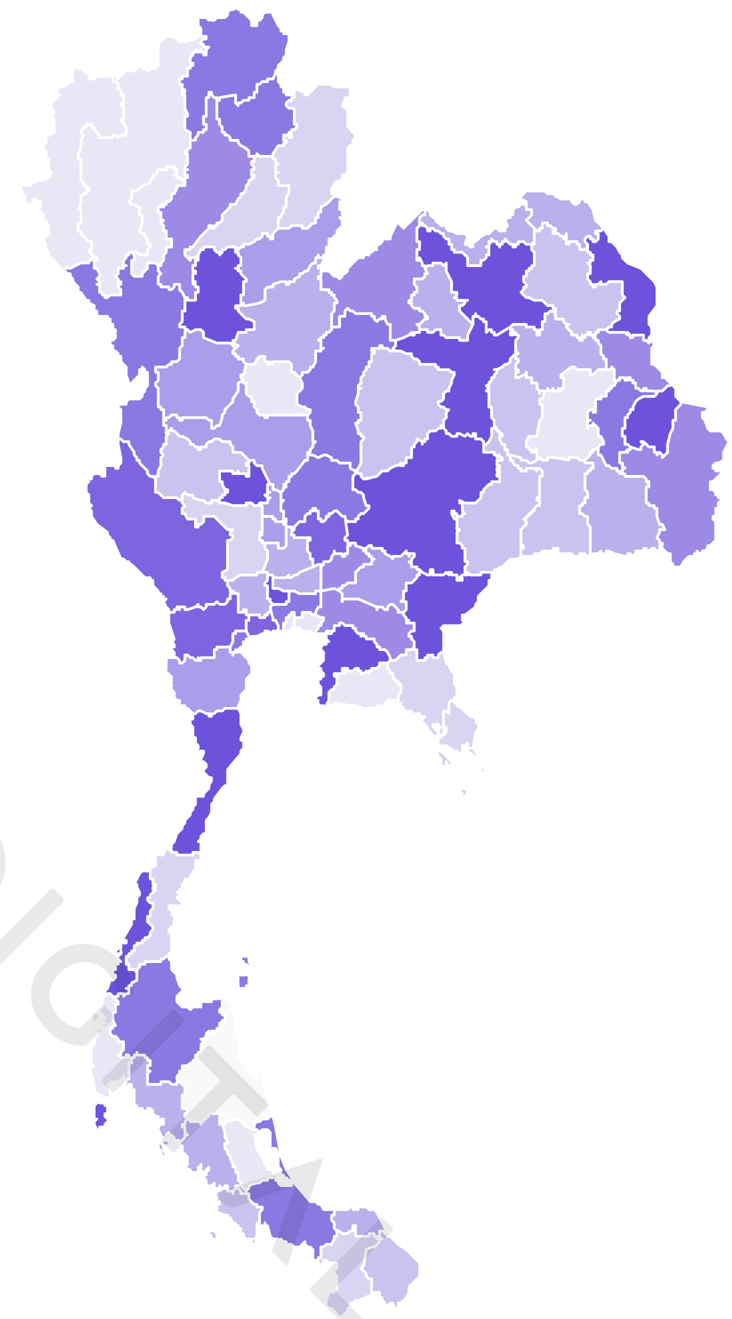
Asia Markets Outlook

Thailand

In our state of Asia report in February, we also highlighted that Thailand has emerged as one the most interesting cryptocurrency and blockchain countries in Southeast Asia. Since early 2018, the regulators have been continuously issuing new rules and have made notable progress, from setting up cryptocurrency company licenses to permitting exchanges and ICOs. They have now given the green light for blockchain-based securities issuance and trading.

Indeed, when I was there in March for a conference, the spirits were high about the outlook of Thailand and security token offerings (STOs) when Elevated Returns, a New York based financial company, has announced to partner with Tezos and Seamico Securities to expand into Thailand, targeting $250 million in transactions this year with $100 million devoted to tokenize real estate in Thailand.

In Southeast Asia, Thailand is up against countries such as Singapore that have also positioned itself as a hub to attract blockchain capital and projects. Nevertheless, financial literacy is not very high in Thailand, and the Thailand capital market is still quite nascent. The regulators are making up for that by implementing regulations that are the most welcoming for crypto foreign businesses, trading platforms and talents to enter. As a result, we are seeing the regional crypto businesses and exchanges becoming receptive to the regulators' openness. Recently, the 2nd largest exchange OKEx has launched support for Thai baht-crypto trading, while other foreign exchanges such as from Japan have also made initial forays into the market.



Decentralised Finance (DeFi) and Trading

Asia is the epicenter of Crypto trading and will increasingly be more so. From talking to various people and projects from the West, many projects that have launched last year or newly launched are now looking for adoption, and they are putting serious efforts and resources into Asia go-to-market development. This would ultimately drive disproportionally even more crypto ownership in Asia than what we already see now.

Zcash is one such example of a large project increasing focus on Asia. In January, the Zcash team on its blog emphasized the importance of Asia as part of its market strategy, as the company "have been moving beyond the technical and scientific cypherpunk community toward early adopters and the early majority with a need or desire for an alternative store of value (SoV)". To read more about that, checkout our March update.

Separately, we recently also did a conference call with MakerDao's head of China Chao Pan. In the call, we talked about a variety of topics including Chao's conversation with regulators in their process of building China's digital currency, the stablecoin scene in China and Maker's local partnerships. China is the second largest market for Maker, with about 1/3 of the total volume of the US and I see stablecoin adoption potential being significantly higher than that of the US (just think of who is actually USDT, it's the people in Asia), checkout our 8 takeaways from the call.

Lastly, a recent trend is that exchanges in Asia have started issuing IEOs (initial exchange offerings). Exchanges in Asia stay competitive by copying each other. We are already seeing a number of exchanges launching or developing a platform akin to that of Binance's Launchpad after seeing some success: Huobi Prime, Bibox Orbit, KuCoin Spotlight and Bitmax. We did a conference call with Kyle Samani in January about Binance and his takeaways from Singapore Blockchain week, check it out here.

But based on the projects listed on the IEOs thus far and the numbers shared, the stats not impressive at all. With the number of tokens issued sub or equivalent of 10% of total token supply and subsequently raising a few million dollars, this IEO does not seem to be a sustainable business. Instead, the IEO model seems like a strategy for projects to bootstrap some funding during a bear market while simultaneously enjoy marketing and distribution through the exchanges.

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