DELPHI DIGITAL

Quarterly Macro Outlook
Q2 2019

85 Broad Street
New York, NY, 10004
www.delphidigital.io

Key Takeaways

Trade wars. Slowing global growth. Weak inflation. $14 trillion of negative yielding debt. Unprecedented monetary policies. Late cycle fiscal stimulus. Potential peak corporate profits. Asset valuation concerns. Sub-2% U.S. Treasury bond yields. Explosion in covenant-lite loans. Multi-billion-dollar IPOs with multi-billion-dollar profit losses. It's easy to get lost in the mayhem of markets when these are just some of the notable trends investors face today. Amid the chaos, the second quarter of 2019 was marked by a few key narrative shifts with significant implications for markets going forward.

First, and arguably most important, **sentiment from global central banks took a drastic turn towards more dovish monetary policies.** The Fed, ECB, BOJ, PBOC, and many others are now preparing market participants for more rate cuts and additional stimulus measures as they attempt to keep the current economic expansion going. Look no further than recent commentary from Jerome Powell, the leader of the U.S. central bank, who simply stated, "it's very important that this expansion continue as long as possible." Global central banks are standing armed and ready.

The effects of such a sharp reversal in policy are already starting to show up across multiple asset classes. Public equities, especially those in the U.S., are breaking to new all-time highs as expectations for multiple Fed rate cuts by the end of 2019 surge. The simultaneous decline in global growth forecasts has fueled a resurgence in the growth trade over value peers, a trend that's likely to continue unless the economic backdrop firms considerably. Yields on government debt have plunged across the world, pushing many bond markets into shaky territory. **Falling yields have also boosted gold prices in recent months as the opportunity cost of holding non-income producing assets declines.**

The global slowdown everyone feared was on the horizon has begun to show up in the economic data as well. Global PMIs, GDP growth forecasts, and inflation expectations are all trending lower, which helps support the case for looser monetary policy. **Increased stimulus measures are likely to get more extreme this time around given the already low starting point for short-term interest rates.** For example, it wouldn't be a huge surprise to see the ECB follow in the BOJ's footsteps, revamping their corporate sector purchase program and potentially expanding their mandate to include equity index vehicles like ETFs.

Key Takeaways

A key reason behind bitcoin's outperformance in recent months is the strengthening narrative around its value proposition as "digital gold." **The macro backdrop that's emerging is the perfect storm for bitcoin to thrive as it has the potential to benefit from both secular and cyclical trends in the coming years.** Global economic growth has trended lower for decades as advanced economies face demographic headwinds like an aging work force and slowing population growth. Excessive debt levels are also weighing on productivity and potential GDP for major countries like the United States, where estimates for future GDP growth point lower over the next decade.

This increasingly bleak backdrop does not mean markets are doomed, but growth assets (i.e. technology stocks, alternative investments, etc.) tend to outperform during periods of slowing economic growth. Longer-term, **we are strong proponents of the "digital gold" narrative for Bitcoin that continues to gain relevance amid extreme monetary policies and rising geopolitical tensions.** However, the relative size of bitcoin's market value compared to the investible gold market, for example, makes it a tempting opportunity for investors starving for assets with above-average growth potential as well.

Unsurprisingly, bitcoin's market value is often compared to the total size of the above-ground gold supply (~$8 trillion), though it may be more appropriate to use the total investible gold market as a more conservative proxy. Either way, the long-term total addressable market (TAM) for "digital gold" may be substantially higher. **There are only a handful of assets that largely sit outside the purview of any single government,** so the demand for such non-sovereign assets could be even greater in the decades to come depending on how the effects of unconventional monetary policy shake out.

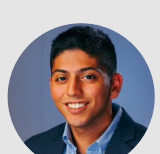
Nothing operates in isolation. The crypto market is no different. **The search for yield will likely push investors further and further out the risk curve, which could be a strong catalyst for BTC's next bull run.** The opportunity cost of holding bitcoin grows by the day, especially as the long-term outlook for conventional asset classes looks more bleak.

Table of Contents

Current State of Crypto	5
Large Caps Dominate Q2	6
Notable Performers	7
Outperforming Bitcoin	8
UTXO Analysis	9
Liquid Supply vs. Volatility	11
Uncorrelated Asset	12
Central Banks Race To Bottom	13
Odds of Rate Cuts Surge	14
Mixed Signals for US Economy	15
Justification for Rate Cuts	17
Risk Assets Get A Boost	19
Risk Assets Triumph	20
Stocks Hit Record Highs	21
Earnings Multiple Expansion	22
Growth Assets Outperform	23
Bitcoin vs. Growth Assets	24
Gold Drivers: Real Yields Collapse	25
Gold Drivers: Investment	26
Gold Recession Performance	27
Twin Deficits & US Dollar	30
US Dollar - Global Reserve	31
US Dollar - Short Term Outlook	32
Weaker Dollar Boosts Gold	33
Expected Returns Look Bleak	34
Libra vs. Dollar	35
Infrastructure Updates	37
The Venture Side	38
Smart Contract Platforms	40
Ethereum: DeFi	41
Ethereum AMA Recap	42
Sentiment Analysis	**43**
Asia Market Outlook	**50**
Contributor Pieces	**57**
Introduction	58
Bitcoin's Existential Crisis	59
Crypto Hedge Fund Landscape	63
Ethereum in 2019	64
Crypto Recruiting Outlook	69
Disclosures	**72**

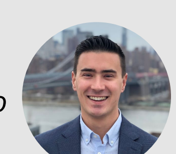
Lead Analysts


Kevin Kelly, CFA
kevin@delphidigital.io


Anil Lulla
anil@delphidigital.io

Supporting Analysts


Medio Demarco
medio@delphidigital.io


Tom Shaughnessy
tom@delphidigital.io


Yan Liberman, CFA, CAIA
yan@delphidigital.io

Current State of Crypto Market

The gains of Q1 accelerated in Q2 for the public crypto market as bitcoin emerged onto the global stage as a viable non-sovereign alternative asset. Contrary to the first quarter, BTC was one of the top performing crypto assets in Q2, rising 160% versus the rest of the crypto market's ~60% gain over the same period. Bitcoin surged to nearly $14,000 at the end of June, but has since given back a sizable chunk of it gains.

The recent price consolidation is not entirely surprising since no asset can sustain a parabolic price rise indefinitely, but it's also a necessary evil if a longer-term bull run is underway.

BTC vs. Total Market ex-BTC Performance YTD

BTC vs. Total Market ex-BTC Performance Since 2018

While we remain constructive on various parts of the crypto market broadly, bitcoin has arguably the strongest narrative driving its demand, at least in the near term.

As we'll discuss, the macro backdrop is primed for bitcoin to thrive as central banks race to cut interest rates and global economic activity slows.

Data as of July 30, 2019

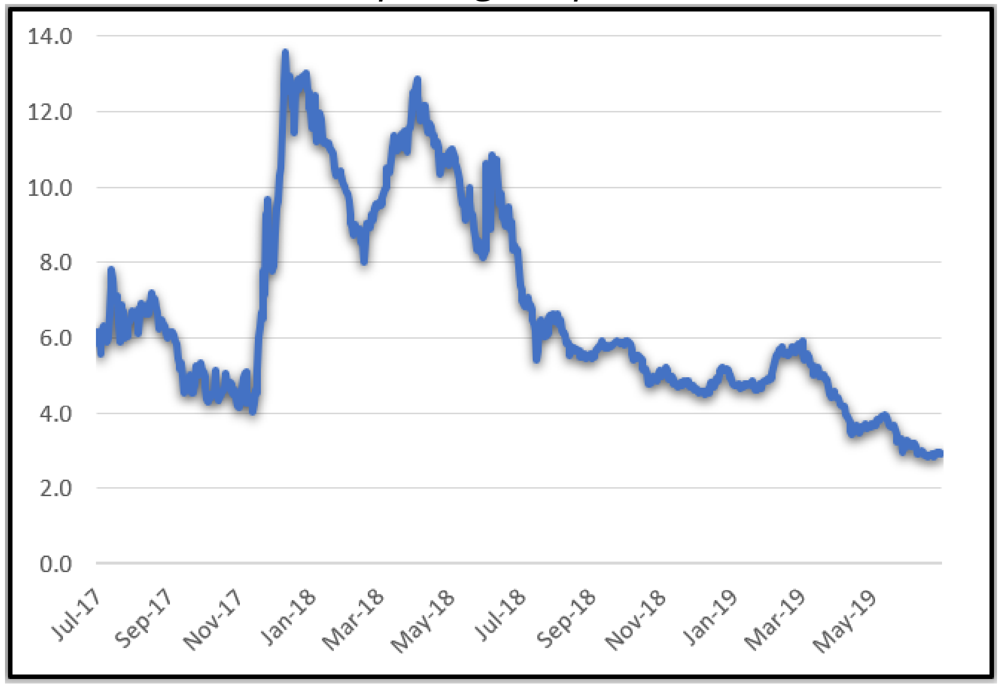
Source: TradingView, CryptoCap

Large Caps Dominate Q2

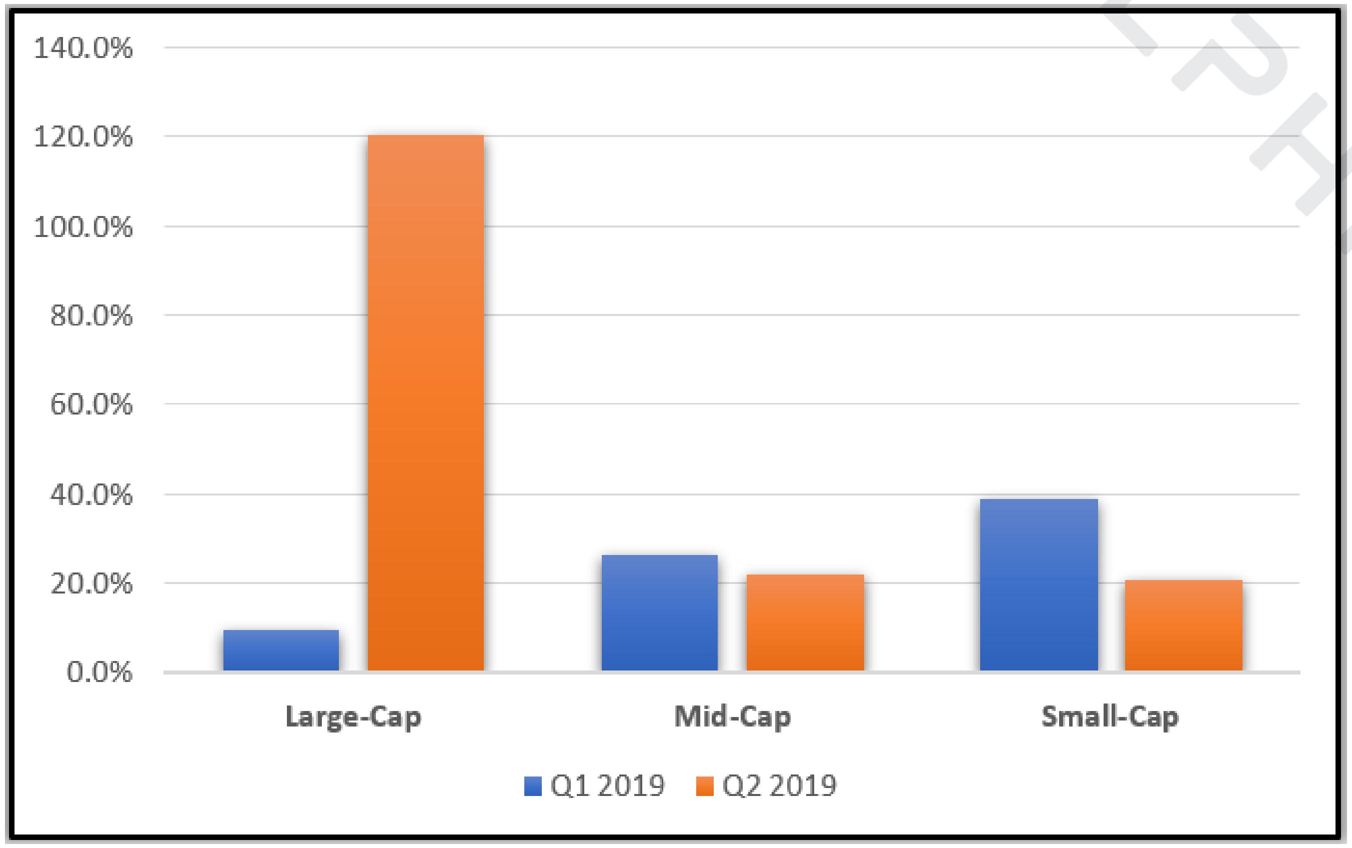
As one may expect, the significant outperformance of bitcoin in the second quarter widened the gap between large and small cap names, as measured by the MVIS CryptoCompare Digital Asset Index. Large caps returned approximately 120% in Q2 compared to just 40% and 25% for its small and mid-cap counterparts, respectively.

Following the ICO boom of 2017, the small cap segment has struggled to outperform larger peers for any meaningful amount of time. This is not to say some small caps haven't appreciated significantly, but more broadly their performance has largely disappointed.

Small Cap/Large Cap Index (MVIS)



Crypto Market Returns by Size Segment (MVIS)



Following the ICO boom of 2017, the small cap segment has struggled to outperform larger peers for any meaningful amount of time.

This is not to say some small caps haven't appreciated significantly, but more broadly their performance has largely disappointed.

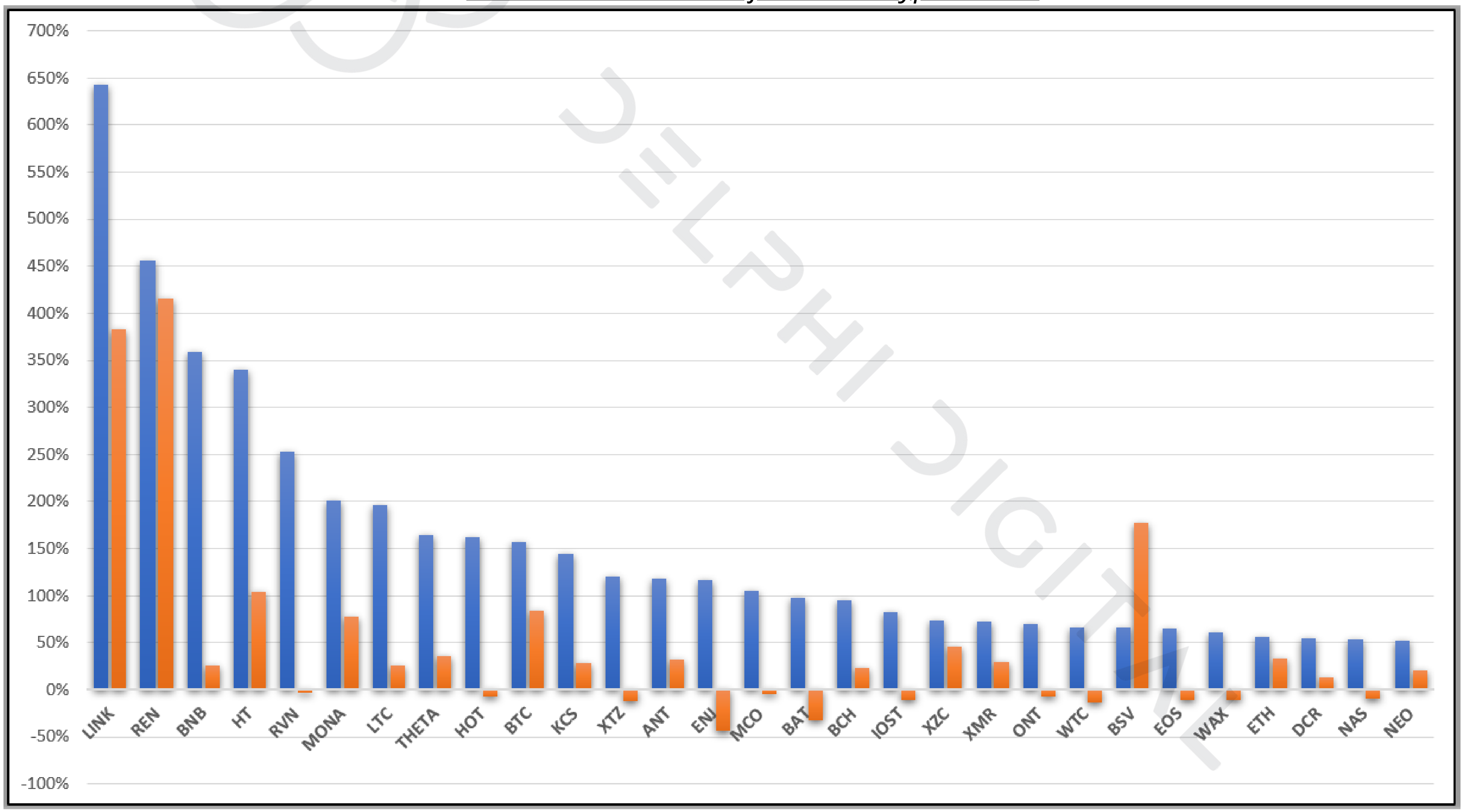
Data as of July 30th, 2019

Source: TradingView, CryptoCap

Notable Performers

Bitcoin's strong Q2 performance pushed its year-to-date gains well above most other crypto assets, though there are a handful that have outperformed the giant. LINK, REN, BNB, and HT are just a few, and we'll get add more context around these names shortly. It's also notable LTC is one of the best performing large cap crypto assets, boasting gains this year of +210%. This has arguably been driven by a return of "risk-on" sentiment within the crypto market and its halving event scheduled to occur in just a few days. Exchange tokens like BNB, HT, and KCS also found themselves among the best performers so far this year, which may be attributed to their unique token models (burns, trading fee discounts, etc.).

Year-to-Date Returns of Notable Crypto Assets



Data as of April 8th, 2019
Source: TradingView, CryptoCap

Outperforming Bitcoin

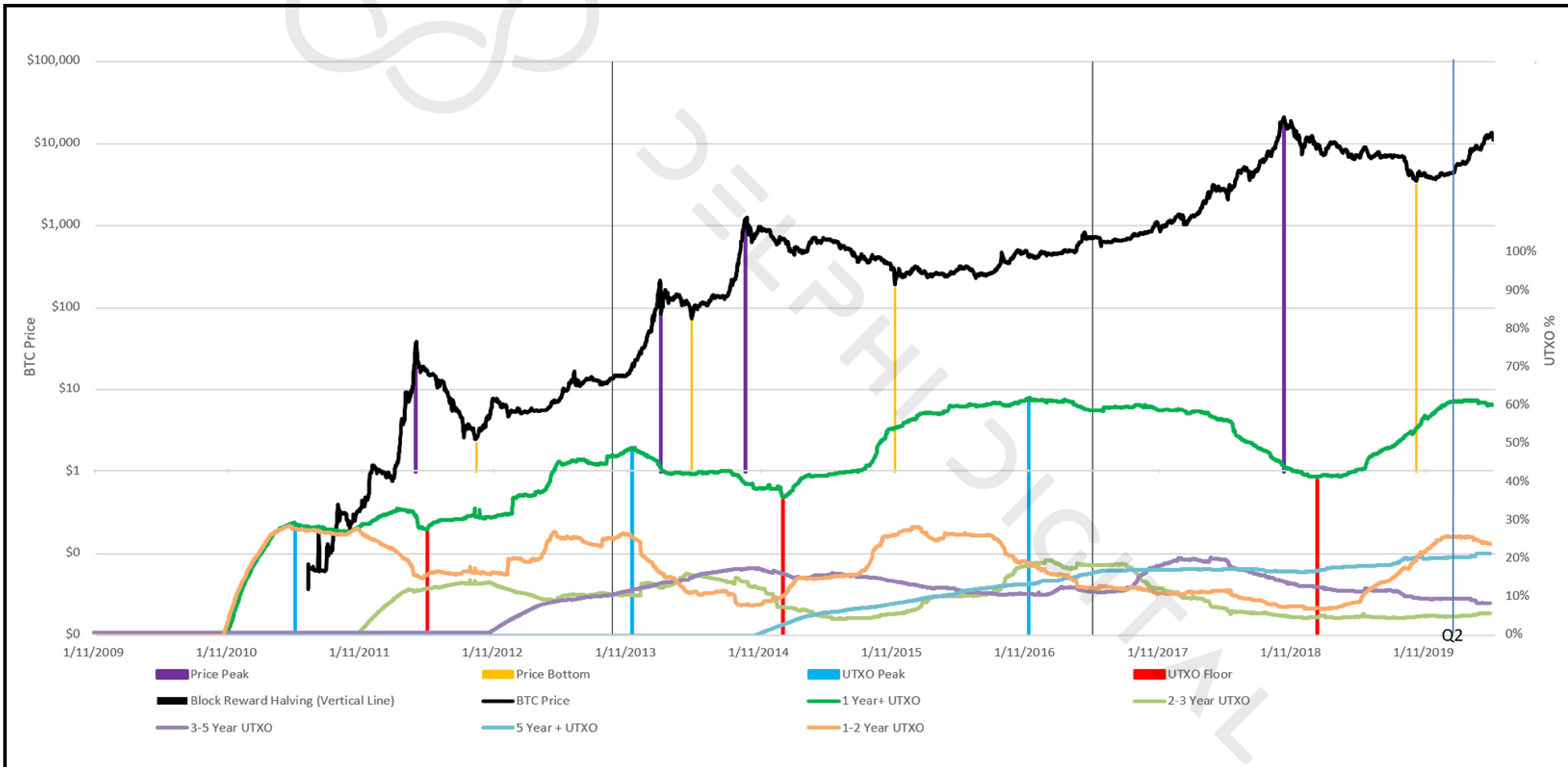
DELPHI DIGITAL

There were only 12 projects with a market capitalization over $15 million which outperformed Bitcoin year-to-date. ChainLink was the only cryptocurrency to post three-digit gains on Bitcoin, with Ren being the second runner up - gaining 95% on BTC YTD (if you're an Institutional subscriber, read our Ren report from February here). Not surprisingly, exchange tokens were the sector which saw the most outperformers.

Project	Token	Market Cap	Year-to-Date (BTC)	Year-to-Date (USD)	Comments
Chainlink	LINK	$753,576,460	177%	617.89%	LINK outperformed BTC year-to-date through its value proposition as a decentralized oracle network. $LINK saw strong upwards price momentum from May through June. Chainlink's mainnet launched in early June, which coincided with $LINK consistantly shilled by self-described "link marines" on Twitter.
Ren	REN	$81,367,231	95%	406.51%	REN outperformed BTC year-to-date as the team released roadmap updates teasing a testnet launch in the near future. Ren aims to provide access to inter-blockchain liquidity for all decentralised applications. Our team released a deep dive on Ren for our Institutional subscribers earlier this year.
Binance	BNB	$4,291,950,035	75%	352.47%	BNB outperformed BTC year-to-date as the exchange token narrative gained traction. Binance specifically managed to attain high social capital and financially engineer multiple value capture mechanisms for BNB via token burns and IEOs. Our team recently released a Thematic Insights report on Exchange Tokens, which you can view in your Member's Portal.
Huobi Token	HT	$237,393,776	70%	339.51%	HT outperformed BTC year-to-date with exchange tokens illustrating strong tokenomics through mint/burn mechanims and fee discounts.
Ravencoin	RVN	$173,484,559	29%	234.81%	Despite being relatively unkown, RVN outperformed BTC year-to-date as they near their October mainnet release. RVN is a fork of Bitcoin that focuses on the abillity to issue new assets.
Monacoin	MONA	$124,828,263	17%	204.41%	MONA outperformed BTC year-to-date by promoting the narrative that they are "the first cryptocurrency developed in Japan".
Litecoin	LTC	$6,019,525,748	15%	198.35%	LTC outperformed BTC year-to-date, in part to due to the upcoming halvening.
GXChain	GXS	$101,978,437	8%	181.14%	Aiming to be a commercialized data marketplace based on blockchain, GXChain out-performed BTC year-to-date through frequent buy backs.
KuCoin	KCS	$139,410,029	2%	164.48%	KCS outperfomed BTC year-to-date continuing the trend of exchange tokens narrative. Centralized exchange tokens have proven to show strong network effects and use cases for both investors and traders.
Holo	HOT	$155,710,433	1%	162.05%	HOT outperformed BTC year-to-date. Holochain is a data integrity protocol for distributed applications that uses a distributed hash table. Holochain intends to offer a distributed framework for generalized computing.
Tezos	XTZ	$804,429,708	1%	162.05%	XTZ outperformed BTC year-to-date, in large part due to its recent Coinbase Pro listing and success of Athens. Athens was Tezos's first on-chain vote process that proposed a change in gas limits and a decrease in roll size.
Theta Token	THETA	$109,526,927	0%	159.21%	THETA outperformed BTC year-to-date. THETA is the native token of the Theta Network, a protocol for improving quality and deliverability of streaming video content.

UTXO Analysis

Considering the second quarter really kicked things off in terms of Bitcoin's recovery, we thought it was worth looking at how much the underlying base of holders has shifted since April 1st. When looking at it from a high level, it doesn't seem like too much has changed. The % of supply that has not moved in at least one year dropped by 1% point from 60.4% to 59.4% over that time. Changes in longer dated bands also remained relatively muted with the 1% decline in 3-5 year holders only representing a shift into the longer dated 5 year + band, which now sits right around all time highs at 21.5% of the total supply. The 2-3 year line also continued its grind higher, increasing by slightly less than 1% point to 6% of the supply. Interestingly enough, the only longer dated band with a noticeable amount of sellers was the 1-2 year band where sellers accounted for about half of the 1.8% decline in that band, and a shift into the 2-3 year band representing the other half.



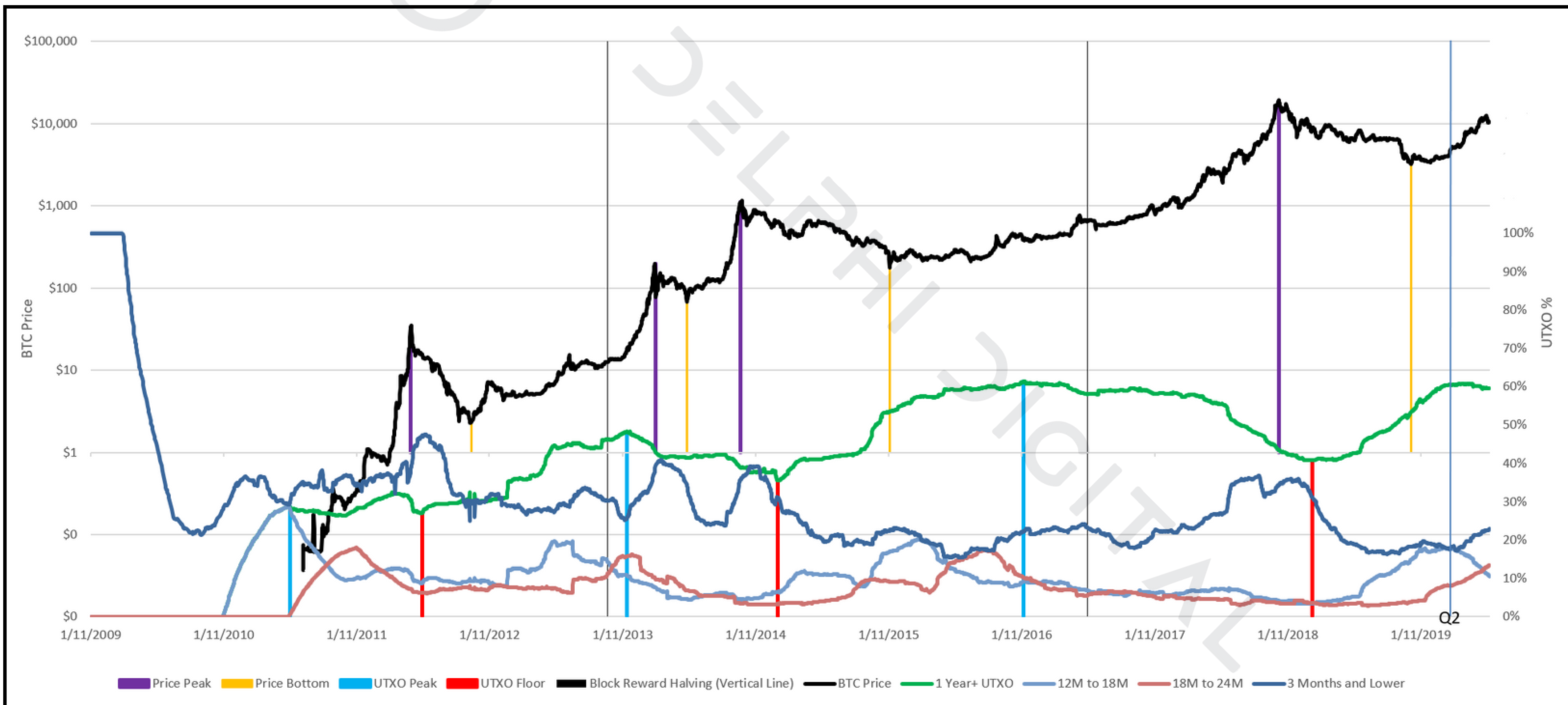
Data as of July 19th, 2019

Sources: Unchained Capital, Coinmetrics.io

UTXO Analysis

There was, however, substantial movement within the 1-2 year band. To reiterate, the 1-2 year band declined by 1.8%. The 12-18 month band actually declined by 7.2% while the 18-24 month band rose by 5.4%. By dividing the band into 12-18 month and 18-24 month sections, we can use the movement in between bands to better understand where the selling is coming from. The 18-24 month band actually saw virtually no selling, while 2.1% of the supply was sold out of the 12-18 month band. The amount sold will not reconcile with the overall change in the band because you also need to factor in coins moving in from younger bands.

An overwhelming majority of the selling from the Q2 price rally came from younger bands. Aside from the 12-18 month band, the 6-12 month and 3-6 month bands saw 2.5% and 2.3% of the supply, respectively, sold out of them. As expected, the portion of overall supply untouched for 6-12 months has come down from 11.8% to 10.8% and untouched for 3-6 months has come down from down from 10.2% to 6.8%.



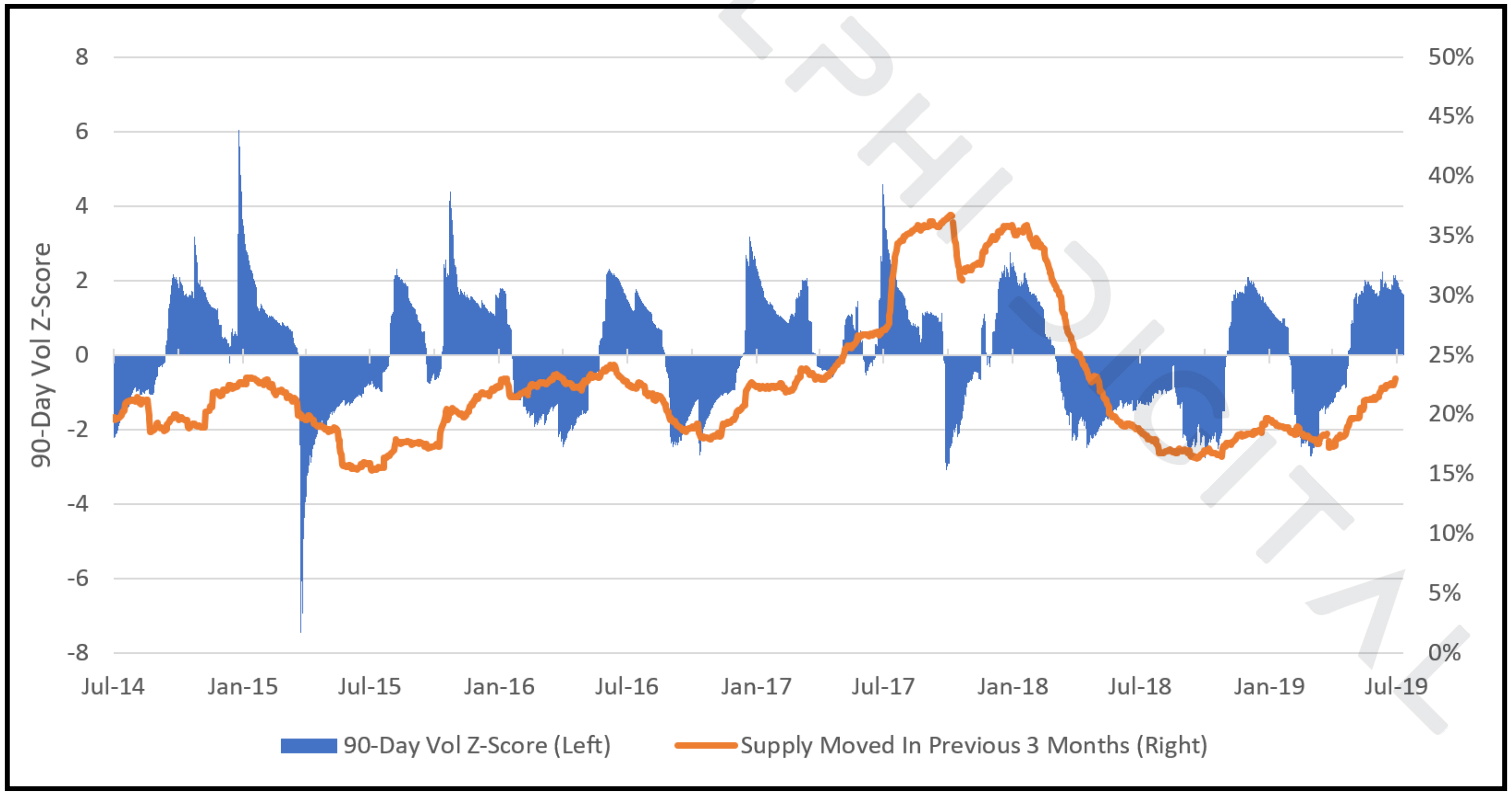
Data as of July 19th, 2019

Sources: Unchained Capital, Coinmetrics.io

Liquid Supply vs Volatility

All this movement has caused liquid supply, defined as the portion of supply that's been moved within the last 3 months, to reach levels unseen since May 2018. This isn't a precursor that price is beginning to top, for a handful of reasons. One of these reasons is that liquid supply ebbs and flows with volatility, as seen in the chart below where we overlay liquid supply with the Z-Score of 90-day historical volatility. During periods of muted volatility we see "Hodling" increase, which is represented on-chain by coins not moving and shifting into older age bands. Similarly, we see spikes in volatility coincide with a material shift in coins. Although this relationship is generally cycle agnostic, the magnitude of the shift in coins is definitely a function of the stage of the current cycle. This is evident by comparing the rise in liquid supply in the summer of 2016, which is very comparable to the current overall composition of holders, to the uptick during the recent cycle high at the end of 2017.

The other important reason why this isn't a relative top is the source of this liquid supply. This coincides with the cycle stage previously described. The overwhelming majority of liquid supply continues to come from shorter dated UTXOs, very similar to what occurred leading into the summer of 2016. Long term holders remain relatively unfazed. Pending another significant price rally (or decline) in the coming month or two, we'll likely see liquid begin to gradually decline. However, because this cycle has been playing out faster than expected, and faster than the previous one, it's unlikely that we'll see liquid supply come down too much with volatility struggling to remain muted. One factor that's difficult to adjust for is the continued proliferation of Bitcoin derivative products. The growth in indirect exposure to Bitcoin's price will potentially make this type of analysis less accurate over time, particularly when accounting for new market participants. Fortunately, this won't materially reduce the ability to track existing long term holders.

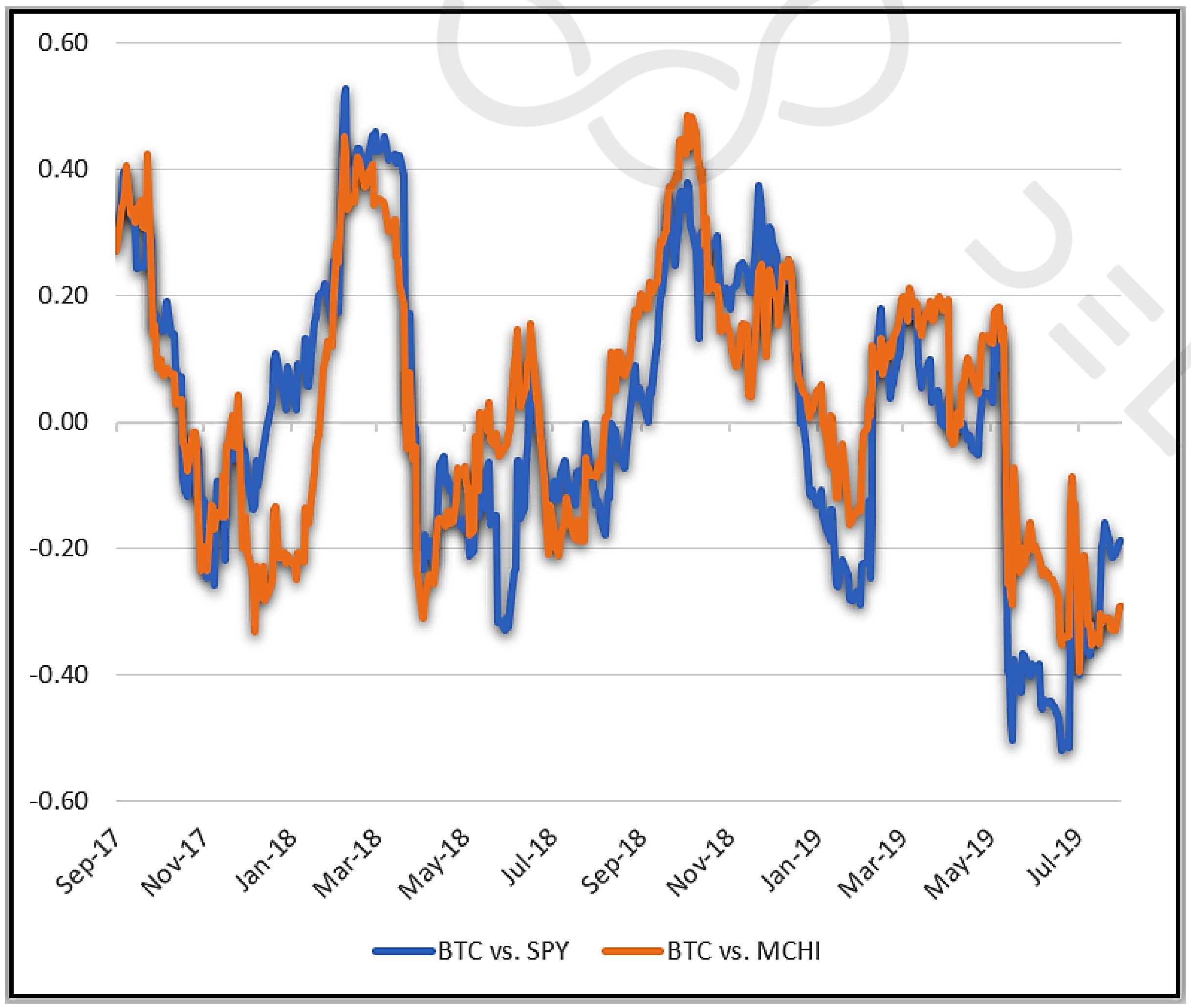


Data as of July 19th, 2019
Sources: Unchained Capital, Coinmetrics.io

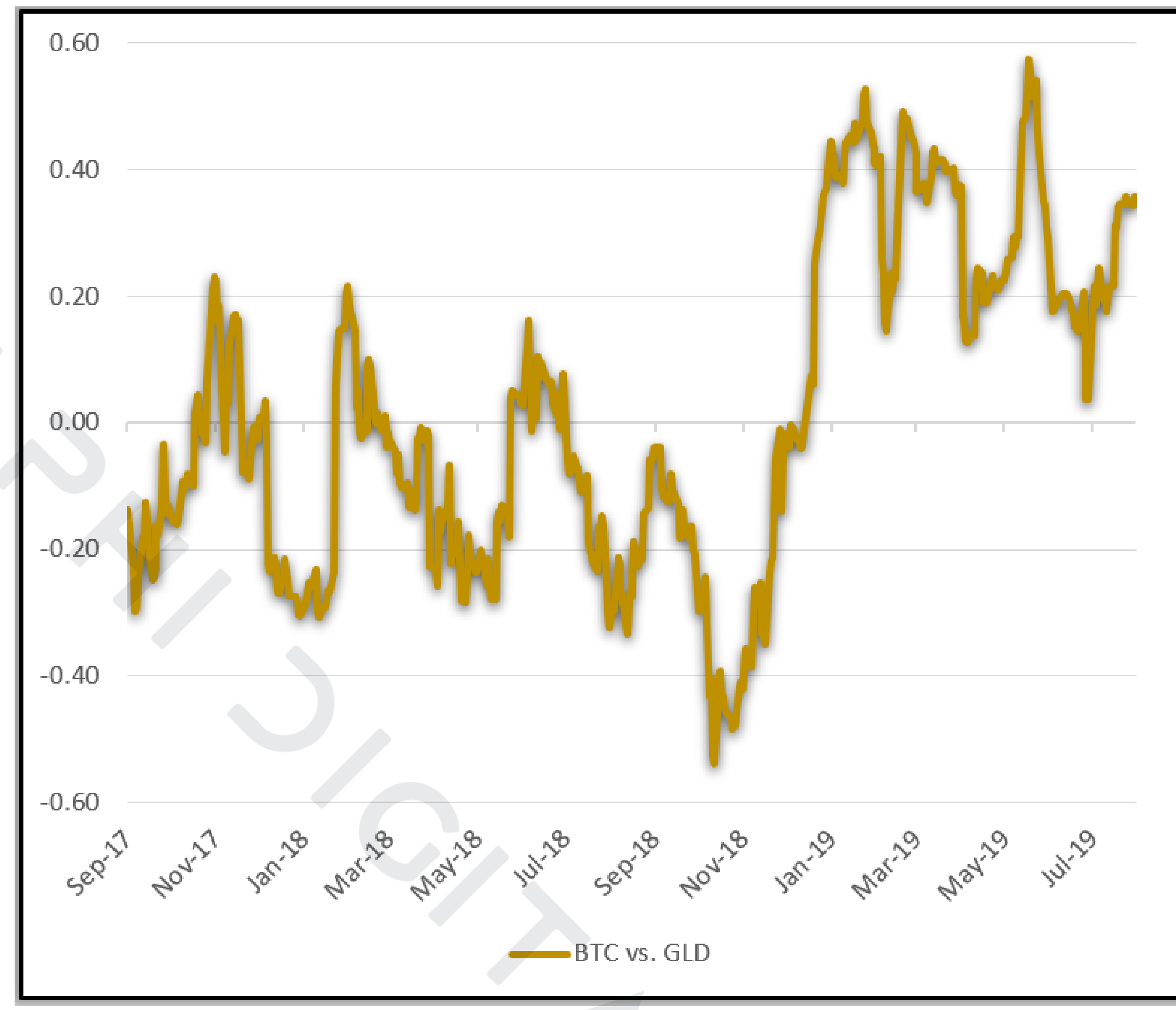
Uncorrelated Asset

Bitcoin has become a hotly debated topic among some investing circles given its potential diversification benefits in portfolio construction. Like gold, BTC over multi-year time horizons has little to no correlation with traditional asset classes like stocks, bonds, currencies, or commodities. There are certain times when it trades in line with risk assets, selling off when equity volatility spikes. More recently, bitcoin has traded closely with the fluctuations in gold prices, lending support to its “digital gold” narrative.

Rolling 30-Day Correlation - BTC vs. SPY, MCHI



Rolling 30-Day Correlation - BTC vs. GLD



Heightened trade tensions between the U.S. and China have served as a boon for bitcoin as investors seek out non-sovereign assets to hedge against the fallout from trade war. **The rising risk of currency devaluation, especially among reserve currencies, is a longer-term catalyst that should propel BTC higher along with gold.**

Data as of July 31st, 2019

Source: Coinmetrics.io, S&P Dow Jones, ICE, MSCI

Central Banks Race to the Bottom

DELPHI DIGITAL

A giant wave of easier monetary policy is sweeping the world as global central banks pivot away from tightening in favor of rate cuts and additional stimulus measures. Major central banks, most notably the Fed and the ECB, have begun to prepare financial markets for additional stimulus measures if inflationary pressures fail to mount amid tepid economic growth. Importantly, the latter's decision on revamping its asset purchase program will likely play a significant role in the timing and extent of the Fed's decision to cut rates through year-end. **As independent as they claim they are, Powell & Co. are a bit handcuffed to the policy direction of their peers.** A further divergence in rates would likely cause the U.S. dollar to strengthen, putting pressure and constraint on the global economy.

Table of Current Policy Stances Among Major Central Banks

Name	Current Stance	Next Meeting	Key Stats	Rationale	Leadership Quotes
Federal Reserve	Easing	07/31/2019	Starting in Dec. 2015, the Fed increased rates 9 times through Dec. 2018	Inflation expectations rolling over; Spill over effects of slowing global growth + trade war; Strong USD threat to domestic growth	*"...we will act as appropriate to sustain the expansion, with a strong labor market and inflation near our symmetric 2 percent objective."*
European Central Bank (ECB)	Easing	09/12/2019	Vast majority of negative yielding debt is in Europe, which has now extended beyond government bonds to include corporate debt as well	Inflation has failed to materialize near its 2% target; GDP growth tepid at best; Germany on verge of recession	*"The risks surrounding the euro area growth outlook remain tilted to the downside, reflecting the prolonged presence of uncertainties related to geopolitical factors, the rising threat of protectionism, and vulnerabilities in emerging markets."*
Bank of England (BOE)	Easing/Neutral	08/01/2019	Probability of rate cut by year-end has risen to ~55% from 30% at the end of June	Risks of a no-deal Brexit at the end of October are mounting, evident in the pound's recent slump; BOE hesitant to cut rates unless severe economic decline for fear of stoking inflation	*"The appropriate path of monetary policy will depend on the balance of these effects on demand, supply and the exchange rate. The monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction. The Committee will always act to achieve the 2% inflation target."*
Bank of Japan (BOJ)	Easing	09/18/2019	BOJ currently owns +75% of Japanese equity ETF assets; assets on its balance sheet have grown to > $5 trillion, larger than Japan's annual GDP (~$4.9 trillion)	Global peers easing policies may cause the Japanese yen to strengthen, putting pressure on domestic growth; inflationary pressures have not materialized as expected despite massive stimulus	*"...risks to economic activity are skewed to the downside, particularly regarding developments in overseas economies. The momentum toward achieving the price stability target of 2 percent is maintained but is not yet sufficiently firm, and thus developments in prices continue to warrant careful attention.*
People's Bank of China (PBOC)	Easing/Neutral	Oct. 2019	Trustworthiness of China's economic data has long been questioned, but latest GDP figures showed the slowest pace of growth in at least 27 years	Fallout from trade war with U.S. may pressure domestic economy, but fiscal stimulus is serving as a complementary policy tool depending on the extent of the effects	*"We have plenty of room in interest rates, we have plenty of room in required reserve ratio rate, and also for the fiscal, monetary policy toolkit, I think the room for adjustment is tremendous."*

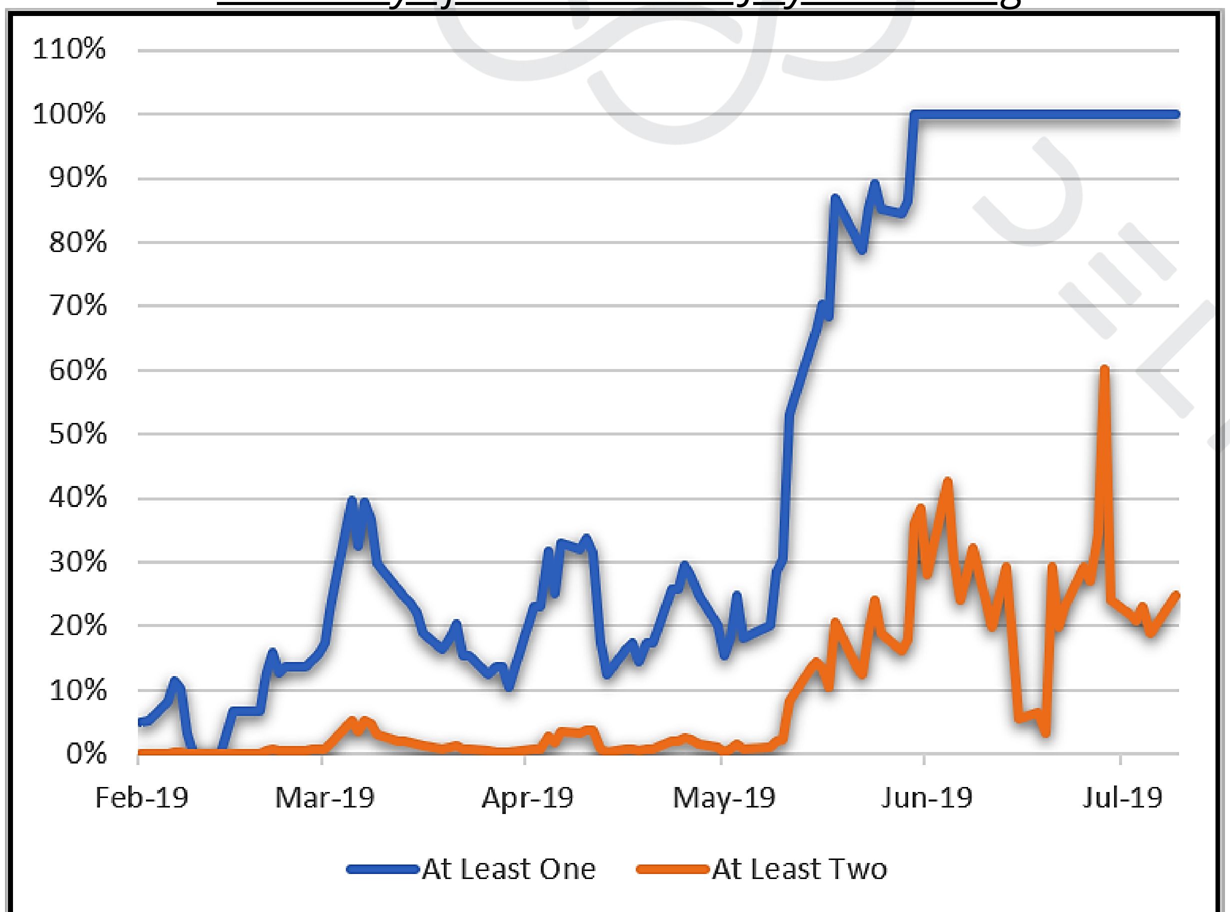
Data as of July 31st, 2019

Source: Federal Reserve, ECB, Bank of Japan, PBOC

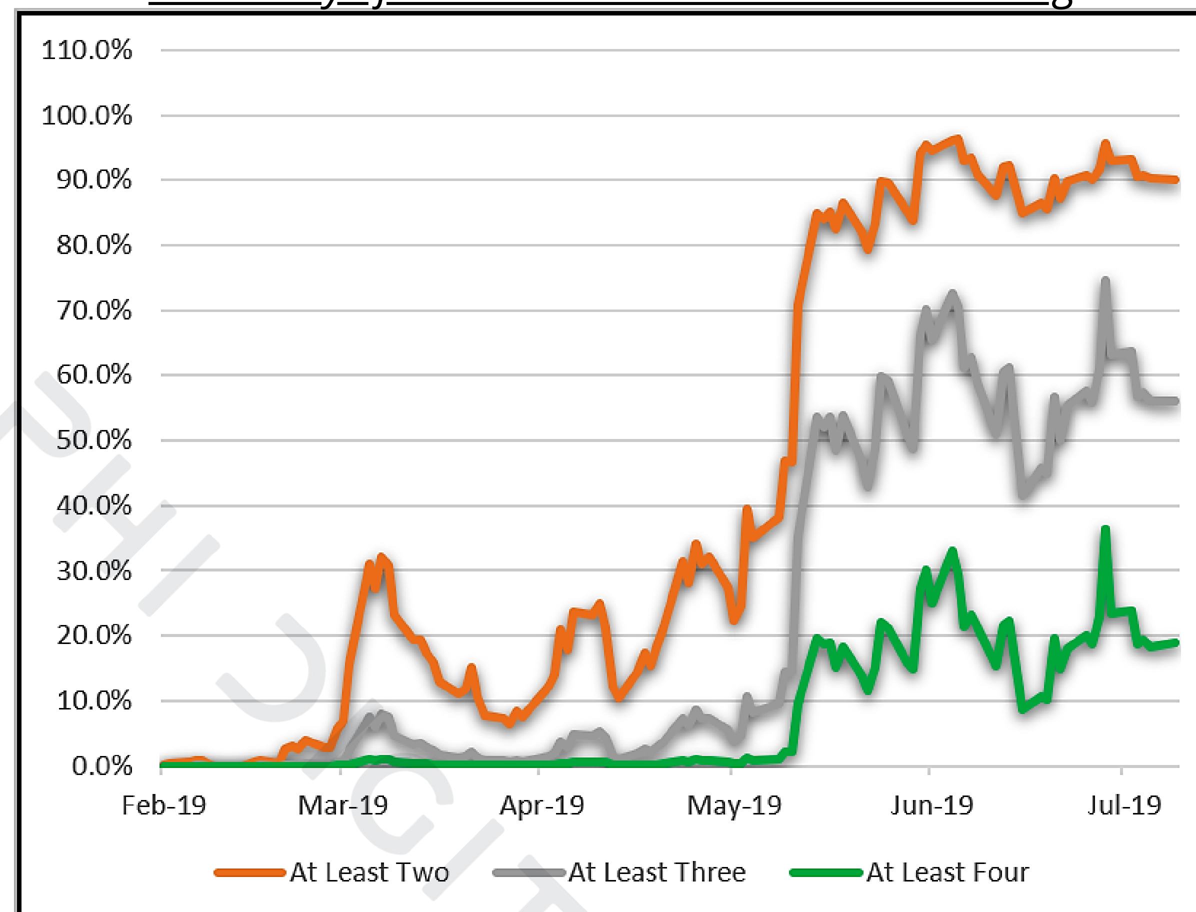
Odds of Rate Cuts Surge

Back in the fall, most investors would have laughed you out of the room if you predicted the Federal Reserve would cut interest rates 2-3 times by the end of 2019. Fast forward to today and it's difficult to find a market pundit who doesn't expect the Fed to cut rates by at least 25 bps at its July FOMC meeting this week. The Fed's policy stance seems to have turned on a dime, evident in the market's expectations for further rate cuts through the end of 2019. But how did policymakers' perspective of the economy change so rapidly? As Jerome Powell, the Chairman of the Federal Reserve, emphasized in his recent speeches: the data can change.

Probability of Fed Rate Cuts - July '19 Meeting



Probability of Fed Rate Cuts - December '19 Meeting



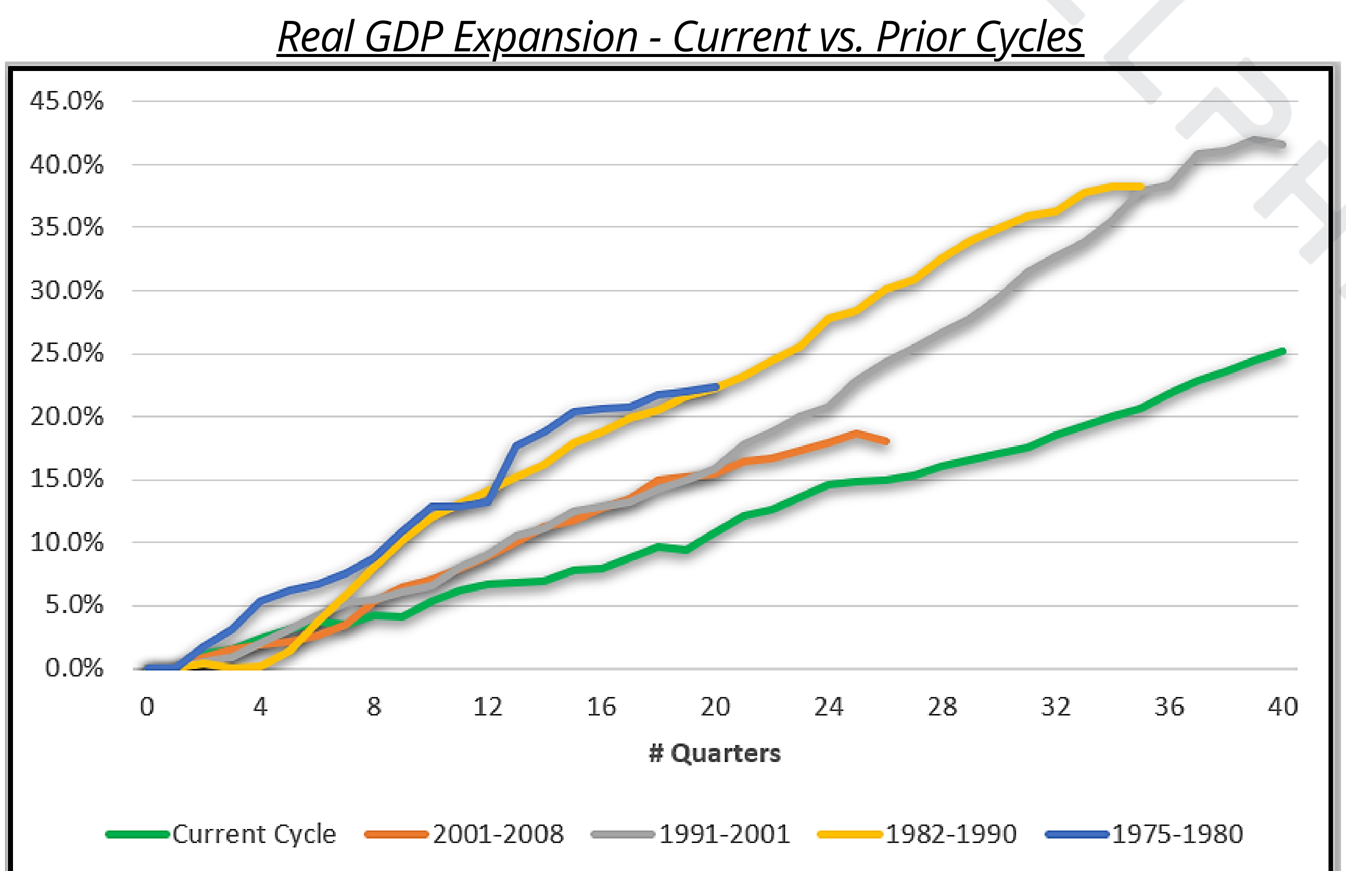
There's merit to both sides of the interest rate debate. On one hand, the U.S. economy is showing signs of resilience as it continues to expand despite troubles abroad. On the other hand, the adverse effects of an escalating trade war coupled with a general slowdown in global growth are likely to weigh on the domestic economy if current trends continue. **My expectation is the Fed will go through with an insurance rate cut of 25 bps at the July FOMC meeting but will be hesitant to reduce rates further until the data really starts to warrant concern.**

Data as of July 31st, 2019

Source: CME Group

Mixed Signals for U.S. Economy

This July marked the longest economic expansion in U.S. history, surpassing the previous record that ended roughly 20 years ago in the decade leading up to the dot-com bust. However, growth this cycle has been relatively tepid compared to prior expansions, partially because of the damaging aftermath following the Great Recession. Therefore, the economy hasn't been able to "overheat", which tends to drive up inflation. **The economic outlook for the U.S. is quite mixed, putting substantial pressure of the Fed's next move.** Jerome Powell, the Chairman of the Federal Reserve, left the door wide open for a rate cut as early as this week in his June post-FOMC meeting press conference roughly five weeks ago. However, he mentioned policymakers wanted to see more weakness show up in the data before significant rate cuts would be warranted. Fed funds futures have implied a 100% probability the U.S. central bank cuts rates by at least 25 bps in July since last month's FOMC meeting, despite a better-than-expected jobs report and a June inflation print above economist estimates since. Similarly, U.S. GDP grew 2.1% in Q2, down from the first quarter's 3.1% rate, but above consensus estimates of 2% on the back of strong consumption and rising government outlays. On the downside, **business investment fell sharply,** partially attributed to rising uncertainty surrounding trade wars and tariffs. Executives are hesitant to increase capital expenditures until there's more clarity on the downstream effects of ongoing trade disputes, which are already having a noticeable impact on global supply chains.



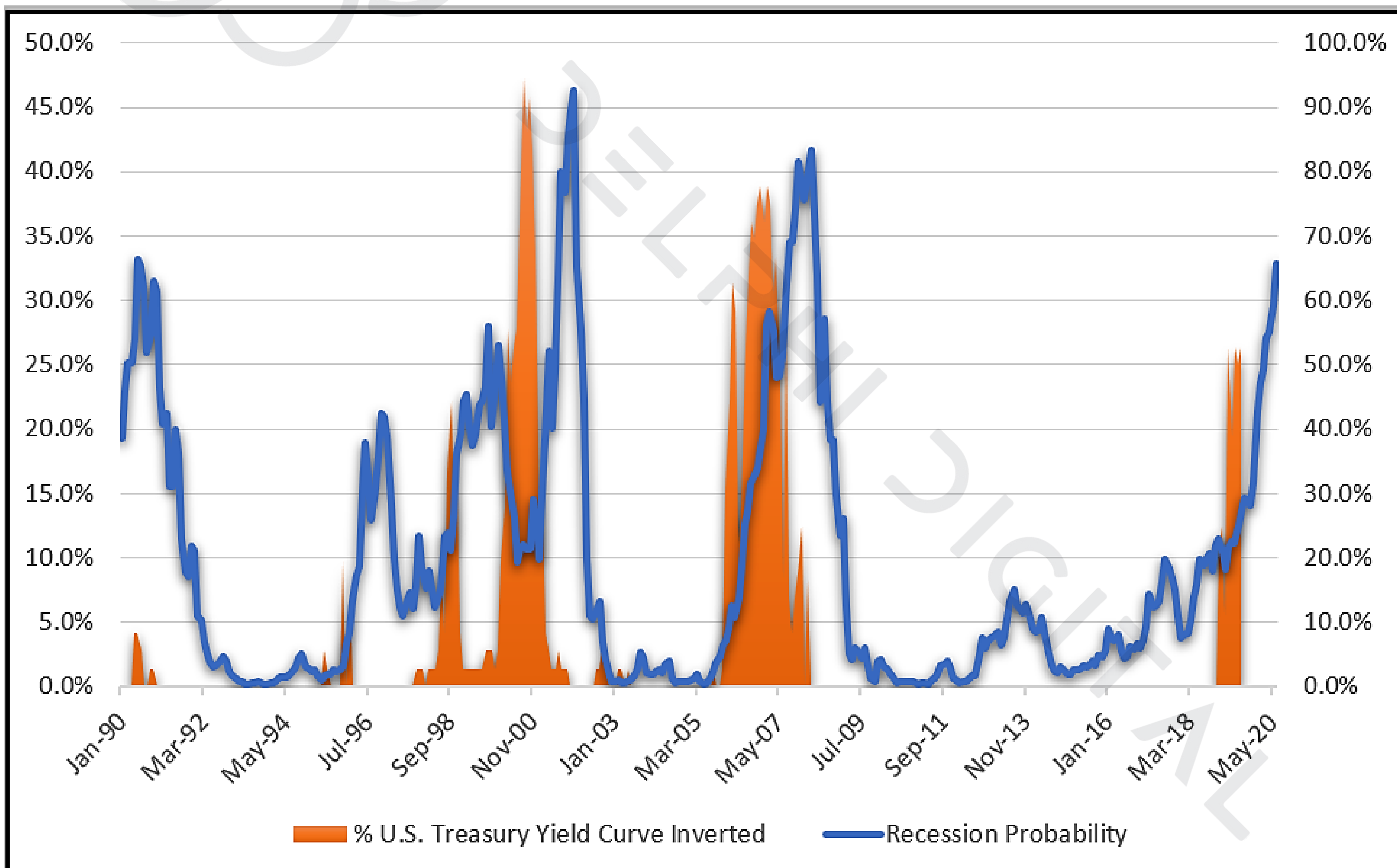
Data as of July 31st, 2019
Source: Federal Reserve of St. Louis

The U.S. central bank has long claimed to be "data dependent" when it comes to its monetary policy decisions as it aims to achieve its dual mandate of stable prices and maximum sustainable employment. The former has warranted more concern among policymakers recently given the unemployment rate in the U.S. is near its lowest level in 50 years. However, wage gains for the average American haven't accelerated at the pace one would expect with sub-4% unemployment, which also helps explain part of the weaker inflation narrative. **As a result, the Fed has pivoted drastically from its 2018 playbook towards more accommodative policy measures in an effort to boost demand and spark inflation.** This has caused a resurgence in risk assets, notably global equities, which have gained more than 20% since their Q4 2018 sell off.

Mixed Signals for U.S. Economy

Yield curve inversions are adding to growth concerns given their historical tendency to precede recessions. Normally, longer duration Treasury bonds offer higher yields than shorter duration counterparts to compensate investors for the increased interest rate risk, which are less likely to fluctuate in the short term. However, yields on 10-year U.S. Treasury bonds recently dipped below those of 3-month U.S. Treasury bills, causing serious concern a recession may be around the corner. The New York Fed calculates the **probability of a U.S. recession over the next 12 months, which surged above 30% at the end of June for the first time in more than a decade.** This was before the better-than-expected jobs report and Q2 GDP print, but the bond market is still sending pretty clear warning signs a recession may be creeping closer.

NY Fed Recession Probability Index vs. % UST Yield Curve Inverted



Data as of July 31st, 2019

Source: Federal Reserve of St. Louis. New York Fed

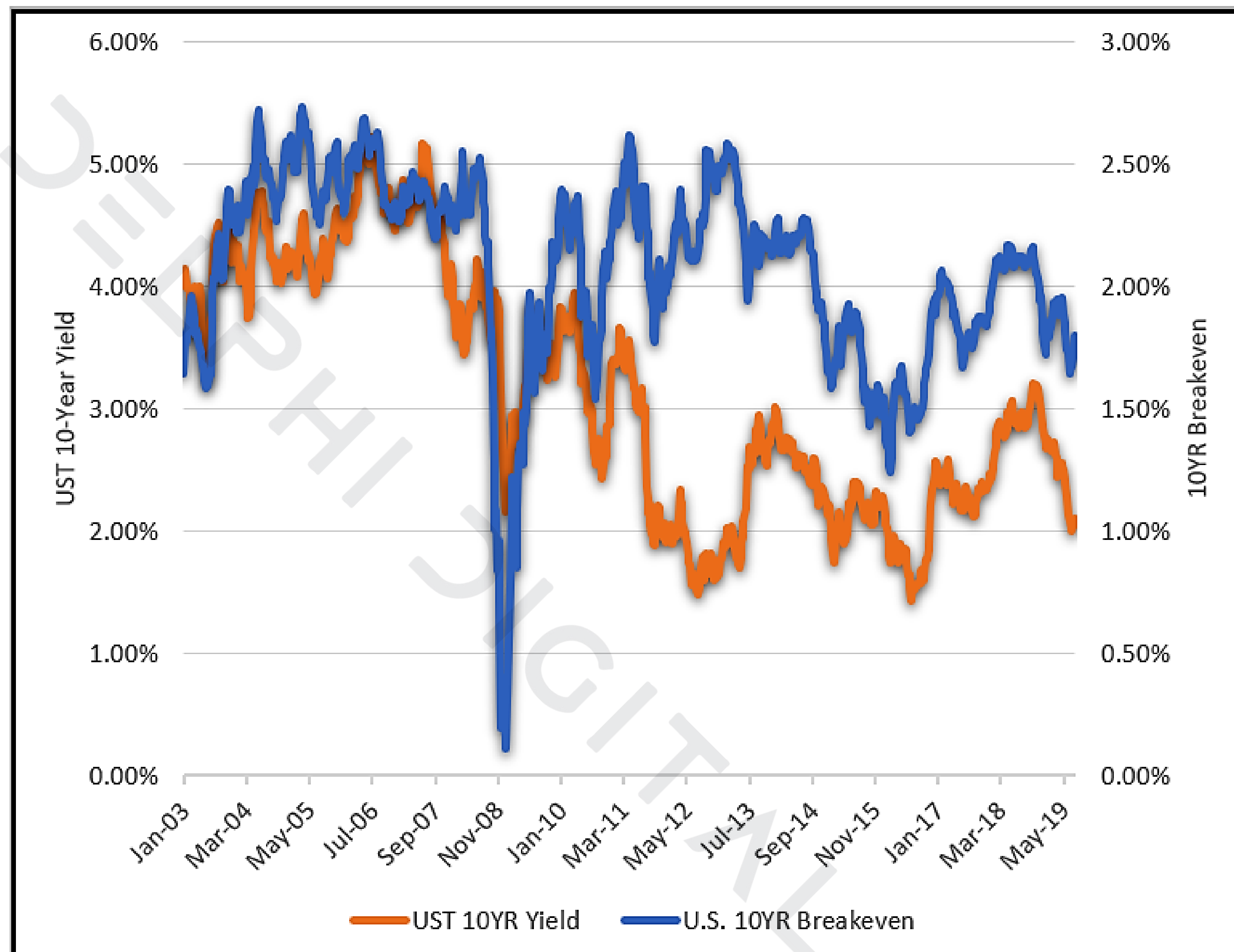
Justification for Rate Cuts

An “insurance” rate cut by the Fed is justifiable for a few reasons. First, the seemingly tight labor market has yet to spark higher inflation, at least according to key measures tracked by the Fed such as PCE and core CPI. One could argue the larger risk to the global economy is deflationary forces, not inflationary, in part driven by the rapid advances in technology. For example, the “Amazon Effect” is difficult to dismiss and has contributed to keeping prices in many industries in check. The lack of inflationary pressure is also attributed to **falling expectations for future inflation.** It sounds a bit circular, but a key driver of inflation is the expectation that prices will be higher in the future.

As we’ve touched on, the U.S. dollar plays a significant role in the Fed’s monetary policy decisions. All else equal, **a stronger dollar hinders global growth.** It raises the cost of servicing dollar-denominated debts, which can be especially problematic for emerging market countries. It also makes U.S. exports more expensive, which can suppress demand for domestic goods abroad.

Globalization has rendered substantial benefits for companies in the U.S., but it’s also made them more reliable on international demand for their products and services. Further, the International Monetary Fund's (IMF) most recent World Economic Outlook in mid-July **downgraded its forecasts for world output for both 2019 and 2020 by 0.1%, citing increased risks from the U.S-China trade war and indications of generally weaker global growth evident in "softening" inflation.**

UST 10-Year Yield vs. 10-Year Breakeven Inflation Rate



Data as of July 31st, 2019
Source: Federal Reserve of St. Louis

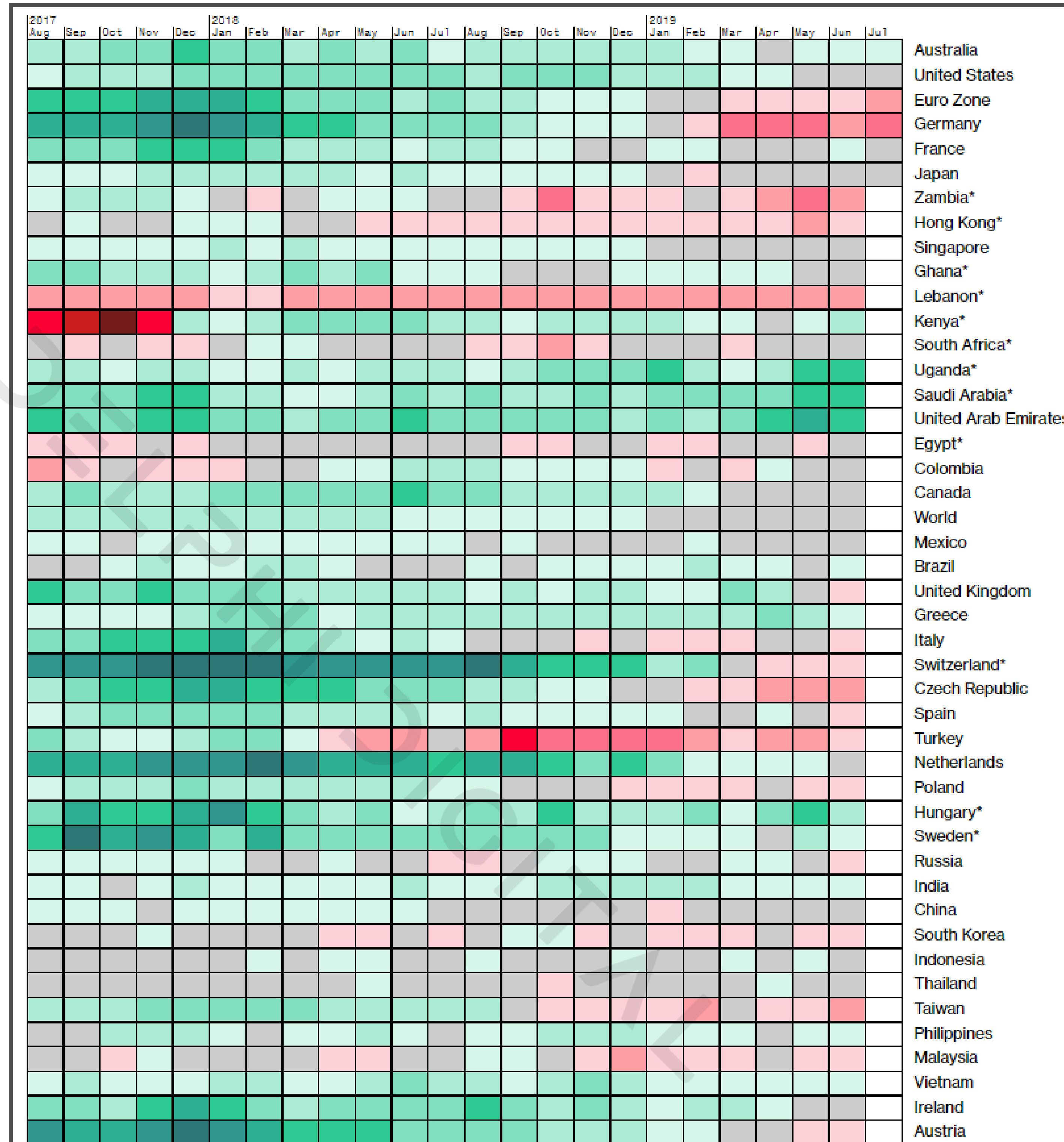
Justification for Rate Cuts

Further, the International Monetary Fund's (IMF) most recent World Economic Outlook in mid-July downgraded its forecasts for world output for both 2019 and 2020 by 0.1%, citing increased risks from the U.S-China trade war and indications of generally weaker global growth evident in "softening" inflation.

The IMF also lowered its projections for GDP growth in several notable countries, including China, India, and the ASEAN region. **Therefore, it is very unlikely the U.S. economy will avoid the spillover effects if the global economy takes a turn for the worse.** Global PMI data, as shown in the right-hand visual, is already starting to cause some concern.

> *"Global growth remains subdued. Since the April World Economic Outlook (WEO) report, the United States further increased tariffs on certain Chinese imports and China retaliated by raising tariffs on a subset of US imports. Additional escalation was averted following the June G20 summit. Global technology supply chains were threatened by the prospect of US sanctions, Brexit related uncertainty continued, and rising geopolitical tensions roiled energy prices...risks to the forecast are mainly to the downside."*
>
> -- July IMF World Economic Outlook

Manufacturing PMI Changes by Country (Bloomberg)



Country names with an asterisk (*) are represented using their whole economy PMI. All others are shown with their manufacturing PMI.

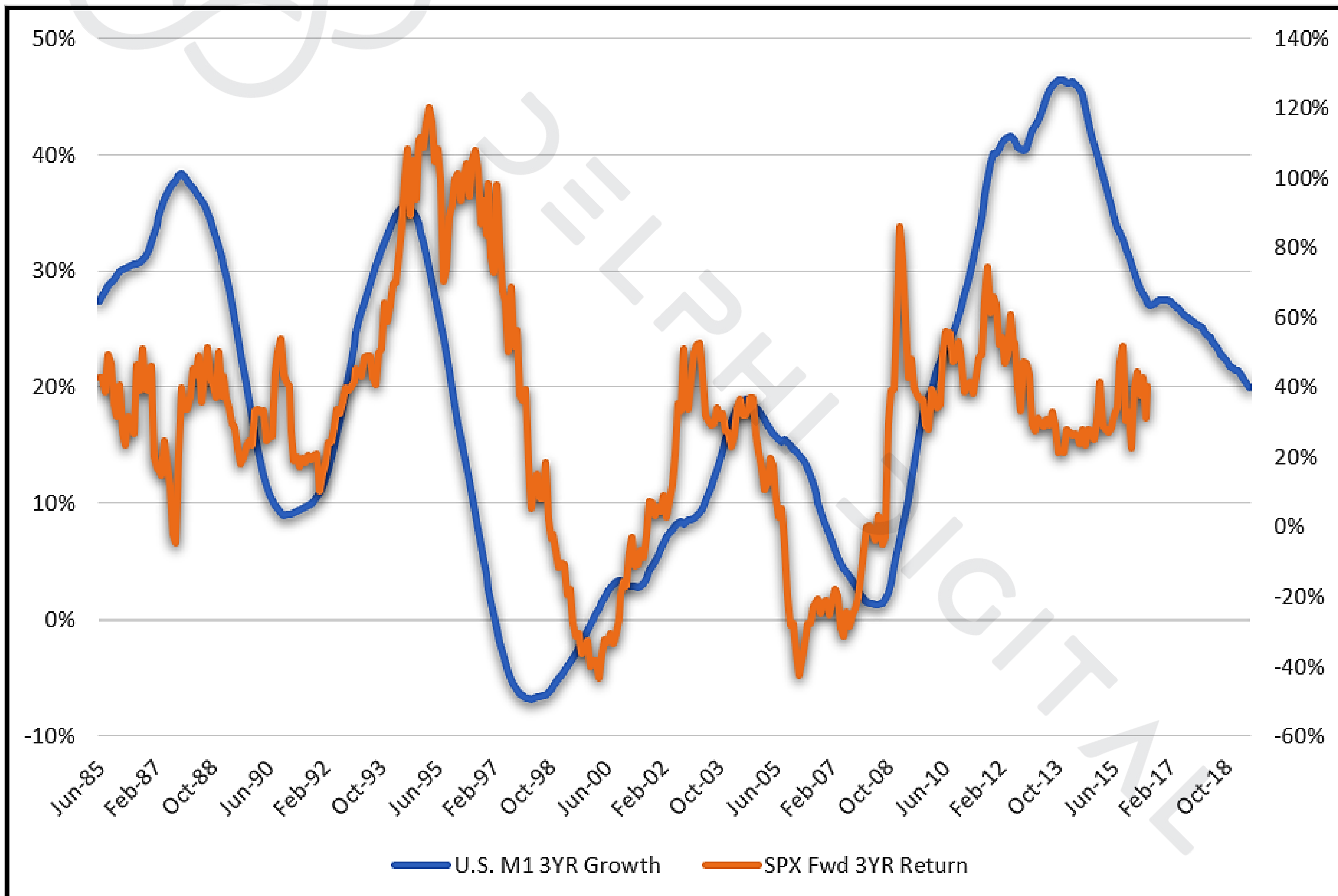
Data as of July 31st, 2019
Source: IMF, Bloomberg

Money Supply Increase Boosts Risk Assets

DELPHI DIGITAL

We've continued to pound the table on monetary policy going forward, but that's because it plays a significant role in markets. For example, an increase in the money supply tends to lead to strong performance from risk assets (i.e. stocks). Lower interest rates not only encourage borrowing (which can increase aggregate demand), it also **pushes investors further out the risk curve as they search for real returns and yield.** The Fed appears to be keeping the door open for further rate cuts by the end of 2019, though I've been outspoken the market may be pricing in too much easing in the final months of the year.

U.S. M1 Money Stock Growth vs. S&P 500 Forward Returns

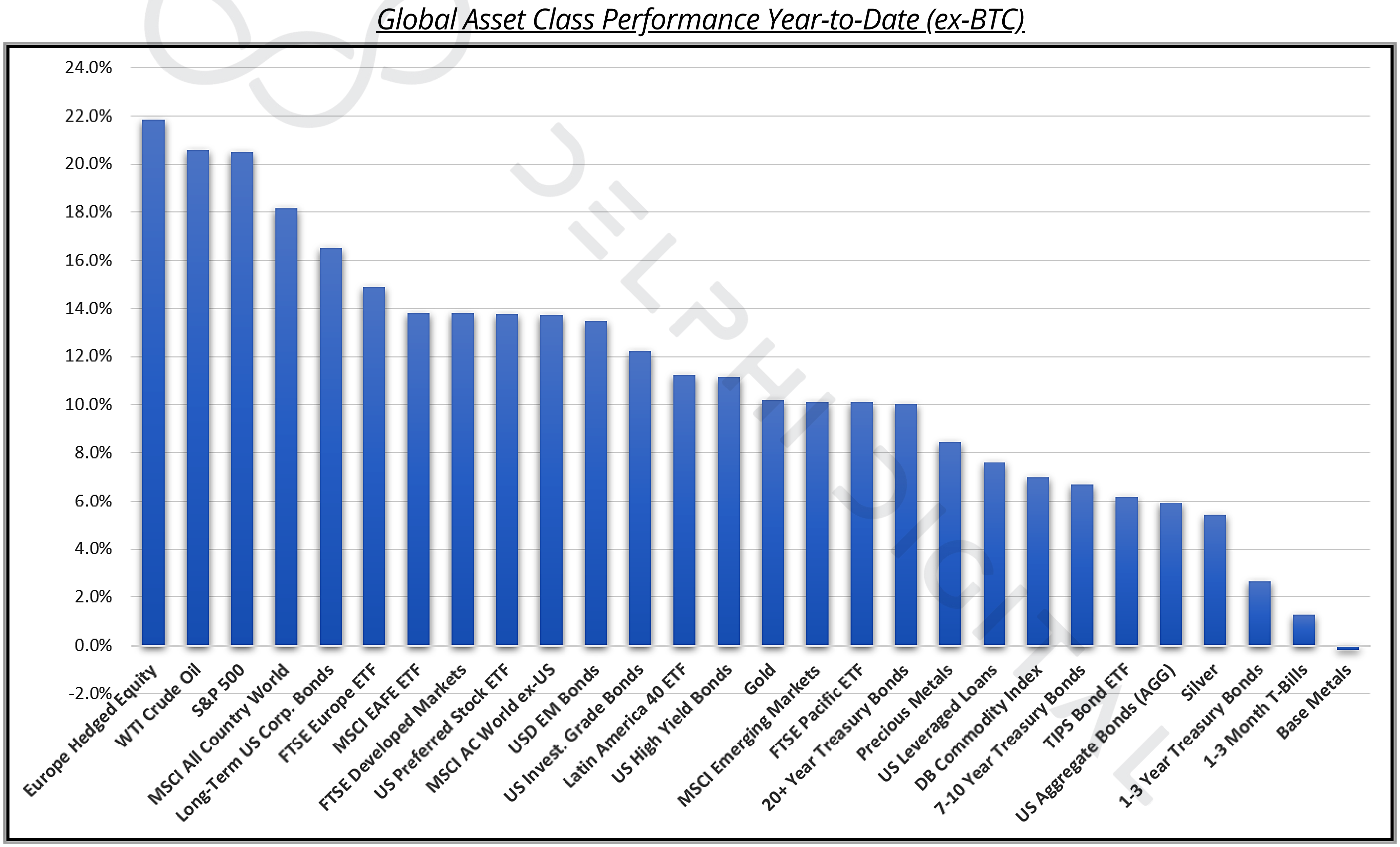


Data as of July 31st, 2019

Source: Federal Reserve of St. Louis, S&P Dow Jones

Risk Assets Triumph

After suffering one of the worst quarters in decades, U.S. equities have retraced all of their 2018 losses and then some with the S&P 500 hovering near all-time highs. The drastic reversal in central bank policy to start the year brought new life back to risk assets, a trend that continued in the second quarter. The simultaneous decline in global growth forecasts has fueled a resurgence in the growth trade relative to value peers, a trend that's likely to continue barring a strong turnaround in recent economic indicators. **Notably, bitcoin has outperformed every asset class with its 160% gain year-to-date, but we excluded it from the chart below so traditional markets didn't feel self conscious.**



Data as of July 30th, 2019
Source: Bespoke Research, S&P Dow Jones, MSCI, FTSE Russell

Stocks Hit Record Highs

Public equities in the U.S. have climbed back to all-time highs with the S&P 500 and NASDAQ 100 hovering near record levels. The recent leg higher in stocks has come in the face of global growth concerns and calls for peak earnings, though Q2 results have come in better-than-anticipated with 75% of constituents beating EPS expectations. However, as we've noted, earnings growth is just one component of stocks' performance. The earnings multiple investors are willing to pay is the other driving factor, which fluctuates depending on market conditions. **Notably, multiple expansion (measured by the forward price-to-earnings ratio) has explained almost all of the gains for the SPX since its December 2018 low.** Corporate profit growth will become an increasingly important factor as multiples can only expand for so long.

S&P 500 vs. MSCI All Country World Index

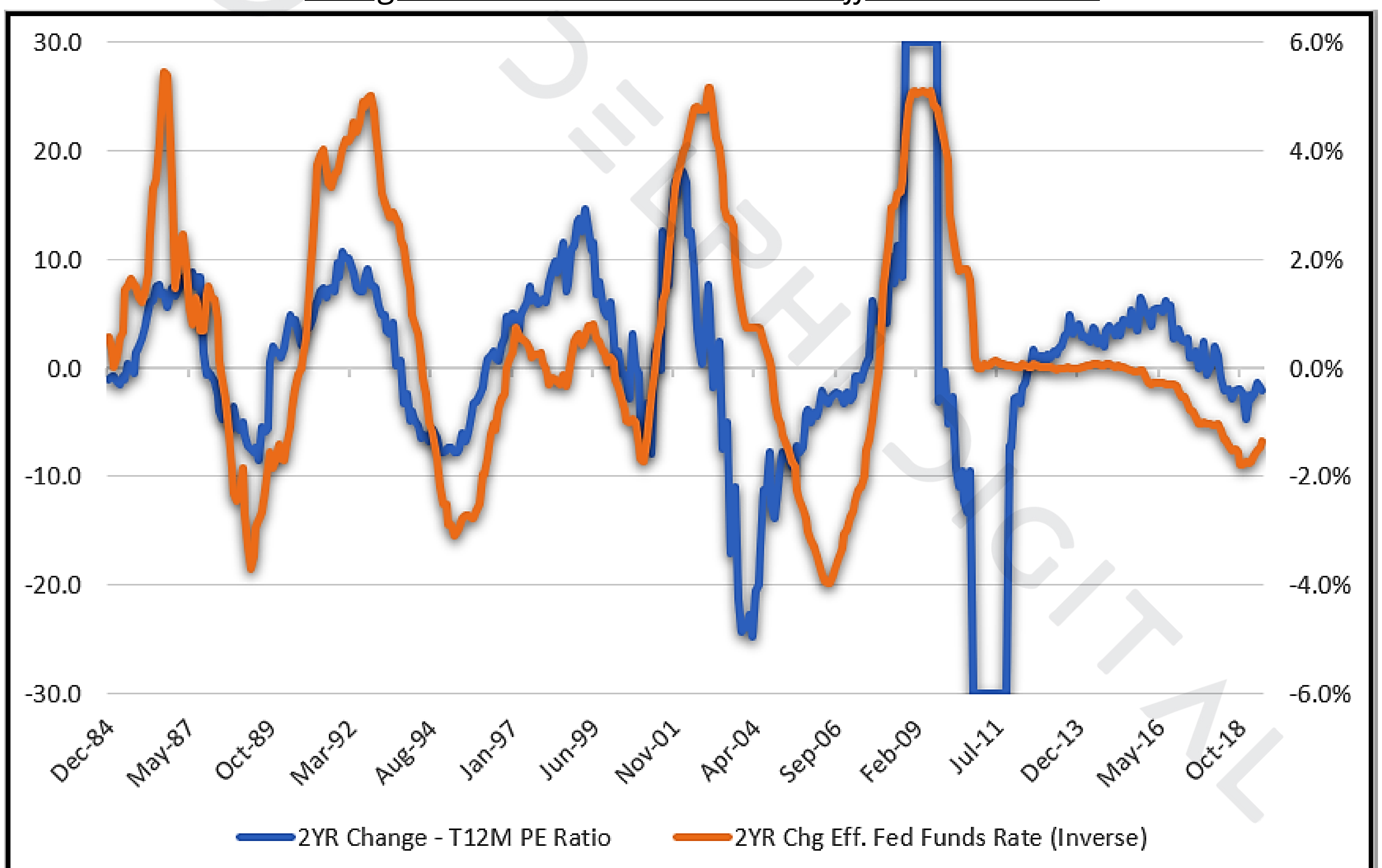
Data as of July 31st, 2019

Source: TradingView, S&P Dow Jones, ICE, MSCI

Earnings Multiple Expansion

Investors are usually willing to pay higher multiples for stocks when other alternatives are relatively unattractive. Currently, bond yields across the board from sovereign to corporate debt leave much to be desired, which has inevitably pushed investors towards equities. Part of the low yield debacle can be explained by a lack of inflationary pressure and consensus expectations for a global economic slowdown in the years to come. Central banks have also helped keep rates artificially low for much of the last decade, which has prompted investors to pay higher multiples for companies that can deliver (or are expected to deliver) above-average growth (given its absence elsewhere). For example, history shows lower interest rates have an inverse relationship with the price-to-earnings multiple on the S&P 500. **Given the Fed's pivot towards more dovish policy, multiple expansion could give a boost to stocks in the short to medium-term.**

Change in S&P 500 TTM P/E Ratio vs. Eff. Fed Funds Rate



Data as of July 30th, 2019

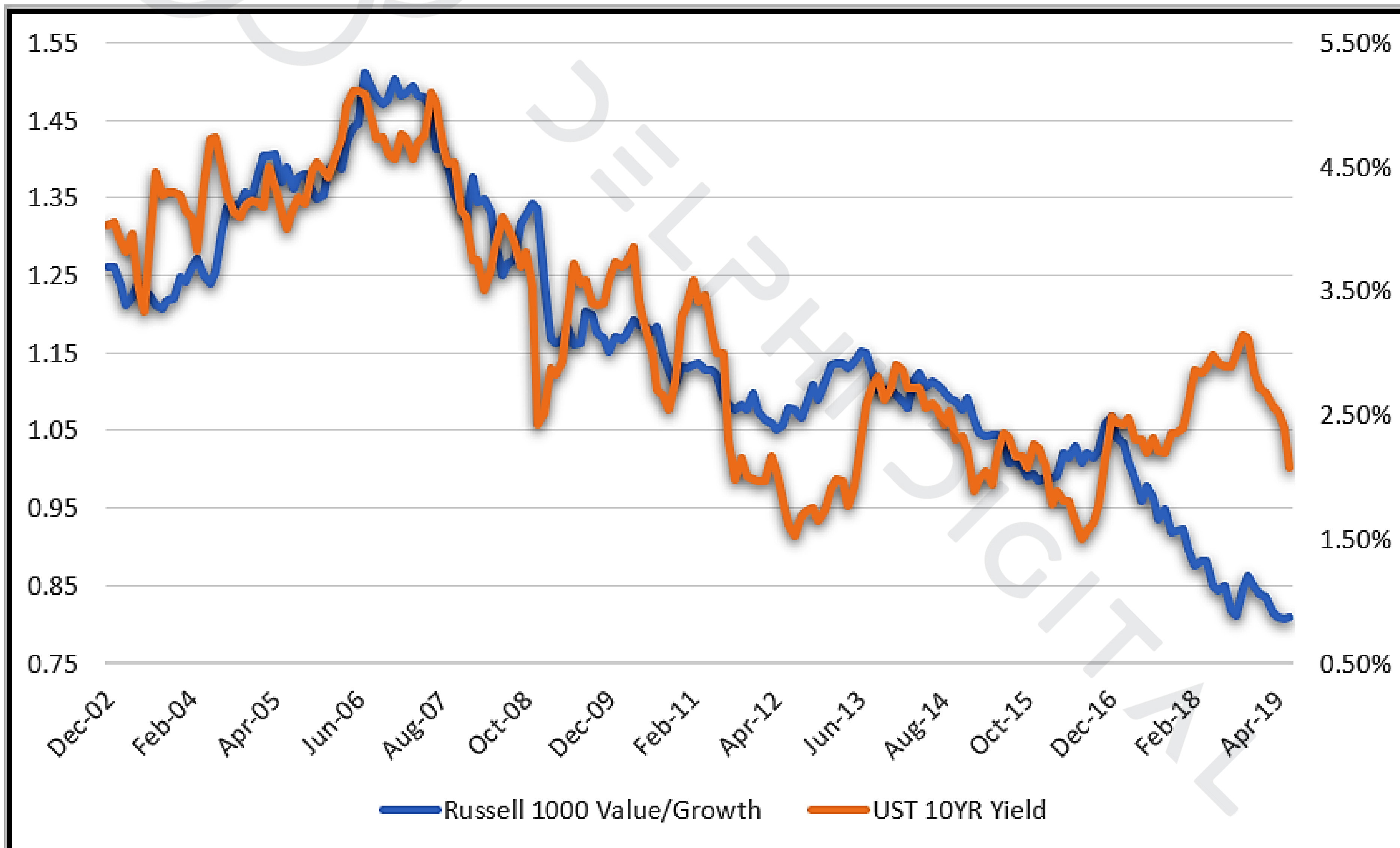
Source: Federal Reserve of St. Louis, Quandl

Growth Assets Outperform

DELPHI DIGITAL

A prime example of this trend lies in the rebound of growth names relative to their value peers. The Russell 1000 Growth Index, which tracks large cap growth stocks in the U.S., **has outperformed its value counterpart by almost 8 percentage points this year.** Likewise, technology is the best performing sector in the SPX year-to-date, up more than 30%, while health care and utilities have lagged. The growth trade obsession is a trend unlikely to reverse unless the prospects for other alternatives becomes more attractive. How else can you justify buying a plant-based meat alternatives stock for over 40x its projected 2019 sales? While it's certainly possible the growth trade runs out of steam sooner than anticipated, I wouldn't hold your breath.

Russell 1000 Growth/Value Index vs. 10YR U.S. Treasury Yield



Data as of July 30th, 2019

Source: Federal Reserve of St. Louis, FTSE Russell

Bitcoin vs. Growth Assets

As we noted in our previous quarterly report, a favorable backdrop for growth stocks may also serve as a catalyst for bitcoin, at least in the short run. The asymmetric upside to BTC if it lives up to its "digital gold" hype would make any growth investor salivate, especially if the FAANG-type names become even more crowded. **Simply put, bitcoin has one of the highest growth potentials of any asset globally.** Growth stocks tend to outperform during periods of moderate-to-weak economic activity, which usually spills over into expectations for corporate earnings. As we know, investors are willing to pay higher multiples for companies with considerable growth potential during these times. Given the expected slow down in global growth and muted earnings expectations, the backdrop remains 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.

BTC Price vs. iShares Global Tech/MSCI AC World Index

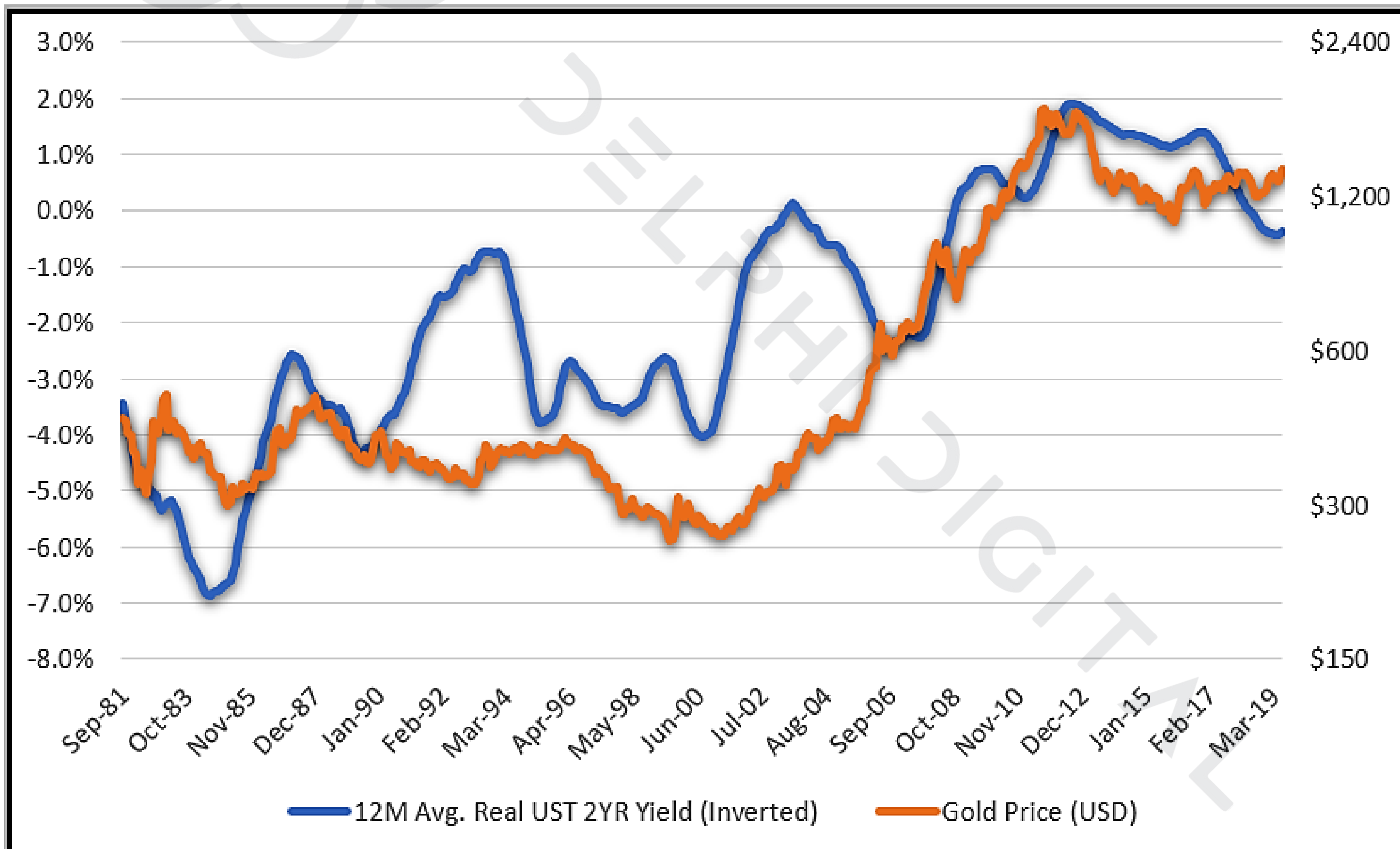
Data as of July 31st, 2019

Source: TradingView, Coinbase, MSCI, BlackRock

Gold Drivers: Real Yields Collapse

Gold appears poised to do relatively well in a world of falling real bond yields. The precious metal broke out to a six-year high recently amid the race among central banks to ease monetary policy with lower rates and teases of additional stimulus. Real yields serve as an opportunity cost for holding non-income producing assets like gold and bitcoin. As yields decline, so too does the attractiveness of holding bonds compared to other non-yielding assets. **Over longer time horizons, gold tends to rise during periods when real yields are trending lower, a notable trend given a great deal of today's sovereign debt trades with negative real yields.** The lack of counterparty risk also makes gold an attractive investment option.

Gold Price vs. 12M Avg. Real 2-Year UST Yield (Inverted)



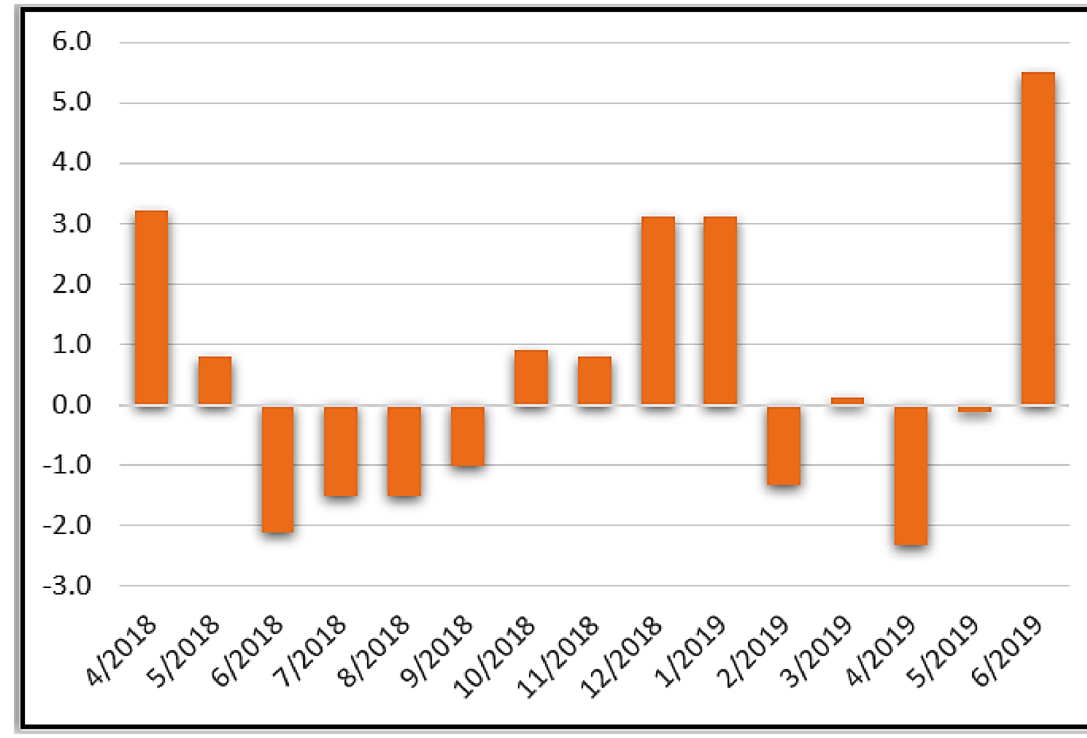
Data as of July 30th, 2019

Source: Federal Reserve of St. Louis

Gold Drivers: Investment

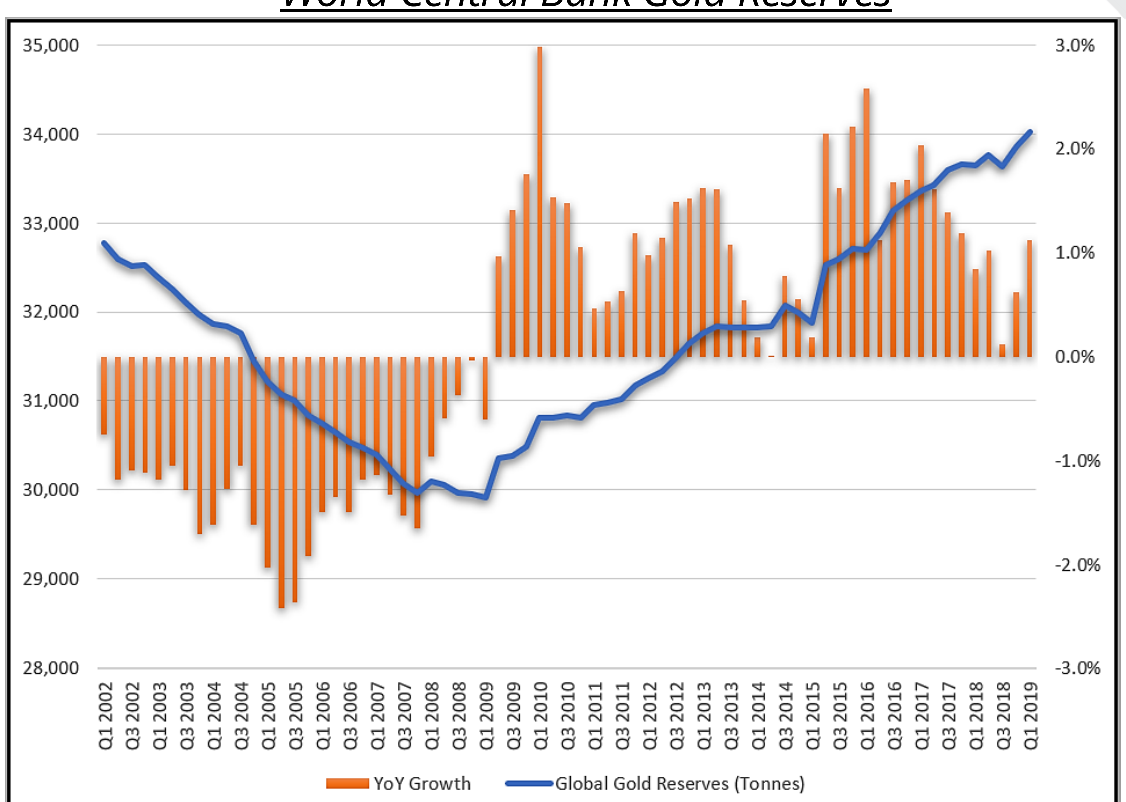
It's important to understand who the incremental buyer of gold at current levels may be. One of the most significant sources of demand for gold is central banks, which are estimated to hold roughly 18% of the precious metal's above ground supply. In fact, in 2018 alone, "central banks bought 651 tonnes of gold, up 74 per cent compared to 2017 and the highest level since 1971", according to the World Gold Council. They also note several emerging market central banks are planning to increase their gold reserves over the next 12 months and these plans are **"being driven by higher economic risks in reserve currencies."** This trend is one we expect to continue as foreign countries attempt to undermine the dollar's influence as the global reserve currency, most notably Russia and China, which have each added more than 1,000 tonnes to their reserves since 2006.

Gold Fund Flows ($bln)



**Fund flow data includes ETFs, closed-end funds, mutual funds*

World Central Bank Gold Reserves



Data as of July 30th, 2019
Source: World Gold Council

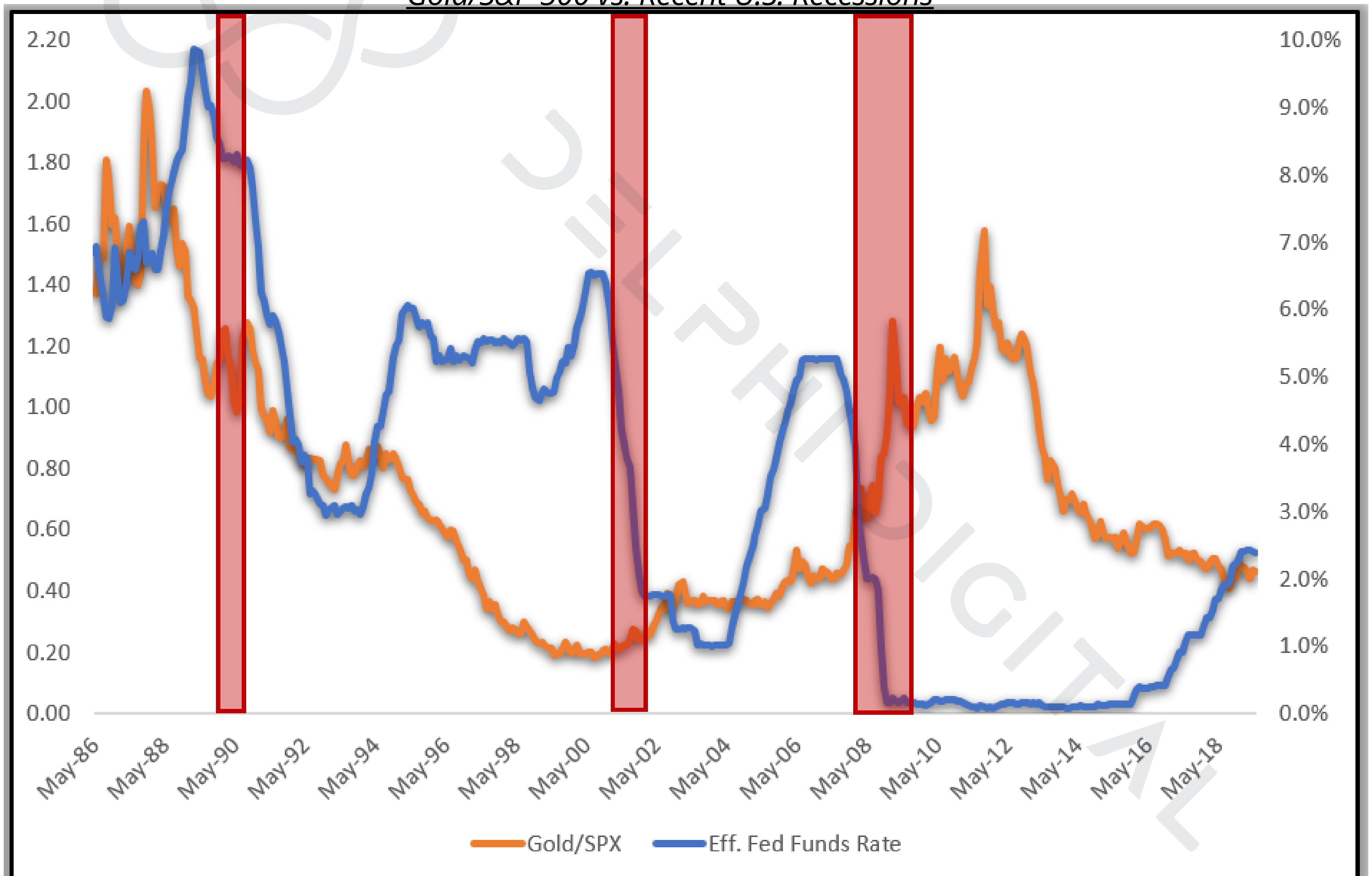
Other major sources of demand for gold are institutional and individual investors looking to diversify their portfolios. Gold is regarded as an uncorrelated asset to conventional portfolio holdings like stocks and bonds even though it does not produce any income (i.e. dividends, coupon payments, etc.). It is also often considered a hedge against rising inflation, which major central banks aim to accelerate by cutting interest rates, and serves as a popular hedge during times of rising geopolitical unrest given its non-sovereign nature (evident in the increased demand by UK investors stemming from turmoil surrounding Brexit). As a result, **gold-backed ETF AUM grew 15% in June, the largest monthly increase since 2012,** according to the World Gold Council (WGC). Global AUM for gold-backed funds is still relatively small, however, representing less than 2% of the total gold supply.

Gold Performance Recessions

DELPHI DIGITAL

One of the many unknowns facing crypto investors is how this nascent asset class will perform when the global economy does take a turn for the worse. **Bitcoin was forged in the depths of the Great Recession over a decade ago and, therefore, lacks historical precedent.** Some speculate bitcoin's price will explode as capital flees conventional risk assets (stocks, high yield bonds, etc.) in search of safe haven assets like physical gold. There is some logical basis to this argument, but it remains just that: speculation. In order to help put context around this debate, we went back and looked at how physical gold traded during prior recent recessions to get a potential proxy for BTC's performance.

Gold/S&P 500 vs. Recent U.S. Recessions



Data as of July 30th, 2019

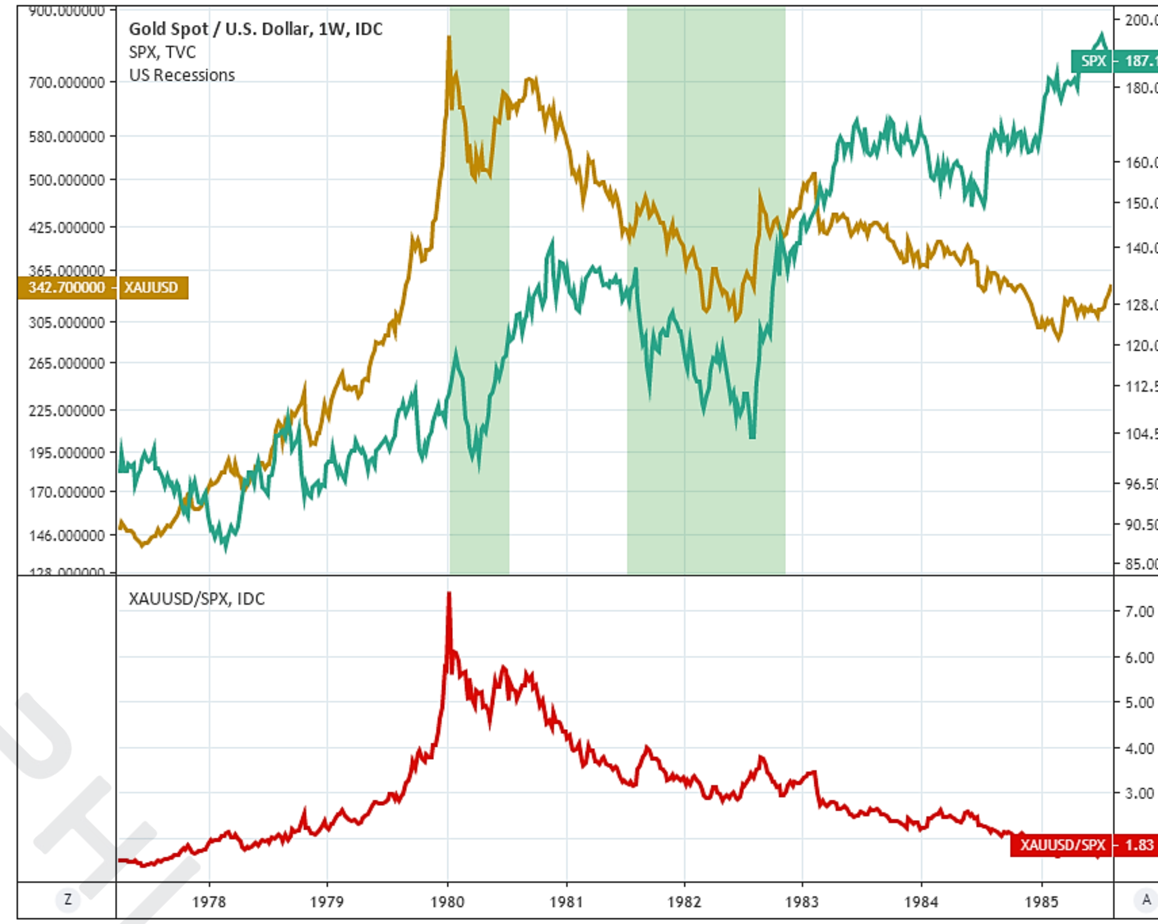
Source: World Gold Council, Federal Reserve of St. Louis

Gold - 1980/1990s Recessions

As one may expect, gold did offer some protection for investors during prior recessions, outperforming many risk assets like equities. It is important to note, however, that GDP data is released with a considerable lag, which helps explain why risk assets tend to rollover months before a recession is officially underway.

Interestingly, volatility in gold prices tended to jump around recent U.S. recessions, but the performance was more mixed. For example, gold rallied significantly heading into the recession of 1980, leaving stocks in the dust. Its parabolic move caused price volatility to rise substantially, so it's also crucial to understand volatility works both ways.

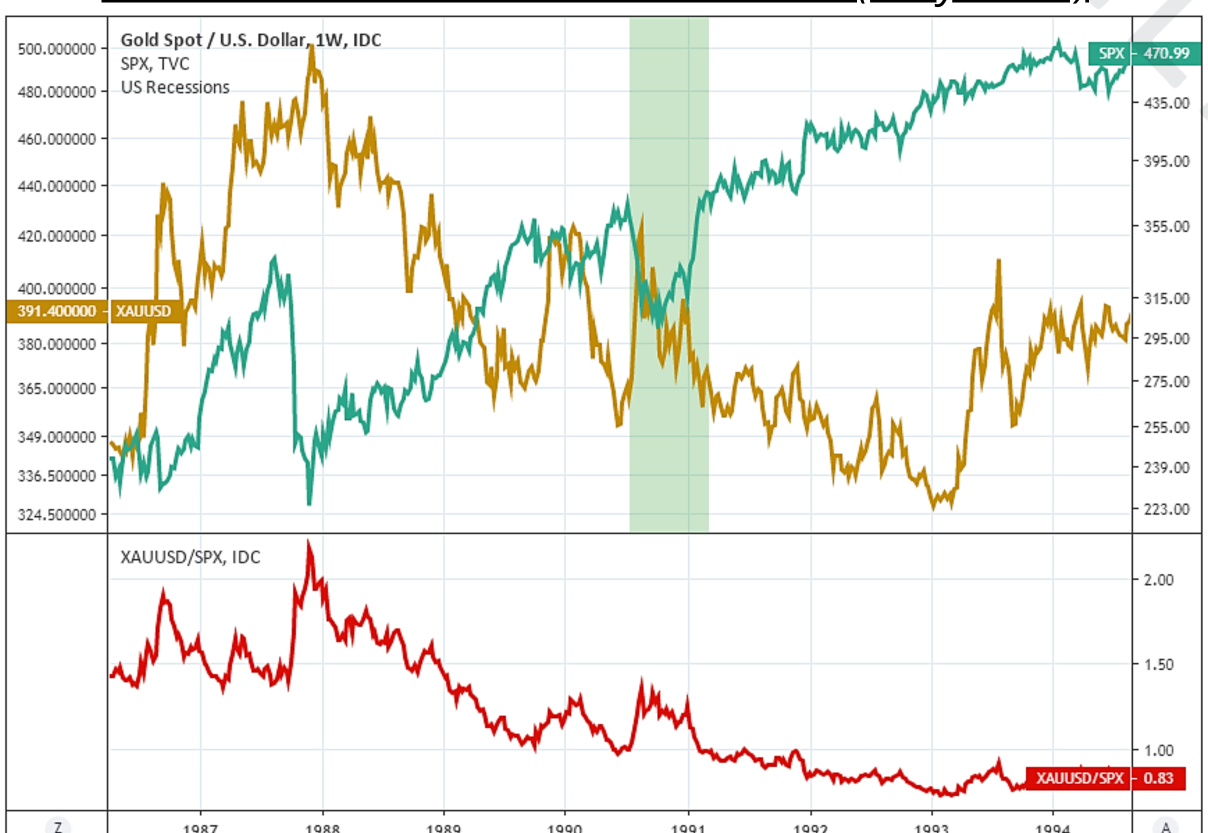
Gold vs. S&P 500 Pre/Post-U.S. Recessions (1980s)



Gold's epic rally through 1980 was followed by a strong pullback as assets across the board faced elevated selling pressure. After a brief recovery, gold saw a sizable decline through much of 1981-1982 leading up to and including part of the 1982 recession. **This was largely because of the rapid appreciation in the dollar as a result of tighter monetary policy in the United States.**

Gold's performance around the recession in the early 1990s was not as glorious. Despite short stints of rapid price appreciation, gold prices generally trended lower between 1988-1993.

Gold vs. S&P 500 Pre/Post-U.S. Recessions (Early 1990s)



Data as of July 31st, 2019

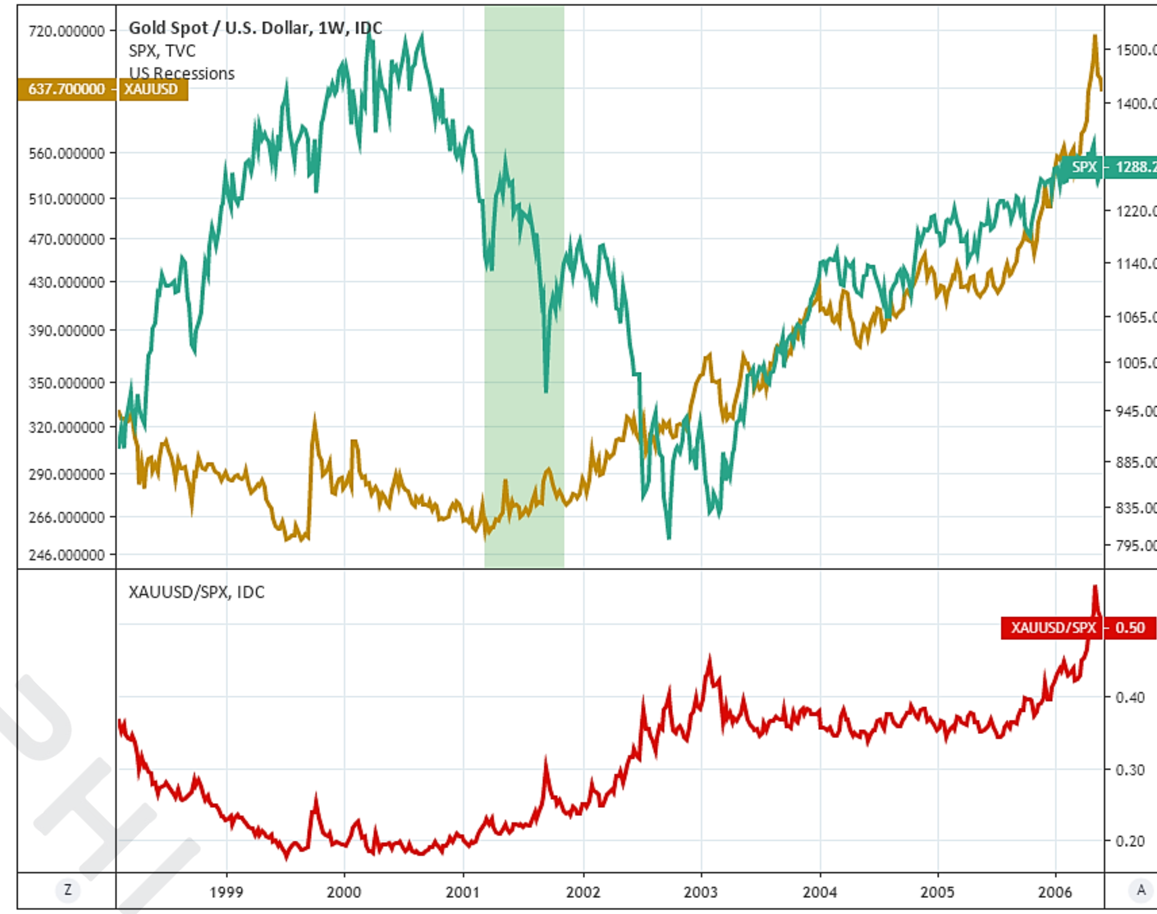
Source: TradingView, S&P Dow Jones, ICE

Gold - Early/Late 2000s Recessions

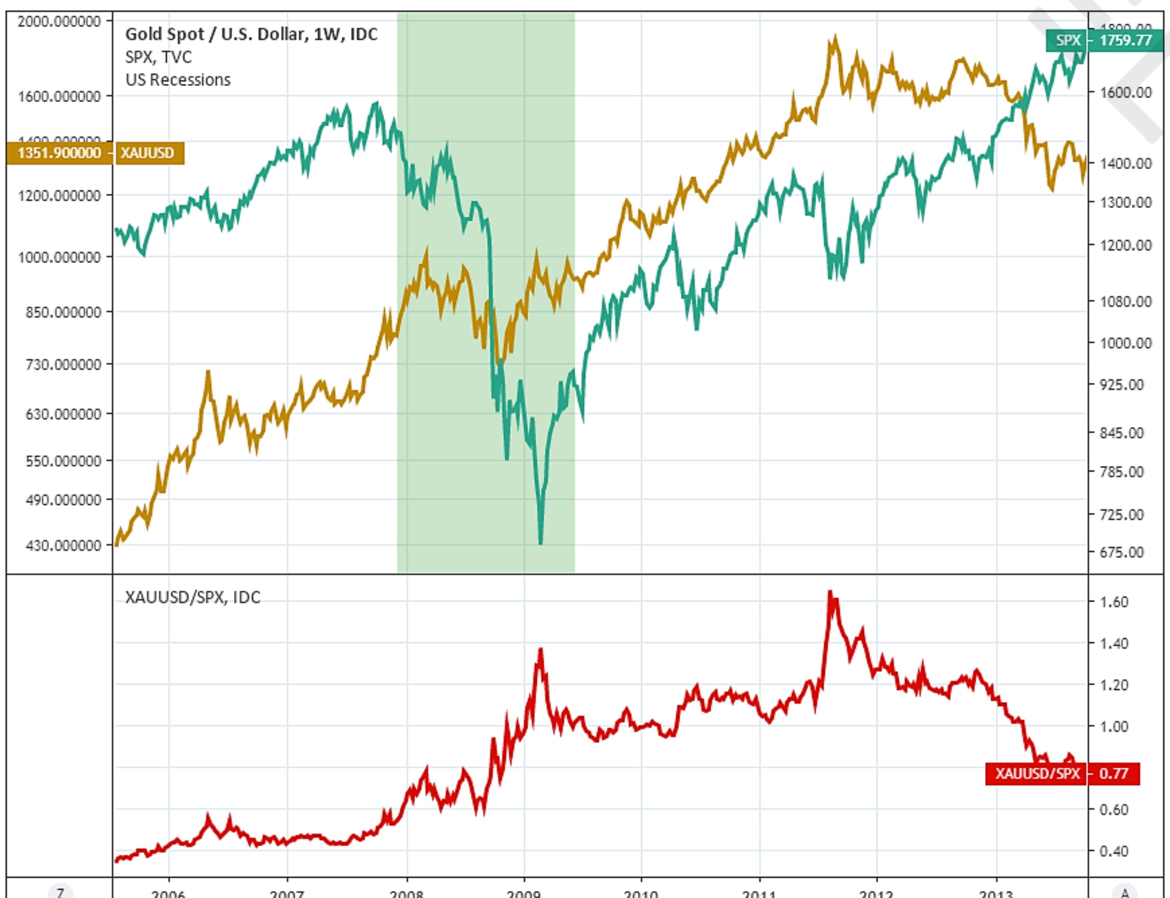
DELPHI DIGITAL

Following a steady decline in the latter half of the 1990s, gold bottomed out right around the same time the U.S. headed into the early 2000s recession. While part of its reversal can be attributed to the increased demand for safe haven assets, **the real driver behind the precious metals major 2000s bull run was the collapse in the dollar, which fell over 40% through 2008.** Gold performed relatively well compared to riskier assets during the Great Recession, continuing its upward trend of the prior ~8 years. Coincidently, gold peaked in the summer of 2011 just as the dollar began to climb higher.

Gold vs. S&P 500 Pre/Post-U.S. Recessions (Early 2000s)



Gold vs. S&P 500 Pre/Post-U.S. Recessions (Late 2000s)



The key takeaway is a recession does not automatically imply a higher gold price, which may throw some cold water on the theory bitcoin will explode once the economy rolls over. Gold on a relative basis has done well during prior recessions, but only when the dollar is also trending lower. It's almost important to note that when panic strikes markets, investors often sell more liquid assets first in order to minimize losses. **Gold is one of the most liquid assets today, so it may suffer from a hefty drawdown initially if and when risk assets begin to falter. The outcome for bitcoin is far less clear, but a weaker dollar is unlikely to hinder its performance.**

Data as of July 31st, 2019

Source: TradingView, S&P Dow Jones, ICE

Twin Deficits & U.S. Dollar

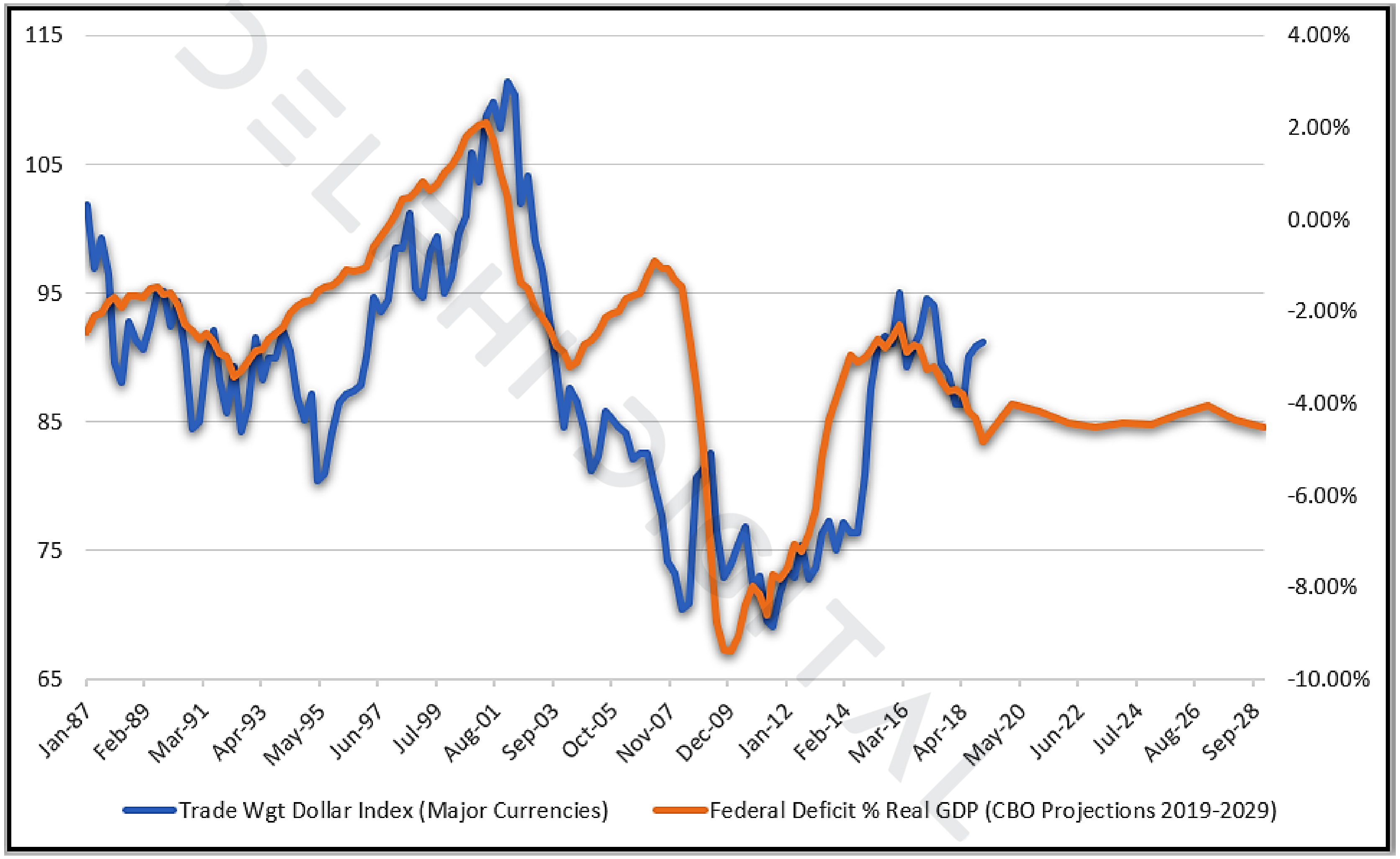
One of the major reasons the U.S. dollar is the global reserve currency is because, by definition, dollar-based assets are held in significant quantities by global central banks, most notably U.S. Treasuries. Ironically, Treasuries exhibit somewhat of a network effect in that central banks hold them because they boast the most liquid markets, which in turn boosts their appeal as a reserve asset. Liquidity is a key concern if a crisis forces major liquidations or purchases of foreign securities to manage a country's native currency.

Many world leaders have been outspoken in their concerns about the influence the U.S. has over the global financial system because of the dollar's dominant status, but the reality is there is not much of an alternative as a global reserve asset. **Negative government debt yields also reduce the attractiveness of holding other debt securities or deposits, which is why I believe the dollar will remain the GRC for the foreseeable future.**

However, over longer periods of time a growing federal deficit has typically been more bearish for the greenback. The Congressional Budget Office (CBO) projects the United States' average budget deficit will be 4.3% of GDP between 2020-2029 and will reach more than $1.3 trillion over the next decade.

On top of this, the U.S. also runs a significant trade deficit, meaning the country's imports are larger than their exports. **Typically, this would also imply a weaker currency, but once again, the U.S. benefits from the dollar's reserve currency status, which creates vast demand for USD.**

U.S. Federal Deficit % GDP vs. Dollar Index



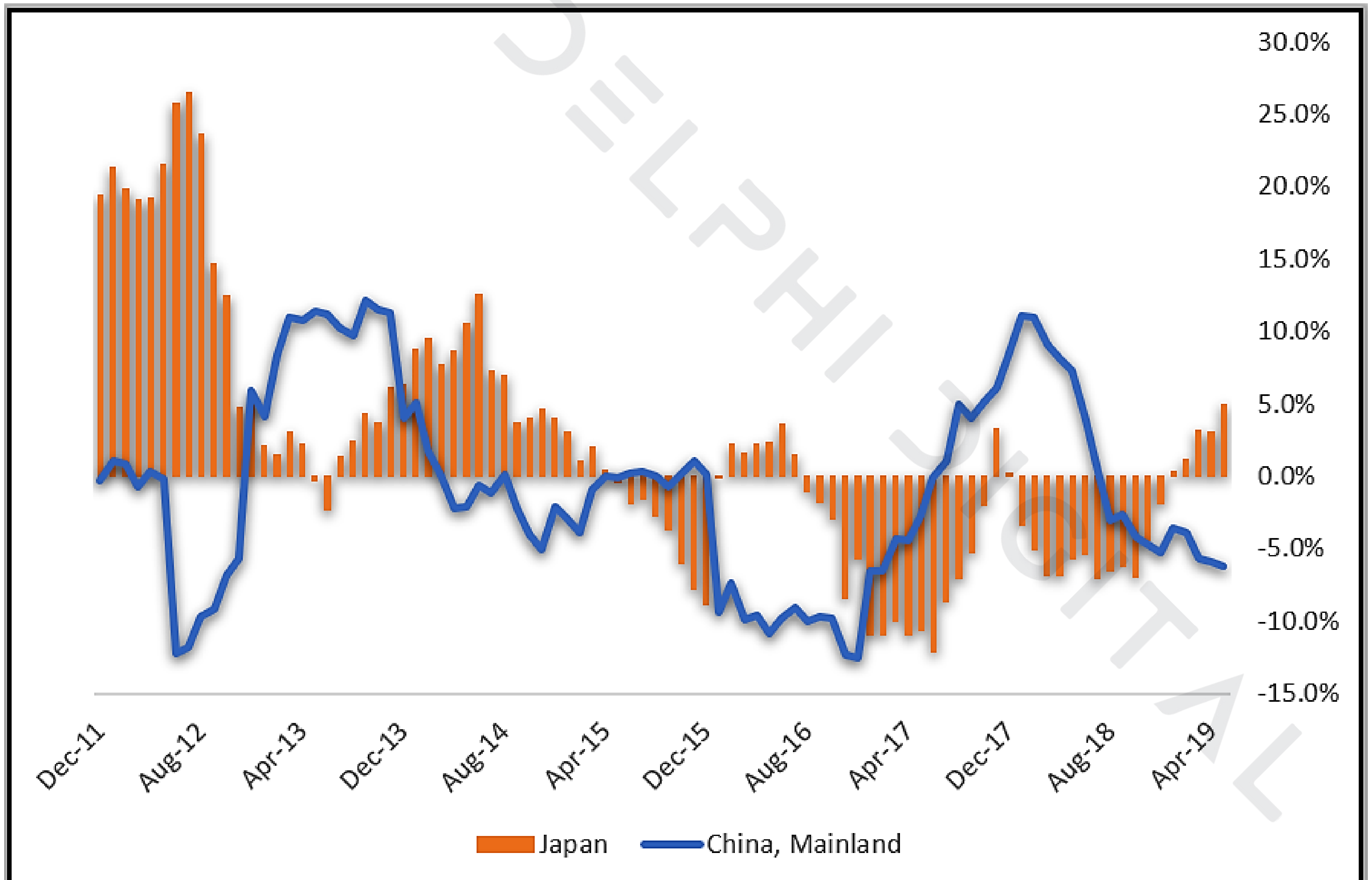
Data as of July 30th, 2019
Source: Federal Reserve of St. Louis, CBO

U.S. Dollar - Global Reserve Currency

The seemingly insatiable appetite for Treasury bonds is what allows the U.S. to run such large fiscal deficits. The government can keep issuing more debt as long as demand remains high. Although much attention has been given to the recent decline in dollars as a percentage of total global reserves, the proportion of USD has remained relatively stable over the last couple decades (60-65%).

However, the idea that we can keep digging a deeper debt hole with no end in sight is naive in my view. **If foreign holders of UST lose faith in the viability of repayment, then sentiment towards the dollar will shift drastically.** This is not going to happen overnight, but the gradual shift away from the dollar as the global reserve currency is a long-term threat to its strength. Look no further than the recent Congressional hearings on Libra to see why policymakers are so intent on keeping the status quo when it comes to the dollar's influence.

Treasury Holdings YoY Growth - China & Japan



Data as of July 30th, 2019

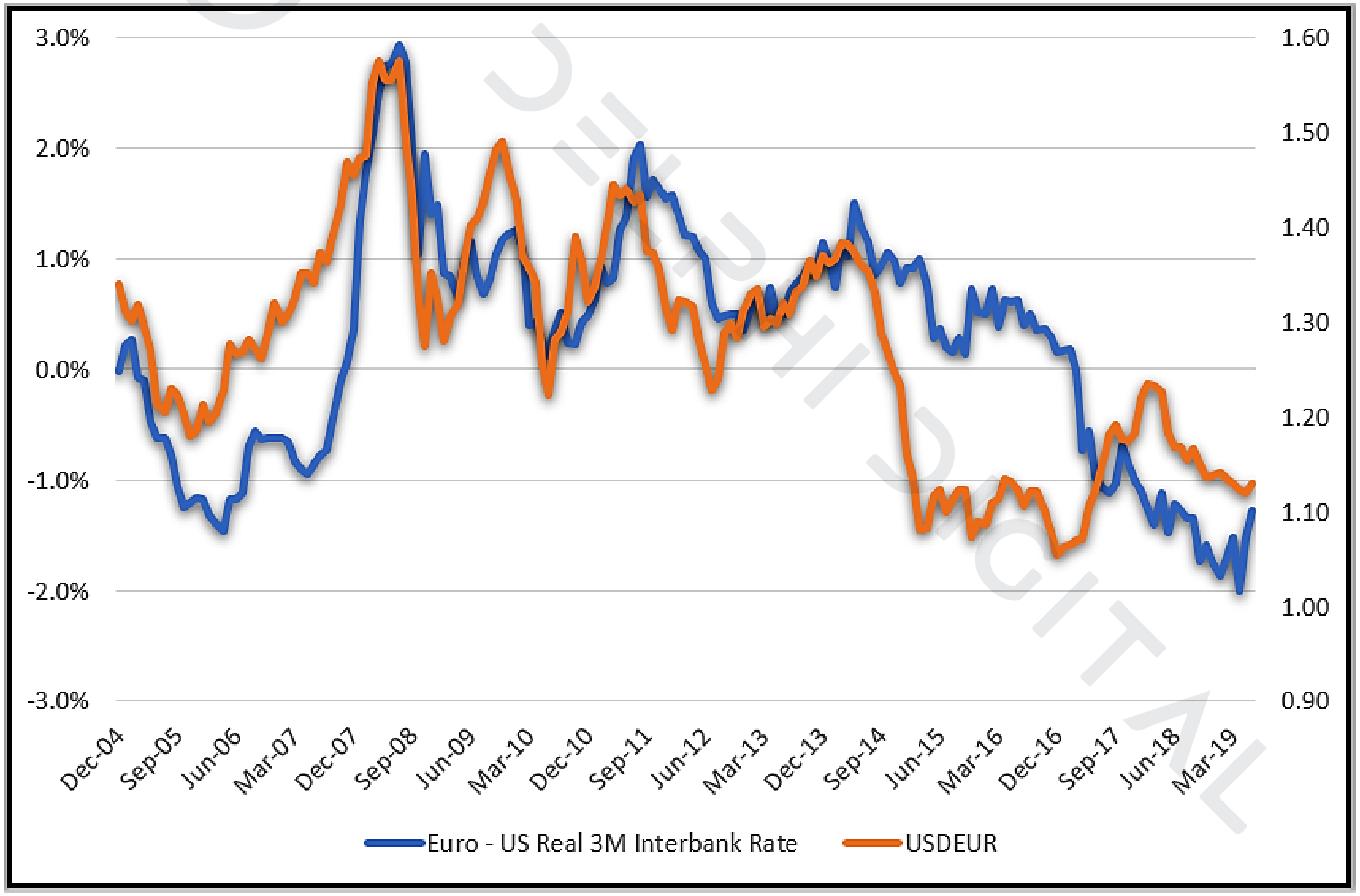
Source: U.S. Department of the Treasury

U.S. Dollar Outlook - Short Term

DELPHI DIGITAL

All the trends we've discussed so far have significant implications for the U.S. dollar. In the near term, monetary policy decisions are likely to garner much of the market's attention as interest rate differentials remain relatively wide between the U.S. and other advanced economies, notably those in Europe. In fact, the U.S. remains one of the select countries where investors can earn a positive real return on their fixed income holdings. The technical picture for the U.S. Dollar Index (DXY) also appears to be bullish in the short to intermediate-term. A break above ~98.5 may trigger another leg higher in the DXY, which could spark further action by the Fed depending on the extent of the move. **The long-term structural outlook points to a weaker USD, but the current dollar shortage and favorable growth outlook relative to most of the developed world may cap its downside in the near term.**

Real Euro Area - U.S. 3M Interbank Rates vs. USDEUR



Data as of July 30th, 2019

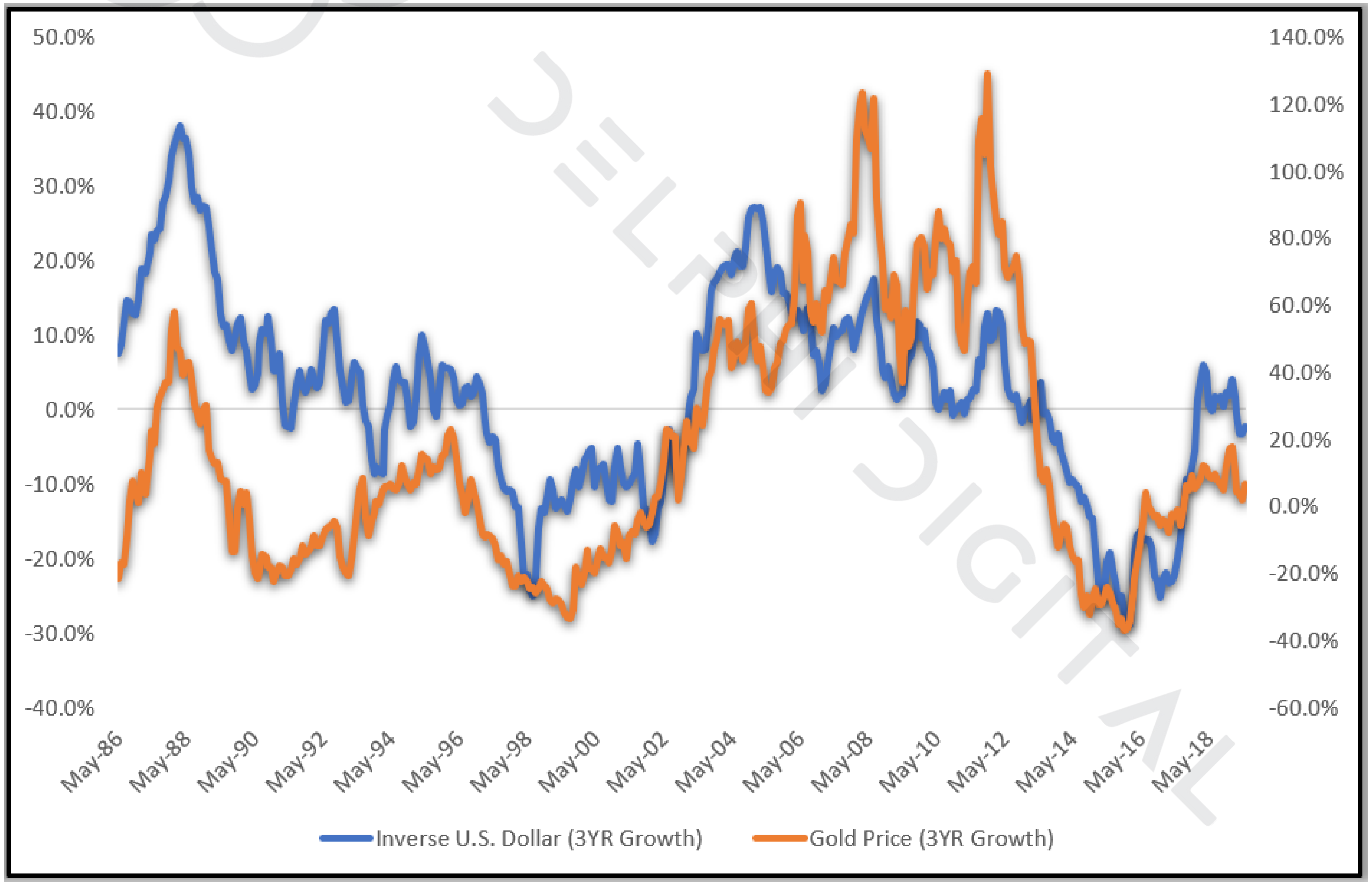
Source: Federal Reserve of St. Louis

Weaker Dollar Boosts Gold

DELPHI DIGITAL

A weaker dollar is not only beneficial for the global economy; it is also bullish for the price of gold. **Historically, gold and the U.S. dollar have had a strong inverse relationship** as a declining dollar means other currencies are appreciating against it, which tends to boost demand for commodities. A falling dollar is also associated with rising inflation, which serves as a boon for gold as demand for inflation hedges increases. Risk assets also typically perform relatively well under a weaker dollar regime for the aforementioned reasons (global growth, dollar-denominated debt obligations, etc.). **Dollar weakness would most likely give a bid to bitcoin as well given it trades as both a complement to gold and a risk asset at times.**

Gold Returns vs. Trade Wgt U.S. Dollar Index (Inverted)



Data as of July 30th, 2019

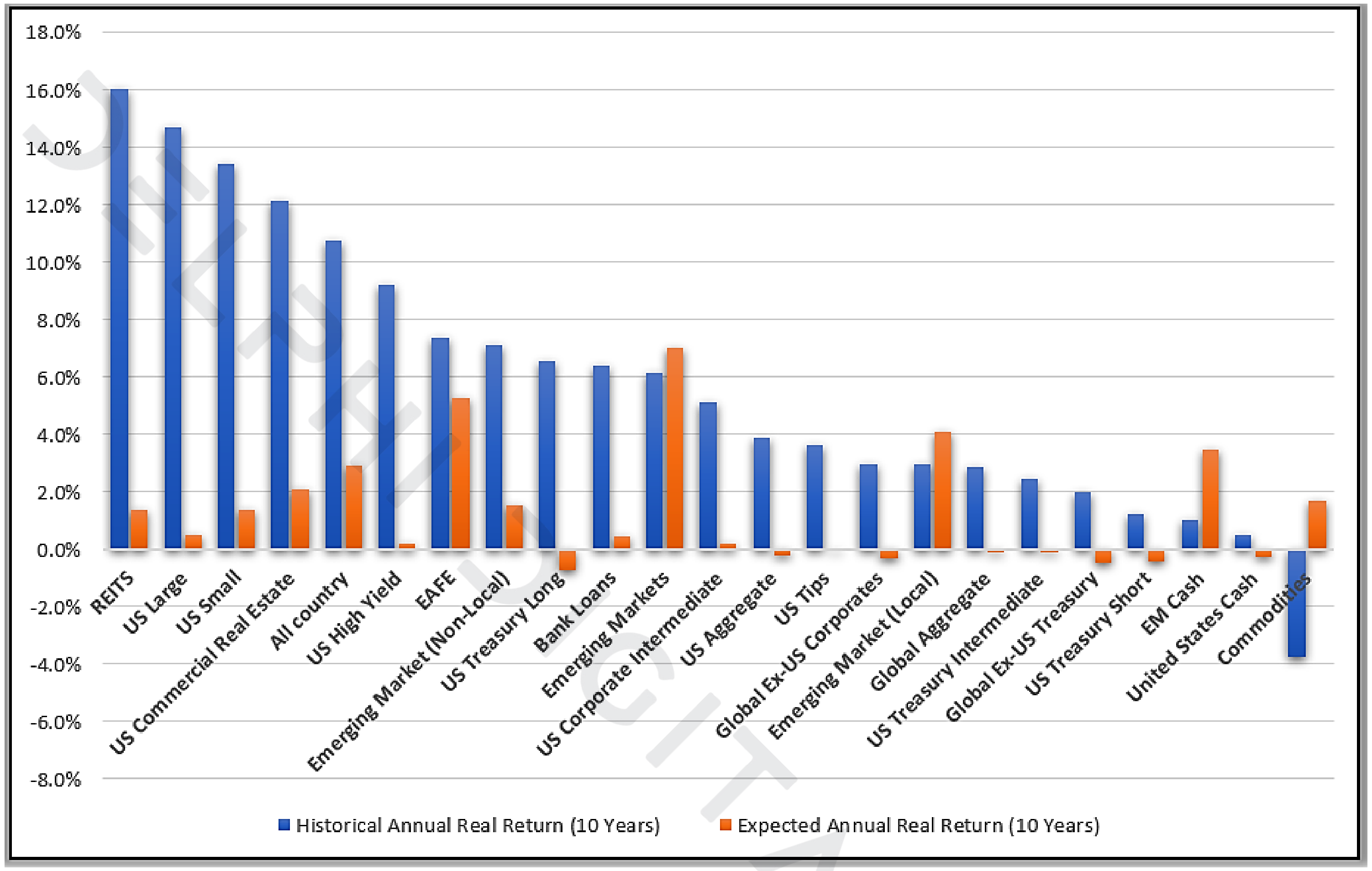
Source: Federal Reserve of St. Louis

Expected Returns Look Bleak

Recency bias causes us to place greater weight on more recent information or events, which can be a dangerous pitfall when it comes to investing. Extrapolating out the last decade of strong performance for most asset classes as one's expectation for futures returns over the next decade may be a rude awakening for some investors. **The harsh reality is the next ten years are unlikely to mimic the last ten, where unconventional monetary policy lit a fire under risk assets and kept rates artificially low.** U.S. equities are expensive across several measures (price-to-sales, 10-year CAPE ratio, etc.), which does not bode well for longer-term expected returns. As we've discussed, the growth outlook for the U.S. is stronger than many other advanced economies, which may warrant higher multiples, but eventually earnings growth has to take the wheel to propel stock prices higher.

Valuation multiples (i.e. price-to-earnings) are poor timing mechanisms as equity markets can always get more expensive in the short run. **However, they are strong predictors of long-term future returns, so the higher the starting valuation the lower the expected returns will be over the next decade.** Some of this cycle's biggest winners (REITs, U.S. Large Caps, etc.) are projected to have the largest moderation in returns over the next decade, according to proprietary analysis conducted by Research Affiliates, a globally renowned investment manager. Emerging market equities are expected to have one of the highest real return profiles over the next ten years, in part because the return potential of EM currencies relative to the USD. Are 7% annualized returns really something to write home about though?

Expected Real Returns by Asset Class Over Next 10 Years



Source: Research Affiliates, LLC ("Research Affiliates") © Research Affiliates 2019. All intellectual property rights in the Asset Allocation Interactive website and any data thereto are the property of Research Affiliates. Neither Research Affiliates nor any of its affiliates, licensors or contractors shall be liable for any error, omission, inaccuracy, or incompleteness in the Asset Allocation Interactive website or any data related thereto. No further distribution of Research Affiliates data is permitted without Research Affiliates' express consent.

Data as of June 30th, 2019

Source: Research Affiliates

Libra vs. Dollar - Friend or Foe?

Few things have taken the crypto world by storm more than the debate surrounding Facebook's introduction of Libra a few weeks ago. There's been a ton of great coverage discussing the potential effects of Libra on bitcoin and broader crypto adoption, but the idea it serves as a serious threat to the U.S. dollar as the global reserve currency is a bit overblown in my view.

Just to be clear, there are a ton of regulatory hurdles and operational risks Calibra and the Libra Association will have to overcome, so this commentary is solely focused on the long-term potential effects of a global digital currency as outlined by the Libra whitepaper. *For a deeper dive on Libra, you can read our team's recently published thematic report on the topic, which gives much more detail than I present here.*

We don't have much detail on the make-up of Libra's reserve basket, but what we do know is it will consist of "low-volatility assets, including bank deposits and government securities from stable and reputable central banks" that "will yield interest over time."

The key behind my thesis is the latter part of that description: **assets that will yield interest over time.** As disclosed in the Libra whitepaper, a portion of the interest earned on reserve assets "will go to pay dividends to early investors in the Libra Investment Token for their initial contributions." So early partners holding Libra Investment Tokens expect at least some portion of the interest on these reserve assets. Why else would they be investing $10MM+ to become founding members of a digital currency network with a highly uncertain future? Likely it's because the potential ROI *could* be compelling (more on this shortly).

The Libra Association will also be responsible for deciding which assets are held in the reserve. The apparent mandate of the reserve assets is focused on two things: **capital preservation and liquidity.** Referring to the Libra white paper once again, it states "the association will only invest in debt from stable governments with **low default probability** that are **unlikely to experience high inflation."** So right there we've already eliminated a bulk of emerging and frontier markets. The association also plans to rely on "short-dated securities" that are traded in "liquid markets that **regularly accommodate daily trading volume in the tens or even hundreds of billions."** And just like that, the list of potential reserve assets dwindles further.

Data as of July 2019
Source: Facebook, Libra White Paper

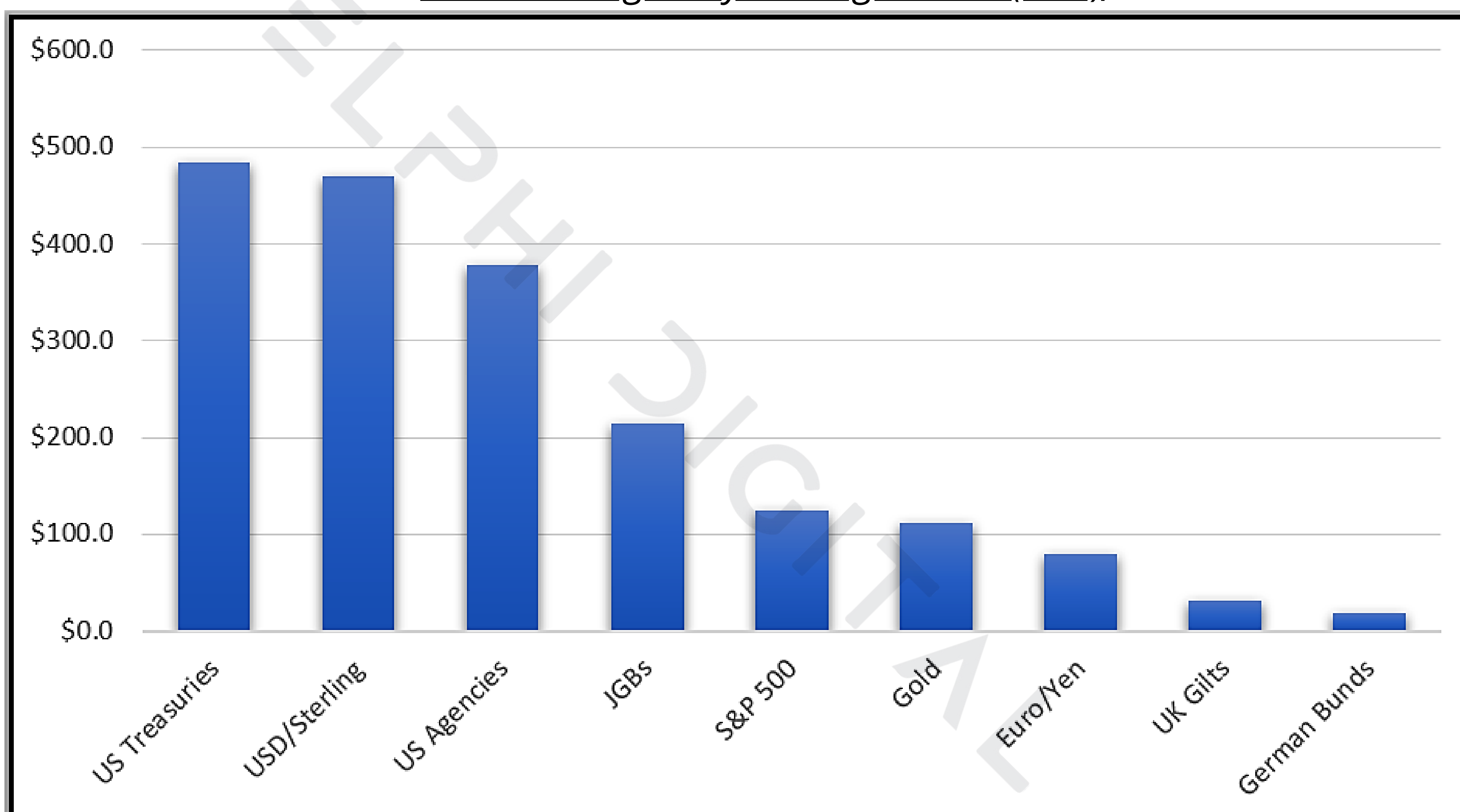
Libra vs. Dollar - Friend or Foe?

The major criteria for Libra's reserve assets naturally narrows down the possible set of securities that could be included. Estimates for average daily trading volume highlight a handful of potential options, including U.S. treasuries, Japanese government bonds (JGBs), UK gilts, and German bunds. Treasuries by far have the most liquidity, which again is why they are a staple reserve asset for the world's central banks.

But remember, the reserve will consist of low-volatility assets that are expected to **yield interest over time.** JGBs and German bunds currently offer negative yields on both short and longer maturity debt. UK gilts aren't much better, offering roughly 50 bps in nominal terms. **Consequently, U.S. treasuries are one of the few government debt securities that fulfill the mandate of yielding interest over time.** According to the Libra white paper, the interest earned on reserves will also go towards funding operations, so it's not just the Founding Members' self-interest that's dictating the reserve criteria.

Obviously a lot can change between now and the launch of Libra (assuming it does get off the ground), but if the reserve were chosen today, I have a strong feeling a majority of the assets would be dollar-denominated. Even if the asset mix was more diverse, Libra would have to gain mass global adoption before it would really threaten the U.S. dollar as the global reserve currency. Going further, if Libra actually did become a reserve asset held by central banks and large institutions, **this would only create more demand for dollar-denominated debt securities, assuming they're a substantial portion of the reserve basket.**

Estimated Avg. Daily Trading Volume ($bln)



Data as of July 2019

Source: Facebook, Libra White Paper

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.

	Physically Settled Futures	***Custody / Other***	***Exchange Traded Funds (ETFs)***
Description	Unlike the futures launched by CME and CBOE (although discontinued), physically settled Bitcoin futures mean customers will be paid in Bitcoin when the contract expires.	A custodian is a financial institution that provides a secure storage service for financial securities to minimize the risk of loss or theft. Due to the technical challenges involved in safely securing crypto, this is an important service.	An ETF is an investment vehicle that tracks the performance of a particular asset or group of assets. This allows investors to buy into the ETF without going through the unfamiliar process of buying BTC.
Key Companies Involved	Bakkt ErisX LedgerX	ANCHORAGE Bakkt Fidelity	Bitwise VanEck
Notable Events in Q2	• Bakkt began testing delivery of BTC futures in July. • Bitcoin derivatives provider LedgerX apparently launched the first physically-settled BTC futures contract on 7/31/2019.	• Anchorage closed a $40 million Series B led by Blockchain Capital in July. • Bakkt acquired Digital Asset Custody Company. • Fidelity went on a hiring spree. • Coinbase Custody supports staking.	• In June, SEC Chairman Jay Clayton said that the SEC needs to feel comfortable with cryptocurrency custody and ensure no market manipulation can take place before approving a crypto ETF.
Looking Forward	• Bakkt self-certified its contracts through the CFTC, and is awaiting a trust charter from the NY Department of Financial Services to set up its warehouse. • ErisX has received the necessary approvals - no ETA for launch yet though.	• Fidelity launched its digital asset custody service early this year, and aims to roll out a crypto trading service too. • Both Coinbase and Fidelity are eyeing Xapo as a potential acquisition play.	• The SEC has delayed making a decision on the VanEck SolidX Bitcoin ETF until August 19th, 2019. • The SEC has delayed making a decision on the Bitwise ETF until August 14th, 2019.

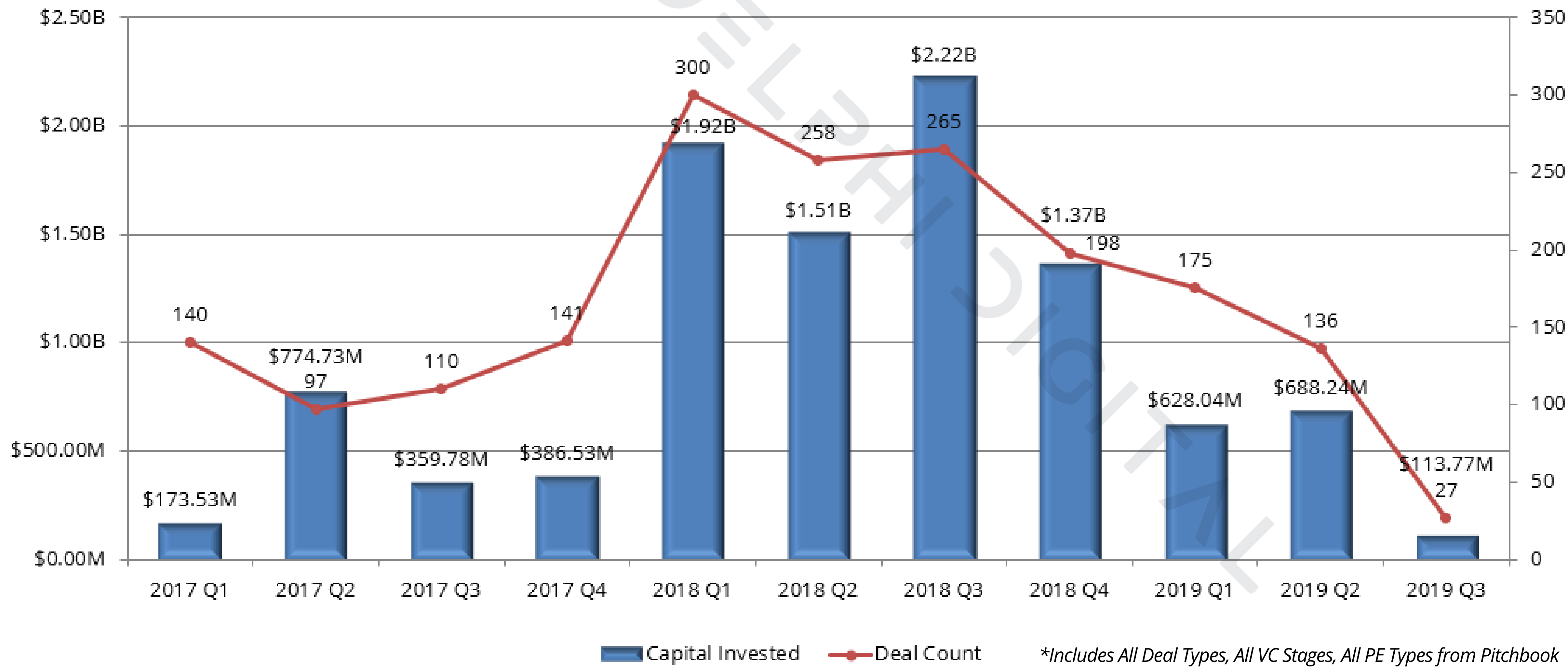
The Venture Side of Things

DELPHI DIGITAL

VC and PE investment into the space has seriously declined in 2019. While Pitchbook's Blockchain/Cryptocurrency vertical saw around $7 billion of capital invested across 1,021 deals in 2018, the same search today paints a much different picture.

So far in 2019, there has been around $1.43 billion of capital invested across 338 deals within the Blockchain/Crypto vertical. While Q1 saw more deals (175) than Q2 (136), there was about 10% more capital invested in the second quarter of 2019. That being said, this year we saw less than 50% of the capital invested in the second quarter of last year.

Capital Invested & Deal Count for Blockchain/Cryptocurrency



**Includes All Deal Types, All VC Stages, All PE Types from Pitchbook*

Source: Pitchbook

Top Deals of 2019

DELPHI DIGITAL

#	Company Name	Deal Size	Deal Date	Deal Type	Primary Industry Code	HQ Location
1	Blockchain Exchange Alliance	200.00	19-Apr-2019	Later Stage VC	Financial Software	Seoul, South Korea
2	Waves Platform	120.00	14-Mar-2019	PE Growth/Expansion	Financial Software	Moscow, Russia
3	Figure	80.00	27-Feb-2019	Early Stage VC	Other Financial Services	San Francisco, CA
4	Fnality International	65.19	03-Jun-2019	Corporate	Financial Software	London, United Kingdom
5	SocialRemit BlockChain Networks	50.00	16-Mar-2019	Early Stage VC	Financial Software	London, United Kingdom
6	ThunderCore	50.00	27-Feb-2019	Early Stage VC	Other Financial Services	Las Vegas, NV
7	Chezhubang	40.13	29-Apr-2019	Early Stage VC	Automotive	Beijing, China
8	Anchorage	40.00	10-Jul-2019	Early Stage VC	Financial Software	San Francisco, CA
9	Spring Labs	36.33	12-Jun-2019	Early Stage VC	Financial Software	Marina del Rey, CA
10	Chainalysis	36.00	16-Apr-2019	Early Stage VC	Financial Software	New York, NY
11	BlockCerts Blockchain	25.00	17-Jun-2019	PE Growth/Expansion	Network Management Software	Victoria, Canada
12	Nivaura	20.39	27-Feb-2019	Seed Round	Automation/Workflow Software	London, United Kingdom
13	CasperLabs	20.00	22-Feb-2019	Early Stage VC	Financial Software	New York, NY
14	Symbiont	20.00	23-Jan-2019	Later Stage VC	Financial Software	New York, NY
15	Alchemy Insights	18.90	01-May-2019	Later Stage VC	Business/Productivity Software	San Francisco, CA
16	Token	18.50	18-Jun-2019	Early Stage VC	Financial Software	San Francisco, CA
17	Bitwise	17.24	12-Jul-2019	Early Stage VC	Asset Management	San Francisco, CA
18	Chronicled	16.00	15-Jan-2019	Early Stage VC	Other Software	San Francisco, CA
19	BRD	15.00	25-Jan-2019	Later Stage VC	Financial Software	Zurich, Switzerland
20	CipherTrace	15.00	04-Feb-2019	Early Stage VC	Other Financial Services	Menlo Park, CA

Above, we've displayed the top deals of 2019 YTD according to Pitchbook. So far in 2019, the biggest deal size has been the $200 million Bithumb's parent company, Blockchain Exchange Alliance, secured in April. Meanwhile, the top five deals of last year (Ping[1], Bitmain, Coinbase, tZERO, and Hyperchain) were all over $200 million. Out of the top 20 deals, almost 70% were early stage investments - showing how young the space still is. Given Bitcoin's recent run up, it'll be interesting to see how the second half of the year plays out as far as venture funding goes.

1: "Ping An Medical and Healthcare Management" showed up as the #1 deal across the Blockchain/Cryptocurrency Vertical for 2018. After spending some time looking at the name, our team could not confirm this deal was related to crypto.

Source: Pitchbook

Smart Contract Platform Updates

DELPHI DIGITAL

Ethereum
ETH 2.0 Phase 0 spec has been frozen. Target release is early 2020: introduces the beacon chain (staking, validating etc)

EOS
Block.one announced its new social media project, Voice, will be run on the EOS blockchain.

Cardano
Shelly Testnet went live, allowing users to test staking in proof-of-stake and experiment with setting up staking pools

Algorand
Mainnet went live in late June, 2019 and raised $60M in a dutch auction token sale at a price of $2.40 per token

NEO
NEO and Ontology have partnered to create an interoperability platform to harness both projects' strengths.

Cosmos
Cosmos Hub launched: functional PoS network with BFT consensus. Over 93 projects have been built on the platform so far.

Tezos
Emmy+ has been shared, an improved version of Tezos' consensus protocol that improves safety and scalability

Hashgraph
Hashgraph released a number of deep dives on the protocol ranging from its community testing program, consensus, smart contracts and more.

Dfinity
Dfinity stated it was on track for a release of its testnet in June 2019, but we believe the project missed this goal and an update is not available

Polkadot
Web3 Foundation released Kusama Network, an experimental network to act as a proving ground for most attributes of Polkadot

Blockstack
Reg A+ token sale approved by the SEC. Doubles app mining rewards to $200k/month to incentivize developers

Near
Raised $12.1M from major investors, close to releasing its testnet known as Nightshade. Mainnet planned for late 2019.

Kadena
Kadena announced its public blockchain, ChainWeb, will launch on Oct 30, 2019. This is critical for the project's hybrid blockchain approach

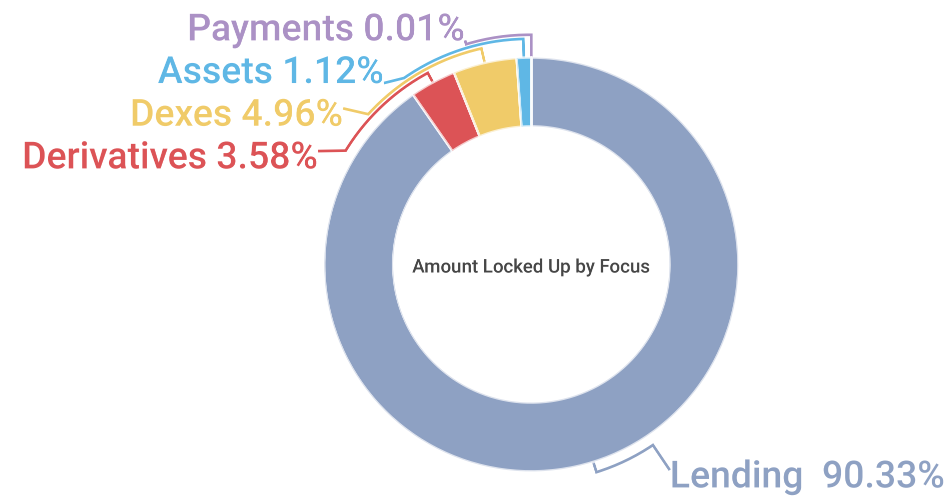
Solana
Solana released its incentivized testnet (earn tokens by participating) and plans to launch its mainnet by year end.

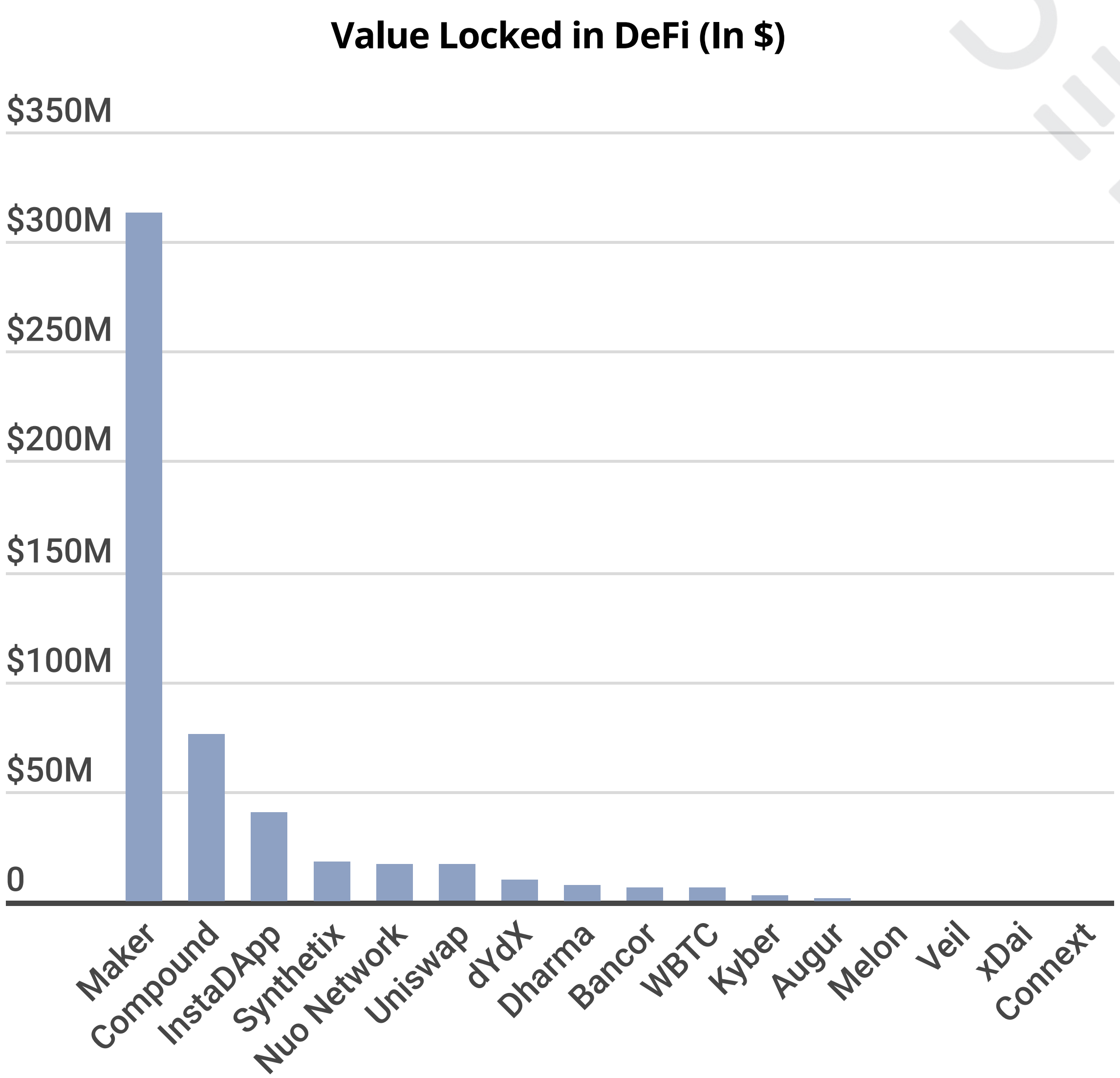
Ava Labs
Ava Labs came out of stealth and launched a private testnet in May, 2019. No major updates have been released since.

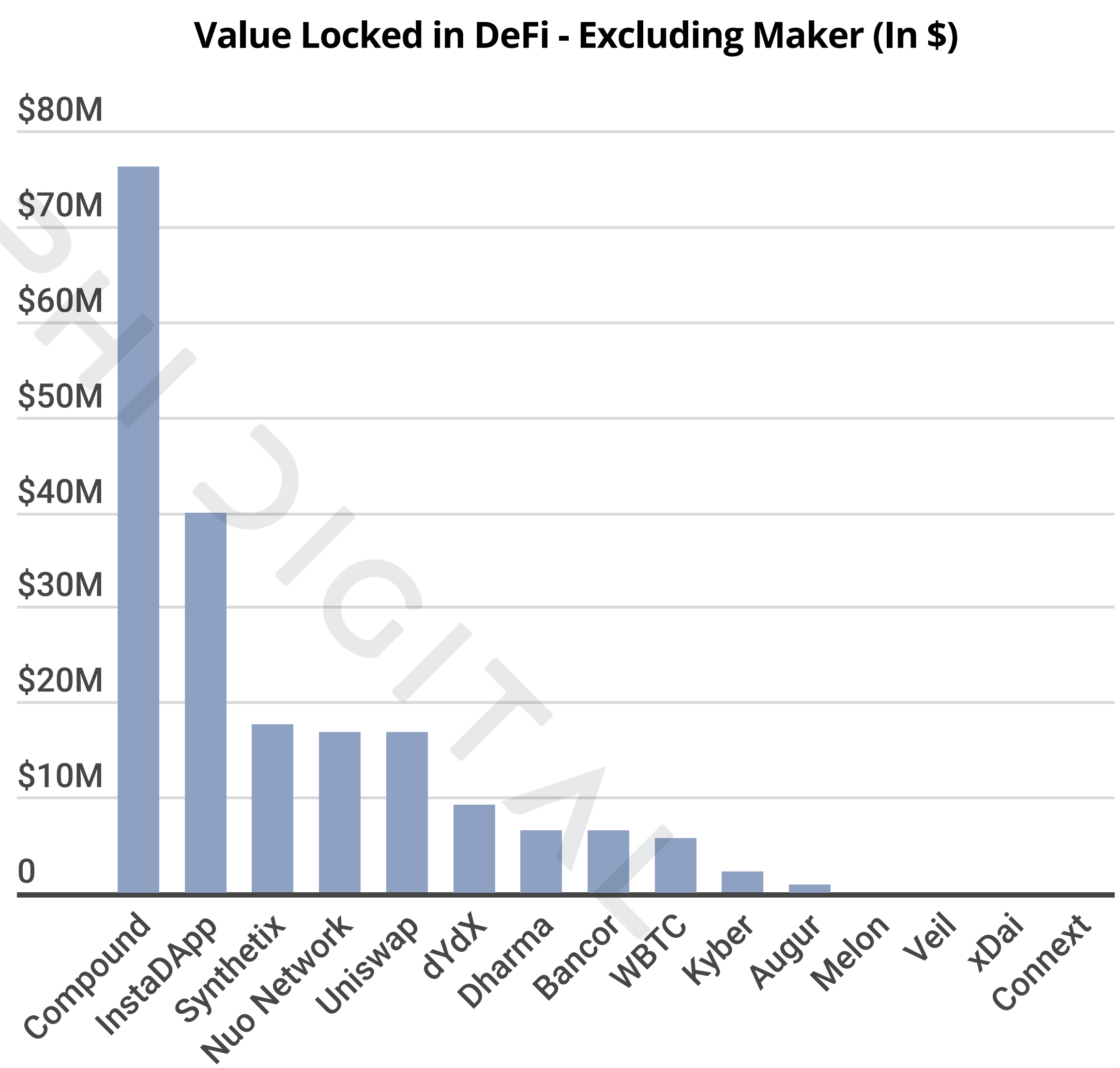
Grey Outline denotes a protocol with a live mainnet, otherwise in yellow. **Ordered by largest to smallest market cap then largest to smallest valuation for projects without live market cap data. Data as of July 21, 2019**

Ethereum: DeFi

Decentralized Finance of DeFi continues to be a growth area for Ethereum as new projects continue to launch and expand. **As of July 23, 2019, the total amount locked in DeFi was $478M (up from $193M a year ago), with the majority or 65.6% locked in Maker - a platform for leverage which underpins a stablecoin, Dai.** Maker's dominance, along with other lending platforms (Compound, InstaDApp, Dharma and others) comprise the lending focus of DeFi which makes up over 90% of the DeFi market. SET Protocol, Kyber and Uniswap are all built on Ethereum and seeing strong adoption as well (Institutional Reports for all three available on Delphi's Institutional Portal)







Source: DeFiPulse. Data as of July 23, 2019

Ethereum 2.0 AMA

Ethereum's researchers recently conducted an extensive ask-me-anything. We have compiled some of the most important responses below:

Scalability: "In phase 1 (about 2020 by my estimate) we will have shard data. Those shards, even without an EVM, can be used as the data availability layer for TrueBit (and other alternative execution engines). Phase 2 (about 2021) is when we will have scalable L1 execution" - Justin Drake

Funding: "The EF has tens of millions of dollars in fiat, and a bunch of ETH. More than enough to finish ETH 2.0" - Justin Drake

Outstanding Problems: "Personally I am confident in all of the current fundamental technologies for all the phases outlined so far (Casper FFG and CBC, sharding, erasure coded data availability proofs, proofs of custody, receipt-based async transactions, layer 2 for acceleration, abstraction, rent, "stateless client" verification). There is definitely still a lot of room around the edges for optimization though" - Vitalik Buterin

Maintaining Security Across Shards: "The key security guarantee of sharding comes from frequently shuffling validators into randomly-sampled committees (known as "crosslink committees"). The hope is that this fast shuffling resists bribing attacks, in both the "honest majority" and the "slowly-adaptive rational majority" security models. Every shard gets security with the same notional value. Value (validator collateral) gets spread evenly across shards" - Justin Drake

Security in Proof of Stake: "If a large actor were to aquire a large enough stake to take over the network they would need to buy >2/3 of the total staking supply which would drive the price up, so it's not a cheap attack in the first place. Secondly, you are not slashed if you vote for a minority chain, only if you behave provably maliciously in the eyes of 2/3 of the validators. One of the beautiful things about PoS is that these attacks can be handled with grace. We, as a community, can go in and hard-fork out the malicious actors so they have no more voting power. The malicious actors just burnt a lot of money to temporally halt a network. In PoW, by contrast, if someone buys ASICS with 51% hash power, there is no way to remove them from the system" - Carl Beekhuizen

ETH 1.0 to 2.0 Transition: "The current approach is to fold eth1 into eth2 as an execution environment...." - Vitalik Buterin

Source: Ethhub.io, Reddit

Sentiment Analysis

Sentiment Analysis: Introduction

DELPHI DIGITAL

Sentiment is a huge driving factor in the crypto market, so our team partnered with TheTIE to provide our subscribers with more insight.

Joshua Frank
CEO

The TIE (thetie.io) is one of the largest data owners in the cryptocurrency space. Their data includes our proprietary sentiment and market data, on-chain analytics, and fundamental insights.

In Q2 2019 we saw Bitcoin's price more than triple from just over $4K on April 1st to $13K+ on June 26th, closing the quarter just below $11K. Driven in large part by the Libra announcement, positive market sentiment led Bitcoin's price back above $10K on June 21st, the first time it had reached that pinnacle in over 15 months. In our Q2 update we present five notable quarterly trends related to Bitcoin sentiment.

TheTie™

FIVE NOTABLE TRENDS

Tweet Volumes Rebounding

Bitcoin Tweet Dispersion

Sentiment Volatility Decreasing

Sentiment on Bitcoin and Ethereum Diverged

Bitcoin Tweet & Market Cap Dominance Are On The Up

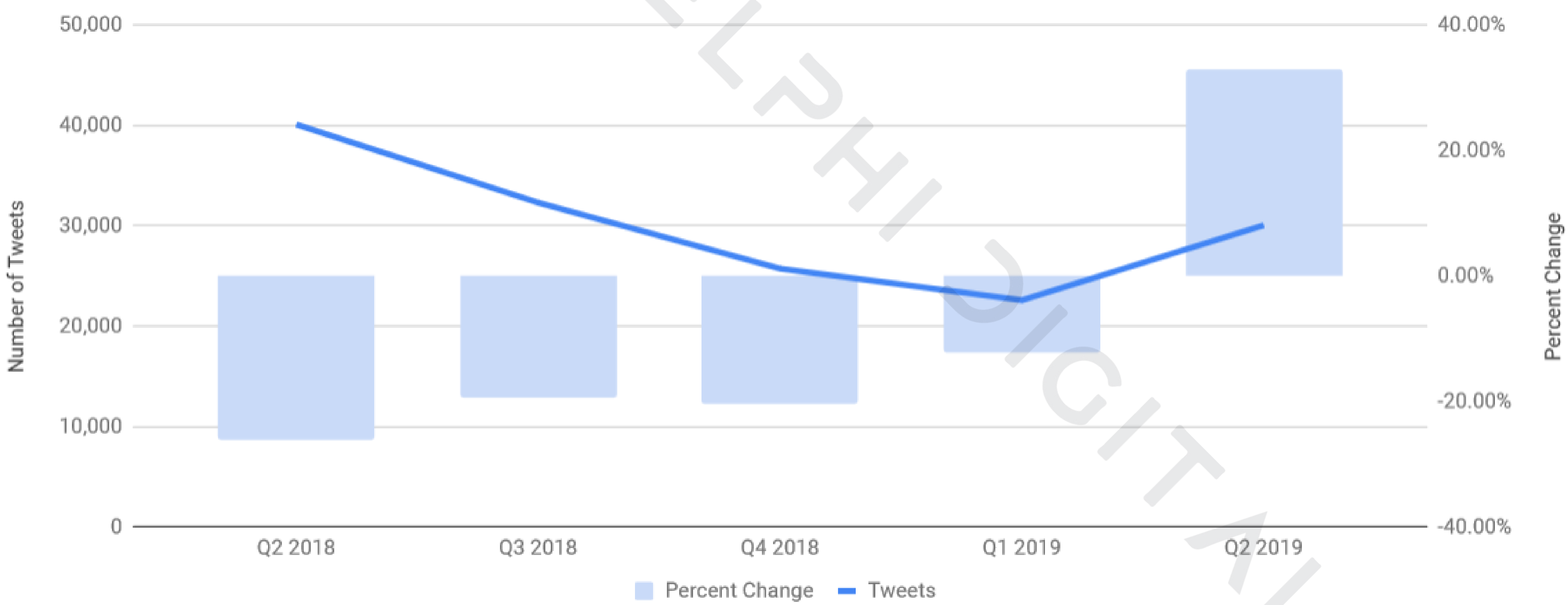
Sentiment Analysis: Five Notable Trends

1. Tweet Volumes Rebounding

On nine occasions in Q2 2019 Bitcoin saw tweet volumes of over 40,000 tweets a day, a metric which occurred zero times in Q1 2019 and only once in Q4 2018.

- On June 26th 2019 there were over 74,000 tweets on Bitcoin. It was the first time in over 500 days that Twitter users sent more than 70K tweets on the coin. The last time BTC accounted for that many tweets was on February 6th 2018.

- Quarterly average tweet volumes for Bitcoin were 30,063, a 33% increase over the previous quarter. In each of the previous four quarters, Bitcoin tweet volume had seen a minimum decline of at least 12%. Between Q1 2018 and Q1 2019, tweet volumes fell by 58% from their all-time quarterly high.

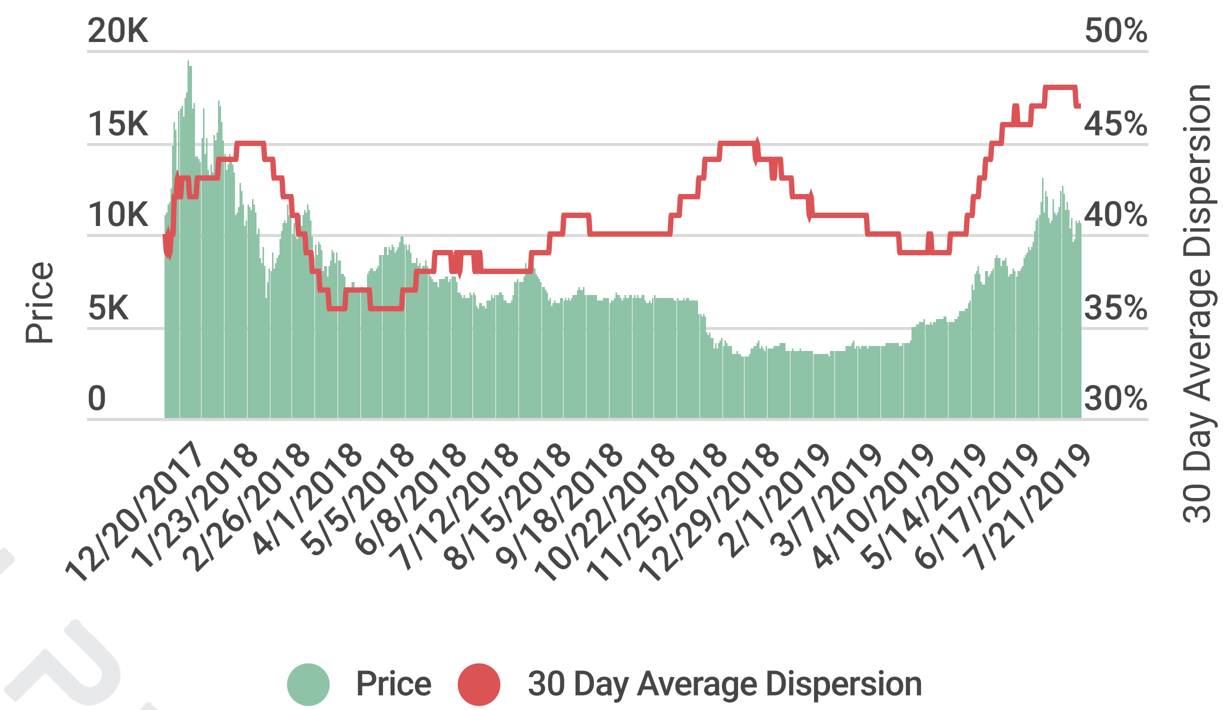


- Early Q3 metrics are looking even more bullish for Bitcoin. To date (July 21st), quarterly tweet volumes on Bitcoin are up to an average of 34,762 daily tweets. This represents a 16% increase over the previous period and a quarterly high not reached since Q2 2018.

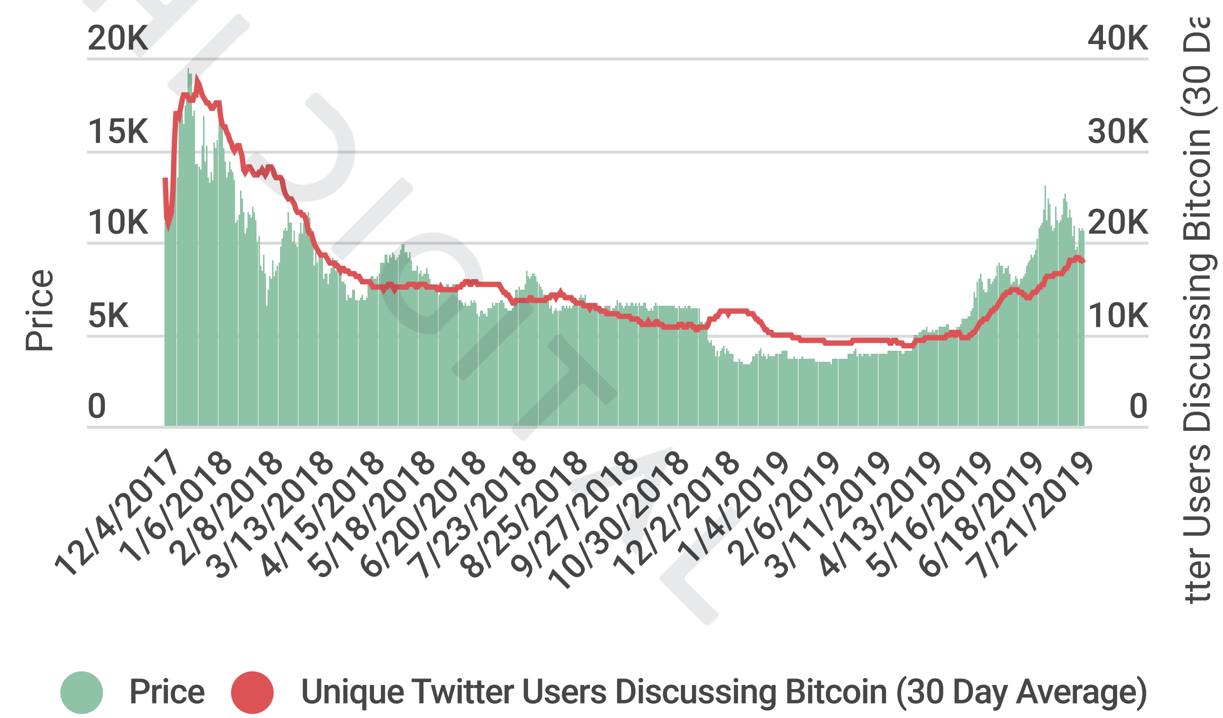
Sentiment Analysis: Five Notable Trends

2. Bitcoin Tweet Dispersion (% of Tweets from Unique Twitter Accounts) Hits ATH

- As tweets volumes rose in Q2 2019, so too did the percentage of tweets coming from unique twitter accounts.
- On June 22nd, 57% of tweets were coming from unique twitter accounts, the highest we have ever recorded.
- The four highest and seven out of the top ten days as ranked by tweet dispersion occurred in Q2 2019.



- The combined effect of rising tweet volumes with increased dispersion, is that the number of Twitter accounts discussing Bitcoin has seen a significant rise.
- This trend has continued into Q3 2019 as Bitcoin is now seeing its highest number of unique twitter users discussing the coin on a daily basis (18,000+) since Q1 2018.



Sentiment Analysis: Five Notable Trends

DELPHI DIGITAL

3. Sentiment Volatility Decreasing

- Beginning in January 2019, sentiment volatility experienced a significant decrease. While sentiment was significantly volatile throughout the end of the 2017 bull market through the 2018 bear market, it appears that market sentiment is becoming more stable.
- Daily sentiment score, the metric we refer to more commonly as "sentiment score" measures how positive or negative conversations are over the last day vs. a 7 day rolling period. Given that sentiment measures deviations from a 7 day mean, continued periods of increasing sentiment and less volatility in daily sentiment scores suggests that the market grew continually more positive throughout much of Q1 and Q2 2019.

Q3 2019 (Until July 21st) 16 days positive and 5 days negative

Q2 2019 70 days positive sentiment and 21 days negative
- 31 day positive sentiment streak
- 14 day negative sentiment streak

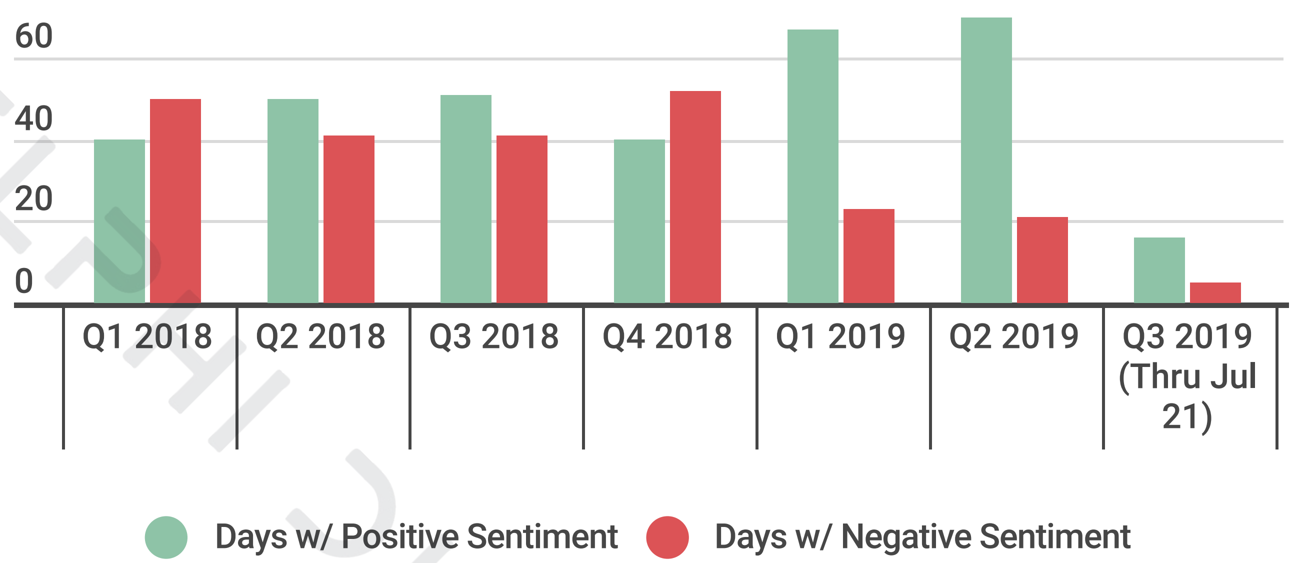
Q1 2019 67 days positive sentiment 23 days negative
- 37 day positive sentiment streak
- 14 day negative sentiment streak

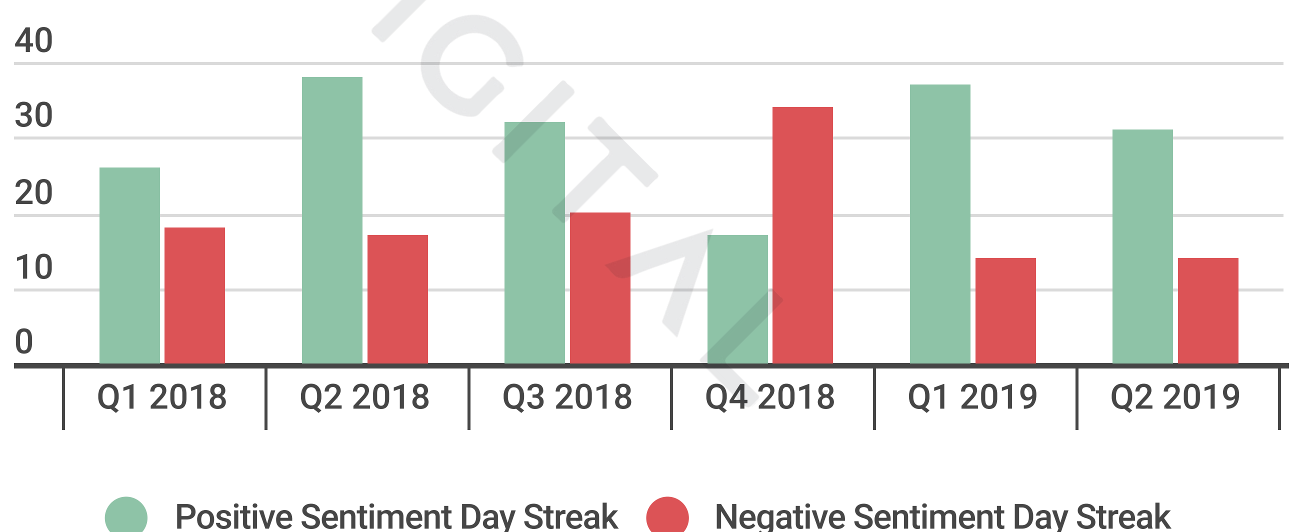
Q4 2018 40 days positive and 52 days negative
- 17 days positive sentiment streak
- 34 days negative sentiment streak

Q3 2018 51 days positive and 41 days negative
- 32 days positive sentiment streak
- 20 days negative sentiment streak

Q2 2018 50 days positive and 41 days negative
- 38 days positive sentiment streak
- 17 days negative sentiment streak

Q1 2018 40 days positive and 50 days negative
- 26 days positive sentiment streak
- 18 days negative sentiment streak



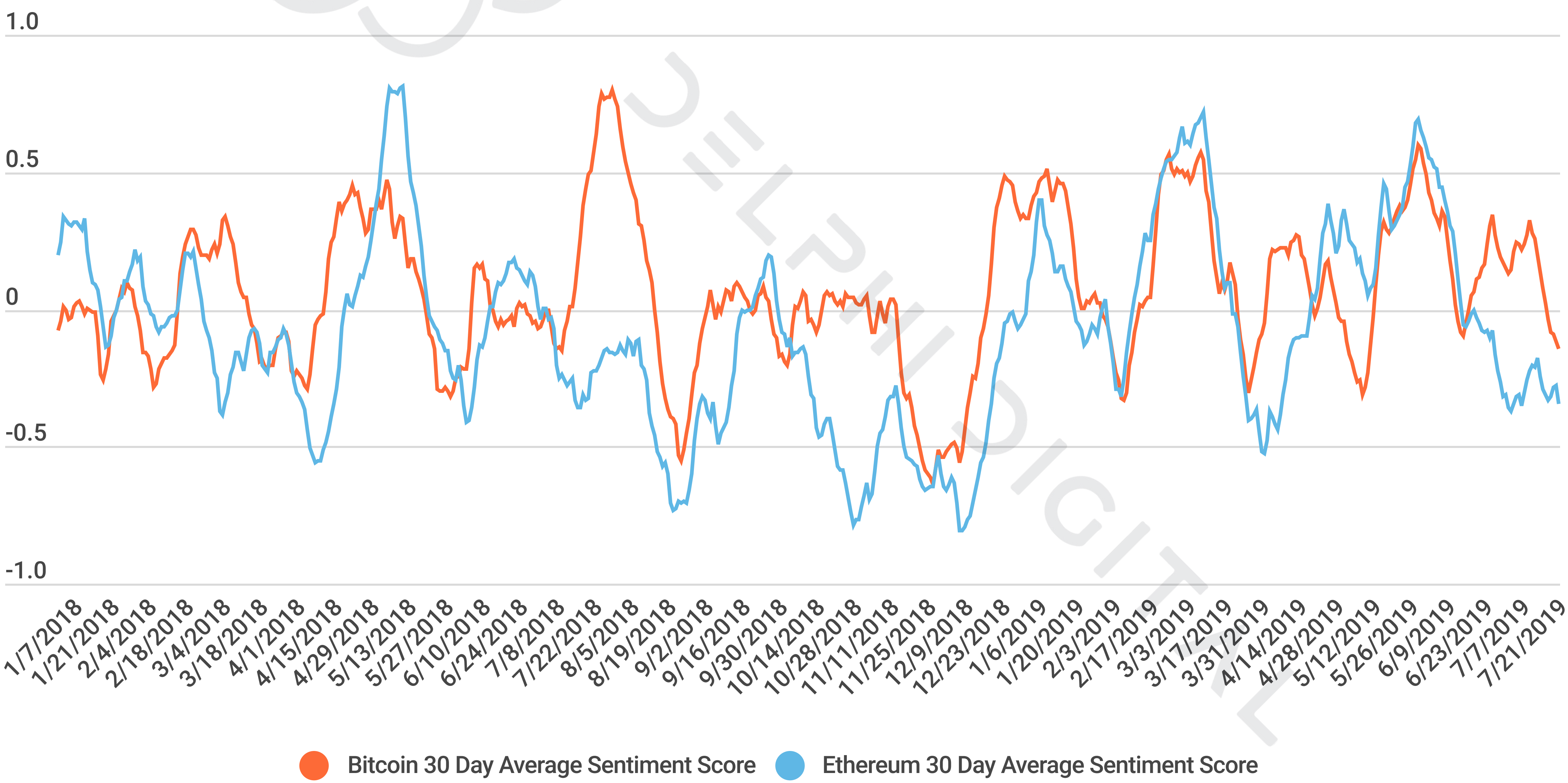


Sentiment Analysis: Five Notable Trends

DELPHI DIGITAL

4. Sentiment on Bitcoin and Ethereum Diverged at the end of Q2

- After sentiment on Bitcoin and Ethereum moved in directionally similar patterns for much of Q1 and Q2, Bitcoin and Ethereum sentiment diverged significantly in the last two weeks of Q2 and into early Q3. Bitcoin experienced 28 consecutive days of positive sentiment starting on June 18th, while Ethereum remained negative throughout that time. That directional divergence is evident in the below chart.



Sentiment Analysis: Five Notable Trends

DELPHI DIGITAL

5. Bitcoin Tweet and Market Cap Dominance are on the Up

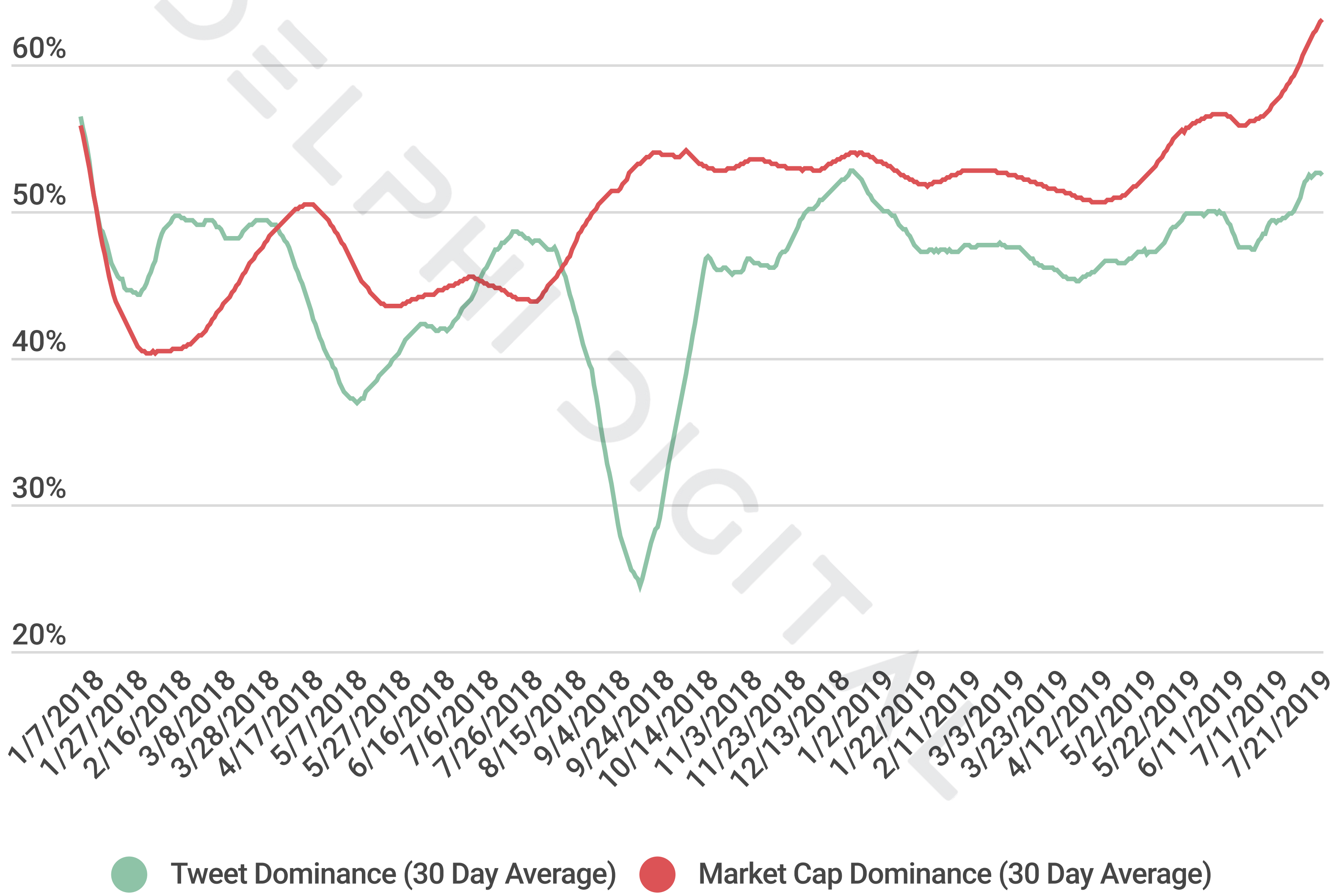
- As Bitcoin's share of the overall crypto market value surged towards the end of Q2 into early Q3 2019, so too did it shares of overall cryptocurrency conversations on Twitter.

- While the below chart plots a 30 day of tweet volume dominance and market cap dominance, there were 2 days in Q2 where Bitcoin accounted for more than 60% of total crypto tweets. The last time that happened was in December 2017.

Days Bitcoin Accounted For Over 60% of Total Crypto Tweets (Daily)

Date	Tweet Dominance (Daily)
12/7/2017	74.8794522
12/8/2017	70.52315143
12/10/2017	66.47185587
12/9/2017	64.7906808
12/6/2017	64.62685261
7/12/2019	64.45380593
12/1/2017	64.12330963
12/11/2017	64.05421885
12/2/2017	63.06022409
12/3/2017	63.02926757
12/4/2017	62.02595161
12/22/2017	61.71512872
6/26/2019	61.22129866
12/16/2017	61.18017245
12/15/2017	60.89854322
6/22/2019	60.65313231

Bitcoin Tweet and Market Cap Dominance



Asia Market Outlook

Asia Market Outlook: Introduction

Given how prominent Asia is within the space, our team partnered with Global Coin Research to provide our subscribers with a deeper look into major events which took place over the last quarter as well as what to keep a close eye on going forward.

Joyce Yang
Founder

Global Coin Research is the leading research firm on Asia cryptocurrency and blockchain in North America. It's founded by Joyce Yang, formerly a technology equities analyst at Merrill Lynch and China Investment Capital Corporation (China's largest domestic investment bank). Joyce is based in New York but travels to Asia about once every two month to uncover the happenings on the ground.

Most recently, Global Coin Research has launched a guide book on the cryptocurrency and blockchain communities in Asia titled "The Small Handbook to Asia Crypto: on Local Ecosystems, Trends and Regulations" *With the support of Kakao Klatyn, Zcash, BlockchainsforSchools and Kyber Network.*

Global Coin Research

TABLE OF CONTENTS

Bitcoin and Freedom in Hong Kong

Exchanges and IEOs

From PoW to PoS

Libra's Reaction in Asia and China

Justin Sun and the $4.6 Million Lunch With Warren Buffet

Bitcoin and Freedom in Hong Kong

In the last few months, what originally was a large scale protest to oppose an anti-extradition bill in Hong Kong has evolved into full-on protests for freedom and democracy.

It started out in early June, when over 2 million protesters (more than a quarter of the total city population) took to the streets of Hong Kong to oppose an anti-extradition bill.

To briefly summarize, the bill was proposed by the Hong Kong government in February to allow the transfer of fugitives to jurisdictions with which Hong Kong lacks an extradition deal, including the mainland, Taiwan and Macau. The officials wanted to pass the bill as soon as possible but citizens are concerned about the possibility of politically motivated persecution and unfair trials in mainland China.

The protests took a number of days. Many young adults of Hong Kong were at the forefront of the protest and the New York Times has captured vivid images of the protest here. One person has died after unfurling a banner during the protest. Even after Hong Kong's leader Carrie Lam Cheng Yuet-ngor said she would suspend the controversial bill, the protest continued as opponents voiced that they'd accept anything short of the complete withdrawal of the bill and many are also calling for Lam's resignation.

Even though Carrie Lam has since offered her "most sincere apology" to the city's residents during a 51-minute press conference, the protests have not stopped. In fact, it has evolved into even more intense confrontation with some of the recent violent scenes taking place between the protestors and police, and even some government supporting mobs.

Reuters reported that Hong Kong tycoons have started moving assets offshore anticipating increasing tension between China and Hong Kong. And indeed, for some time and even up to now, we saw previously Bitcoin trading premium going as high as $160 in Hong Kong potentially due to the attempt to move capital out of Hong Kong due to the ongoing instability. This trend will continue for the foreseeable future as the tension between Hong Kong and China increases slowly.

Exchanges and IEOs

GCR kicked off our new workshop series in Q2- with executives from projects and exchanges such as Huobi, Cryptokitties, Ampleforth, Harmony to talk about trends in Asia. We hosted a workshop with Richy Qiao, the Chief Business Officer of Ampleforth, the first project to IEO on Bitfinex. In the workshop, Richy discussed the current trends in IEOs that he is seeing in the market and here are some takeaways that surprised us. For example, Richy mentioned that there are a number of US exchanges that are looking to set up their own sort of IEO and issuance platforms. In an article shared publicly titled "Will IEOs Come to the WEST? Maybe.", Richy teased, "What are some exchanges that could be likely to do so [form IEO platforms]? Poloniex, Bitfinex and to some extent Kraken. What are exchanges that would never dream, dare or care to? Coinbase and Gemini." In the last few months, we've also spoken to many western grade A, B+ projects that are also paying attention to this trend and placing IEOs on the back burner. In Q3, Global Coin Research expects some interesting announcements and innovations surfacing there.

Additionally, in a separate conversation where our founder Joyce Yang was a guest on the Binance podcast. Joyce took away some insights about Binance in her questions posed with the CFO of Binance, Wei Zhou. Here are some highlights on what Wei thinks about its geographic expansion and underutilized markets:

"One of the countries that I've been… not spending time but, sort of have been learning about it, I've actually been very pleasantly surprised by Australia. Australia has a very advanced crypto regulation, they have very good regulations on crowdfunding. So that I think, taking that and mixing that with sort of the crypto AML rules, so sort of like there needs to be a mix down the road in terms of banking laws and security laws. I think that's sort of the crossroads. And I think also derivative laws. I think that's sort of the 3 crosses roads. And then for banking laws, it's primarily focused there on anti-money laundering and counterterrorism financing. On security laws its mainly disclosure and enforcement actions based on sort of the issuance of securities, and also qualification of the investors. And then on derivatives, it is basically how do you conduct a fair marketplace, and then how do you prevent manipulation? And I think there needs to be a sort of some kind of mix of those 3. And one of one of the countries; or not just the countries, but actually general jurisdictions that's kind of interesting is there are actually Commonwealth countries. These are all sort of former British colonies that all share…. First of all, they all use the English language, and second of all, the legal framework is all based on common law; that's about 40-50 countries around the world that sort of sits under this Commonwealth system. And I think if there is some kind of portability amongst these 40 or 50 countries until one standardized system, that would create like the regulatory formal effect to get other countries to sign in to that framework. And then you have portability in terms of cryptocurrency laws, I mean, that's the most important thing, which is portability. Because one of the biggest challenges for me in what I do is like every country's law is different. And so anytime you actually land and start building the regulatory business, you have to start all over again because the laws are completely different. It's like a 30-minute train ride and all of a sudden your laws have changed. You hop on a plane, you take a nap for 2 hours, you land, and then all of a sudden, the laws are different. Whereas everything else is constant, right; technology is constant, blockchain is constant, bitcoin is constant, Binance is constant, but the laws is changed just because you traveled from one place to another. And that makes how you operate and how the users or how the people in that country operate completely different and face different consequences in terms of what they do. So I think with portable or a common system, we will be will go a long way."

From PoW to PoS

Staking has been a growing trend in China in 2019. In fact, this is the first year that China had a large scale staking conference, called StakingCon. Participants included Bitpie Wallet, ImToken, Neo Global Capital, DDEX and more.

Nevertheless, according to many wallet and exchange participants spoken at the conference, we've learned that staking does not make any money right now.

According to ImToken, a large wallet player in China, Chief Security Officer Blue says that wallets at the current POS environment do not make money and that running a node operation does not make money either. The reason may be that many POS public chains haven't been developing very quickly. Their chains are still in development so the market should give more time to develop the chains.

Blue believes that only with full chain completion, along with a rise in the price of the cryptocurrencies, would we see returns from running nodes become more significant and running a staking operation become a profitable business. Even when the wallets are staking retail tokens, these guys actually earn money mainly by buying and selling them, instead of staking. Nevertheless, there are inherent trading risks as well.

Separately, GCR also noted that staking has become a new business venture that many exchanges are looking to build up. One example is EOS. In the last year, rise of the staking economy has driven the business of PoS mining to the exchanges. Whale Exchange, Newdex, Hufu, Bigone, and several other exchanges and wallets, have been elected as the top 10 BPs. In the meanwhile, the original supernodes, EOS Newyork, EOS42, EOS Authority, and EOS Canada, all have dropped out the top 21 rankings.

According to the media publication from China, Odaily Planet Daily, the aggregate PoS pool supported by exchanges on EOS has captured nearly 100 million EOS, making up almost one-third of the total votes. And this number is still growing.

Rank	Account	EOS Votes	Location
1	Starteos	160,317,433 +2	Chengdu
2	Newdex BP	158,721,301 +16,796	Cayman Islands
3	BigONE	155,538,304 +3	HK, China
4	EOSHuobiPool	154,760,917 +0	Beijing
5	zb eos	154,317,860 +0	HK, China
6	EOSLaoMao	151,724,878 +2	Tokyo
7	EOSflytoMARS	149,642,441 +0	Beijing
8	hoo.com	147,700,390 +3	Singapore
9	AtticLab	143,984,117 +0	Kiyv
10	MEET.ONE	143,550,917 -2	Singapore

Justin Sun & the $4.6M Lunch w/ Buffet

The focus of crypto media around the world in July has been the Justin Sun drama. Justin Sun, the CEO of Tron, bid $4.6 million to have lunch with Warren Buffett, which was planned for this month.

After Caixin, a large, government-backed news agency, reported on Tuesday that Justin was actually on China's border-control list since June 2018, Justin immediately attempted to defend himself and refute the claim on social media by showing that he was actually outside of the country.

That claim has completely backfired by Thursday, when Justin brought an extensive public apology onto Chinese social-media site Weibo. He admitted shame for overly publicizing his lunch with Buffett', and gave apologies directly to Caixin, the reporter who reported the news on him, the regulators, and Wang Xiaochuan (CEO of Chinese search engine Sogou). In the apology letter, he mentioned the term "regulators" 13 times and we shared more details of his apology letter here. Similar to other public posts we've seen from celebrities who have gotten in trouble with the regulators, this letter and apology were clearly directed by the regulators in China.

Month to date, Tron has essentially halved in valuation, but we think this drama is only the beginning. Despite getting a serious warning, Justin continues to tweet and retweet about Tron (in his apology letter, he pledges that from now on, he plans to avoid the media spotlight, and orient himself to be more technology-focused instead of marketing focused). But we think that's going to be hard to change, and we encourage you to check out in-depth writeup on Justin's life and Tron to better understand Justin as a person and his motivations.

Libra's Reaction In Asia and China

In the last quarter, Libra's been discussed globally as the new "face" of crypto. Many speculated that return of the market was driven by Libra, and indeed we see lots of attention driven to the topic. In China, we are hearing some negative push backs against Libra, specifically around the fact that its not marked to the Chinese currency, the Renminbi.

Back in June, David Marcus, head of the Facebook Libra project, had announced that Libra will be tied to a basket of low-risk securities and traditional, government-issued currencies such as the dollar, the euro, the pound, and the yen. Currently, the Chinese renminbi is absent from the currency basket, and one Chinese perspective has been that Libra did this on purpose. Since the financial crisis in 2008, and increasingly more so with the ongoing trade war tensions, China's distrust towards the White House and the future direction of the US Cabinet has been growing. The question from Chinese policymakers now is, will the ongoing tension between China and the US stop under US President Donald Trump's administration? Has the US attitude towards China as previously an export/import-oriented developing country changed forever?

The Chinese media emphasized that with Libra, the US has achieved its goals by excluding the renminbi Zhou Xiaochuan, president of China's Finance Association, said that the nation needs to prepare and place the renminbi into a favorable position for internationalization and global competition. The anticipation is necessary to better serve China in its economic development and in ensuring national economic and financial security. Separately, Cheng Hua, an associate professor at the School of Economics at Renmin University of China, said that there are three main ideas on how the country could deal with the challenges brought by Libra:

1. Have more large domestic enterprises in the mainland, such as Alibaba and Tencent, to join Libra's association
2. Speed up the launch of the central bank's digital currency
3. Have China's large domestic internet companies jointly establish a coalition chain

Not only in China, we also see the Libra catalyzing conversations around other large tech conglomerates oriented cryptocurrencies. In the US, few folks know that there is a Libra twin coming straight out of Korea. For folks not familiar with Kakao, Kakao is Korea's leading mobile platform with more than 50 million monthly active users. Back in early March, the company's blockchain unit GroundX raised $90 million through a private coin offering. Venture capital and private equity funds including IDG Capital, Cresendo Equity Partners and Translink Capital participated in the round.

With just over a year under its belt, and over 100 employees in the team, the Klatyn blockchain has launched its main-net on June 27th. Klatyn shares many similaries to the Libra blockchain. For example, the Klatyn association has identified multiple large enterprises as early staking partners, which they deem them as governance council members, in Korea and outside of Korea. The governance council members include the various business segments of Kakao, and also large local gaming and enterprises like PUBG and Netmarble. And how Klatyn would go to market is through its service partners, or integration partners. It has announced that it will have 26 service partners within a quarter of main net launch, and that number to expand to 100+ by the end of this year.

It's very clear to us that the company is seeking to go outside of Korea for adoption. In its ambitious layout of its blockchain reach, Kakao has emphasized that its service partners and global partners will extend to a user base of 400mn+ people. With most of the user base in Korea and surrounding regions, and the next largest base in North America, and then the next largest demographic in Southeast Asia with Europe being the last target market. So while we are still waiting for Facebook's cryptocurrencies, Telegram and Signal (+Mobilecoin), and Wechat to launch their tokens, we believe that Kakao will have an early mover advantage and there will be really interesting lessons learned from this experience.

Contributor Pieces

Introduction

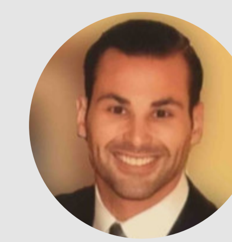
For the following section, our team reached out to a few people we respect and enjoy keeping up with across the space. We wanted to thank each and every one of them for their time and for sharing their unique perspectives with our clients!

Bitcoin's Existential Crisis Will Be Over Soon

TD Ameritrade Network's lead anchor, **Oliver Renick**, outlines why he believes the next few months are pivotal for Bitcoin's claim as digital gold.

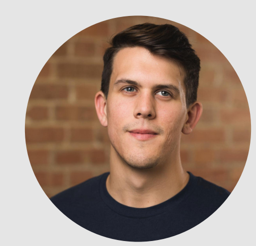
Crypto Hedge Fund Landscape: 1H 2019

Scott Army and **Dan Zuller** of Vision Hill tease their upcoming Q2 2019 crypto hedge fund landscape report.



Ethereum In 2019: Developers, Decentralization, DeFi

ConsenSys' very own, **Everett Muzzy** and **Cheryl Douglass**, dive into the state of Ethereum in 2019 with a focus on development, its decentralization, and DeFi.



Crypto Recruiting Outlook

Proof of Talent's Founder, **Rob Paone**, shares some insight into what job seekers are looking for when it comes to crypto.

Bitcoin's Existential Crisis Will Be Over Soon

Oliver Renick

Oliver Renick is the lead anchor at TD Ameritrade Network, an all-markets financial news network available online and all TD Ameritrade trading platforms. Prior to that he was an anchor for Bloomberg TV and covered stocks and equity derivatives for Bloomberg News.

When bitcoin took the global stage by storm in 2017, it did so on the back of a multipronged narrative that centered around two primary use cases: cash replacement and/or digital store of value. Incessant volatility, structural difficulties in transactional efficacy and competitive forces have severely damaged the case for bitcoin's role as a means of exchange or alternative currency. But its future as digital gold remains very much alive and to some degree more compelling than ever.

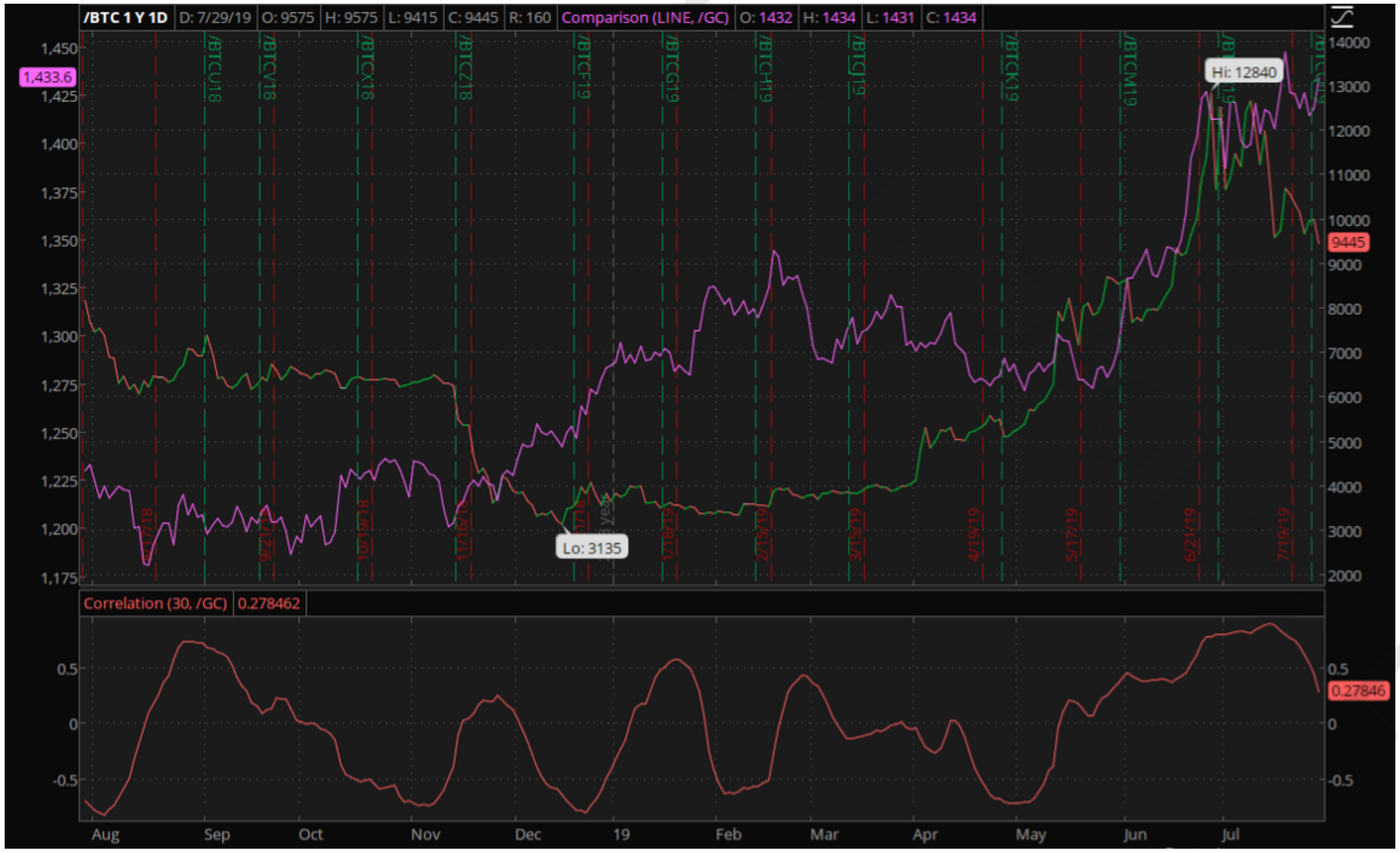
With the Federal Reserve set to reverse course this week and cut interest rates per markets' instruction, we are verging on unchartered territory in this economic cycle. Yes, we've had dovish central banks for a decade, and there are a handful of rate-reversal analogs in the past that may prove prescient, but actually undoing policy after a series of hikes that came on the back of the longest stint of near-zero rates in history means we are objectively heading into the unknown. It stands to reason then, that what comes next may require an asset we've never seen before. Enter the case for bitcoin, but with a very big catch.

It's only really necessary if things go very much awry. The series of events that needs to happen for bitcoin to reach the loftiest of goals set out by the biggest bulls – cryptoknights, I like to call them– are not high-probability events. Complete central bank impotence, widespread currency debasement and the abandonment of gold. The global financial system upended. Possible – yes. Probable – no. Effectively betting against the house is as crazy as it gets. And that's OK – Bitcoin bulls need not recoil! In fact, the truest believers embrace this notion, because it is why exorbitant price targets on bitcoin are not technically unreasonable. Widespread bitcoin adoption is an extremely low-probability event with an enormous payoff if the stars align. That's how risk-reward works. To say bitcoin will offer a 10x-100x return yet also say it's a highly probabilistic event is inherently contradictory.

Bitcoin's Existential Crisis Will Be Over Soon

Now, this is where it gets really fun. For this reason, bitcoin's great utility right now is neither as a means of exchange or a store of value, but rather as a gauge of risk-taking behavior in markets. A control group for assessing investors' willingness to make far out-of-the-money bets. A Walter White-grade sentiment survey more acute than any in history. Closer to an investment roulette table than the smallest of small-cap stocks. Now, the crucial addendum is that this speculation is not on random chance or a ponzi scheme like the naysayers would have one believe. It is speculation on something specific – as the Delphi team has said in the past, an investment in bitcoin is basically an out-of-the-money call option on bitcoin's path to adoption. Because of this, it has recently exhibited both signs of a store of value and signs of a speculative asset, and that makes it incredibly difficult to gauge what's truly behind its latest run: speculation or adoption.

Viewed through the SOV lens, bitcoin's 2019 run can be explained as a high-beta response to improvement in the underlying probability that the bullish bitcoin event-series will occur: negative-yielding assets are on the rise once more and the Fed seems prepared for an epic mea culpa. As this backdrop fell into place, bitcoin and gold traded closely in sync, with the 30-day correlation between bitcoin and gold futures reaching a record high of 0.91 in mid-July:

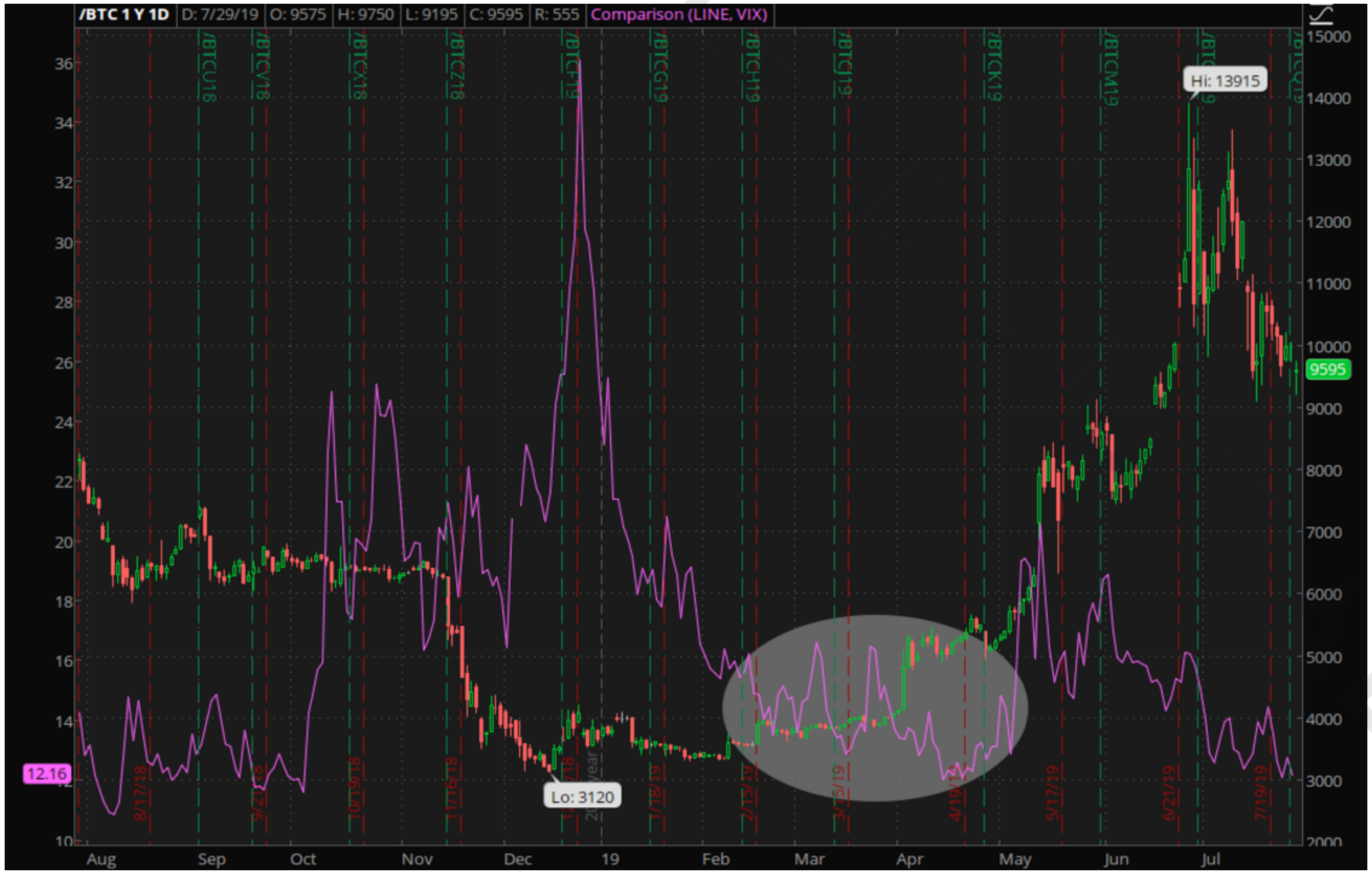


Bitcoin's Existential Crisis Will Be Over Soon

But now that relationship is breaking. Since bitcoin's big drop from almost 14,000 earlier this month, the chart has departed sharply from gold on a weekly and intraday basis. Gold has continued to plow upward on higher highs and higher lows, while bitcoin is back down almost 30% as of writing. The 30-day correlation is down to 0.28 and the 20-day correlation is actually inverse at -0.73.

Apart from the break in the relationship with gold, there are other signs the big 2019 bitcoin run is more aligned with risk assets than hedging assets. While bitcoin has reasserted itself in terms of crypto dominance, it was far from alone in its run. Ex-bitcoin market cap rallied 176% from low to high this year. At one point Litecoin was up more than 350%; Dogecoin 120%. It's safe to say institutional investors are not buying dogecoin as a hedge to central bank irresponsibility. On top of that, correlations among cryptos tightened as bitcoin's climb mounted, suggesting speculation rather than bitcoin-specific buying, at least in the latter half of this year's rally.

There are parallels to the action in equity markets as well. Bitcoin got off the mat this year with a big pop in April, right as the VIX was dropping to the lowest levels since stock-market selling began in October 2018:



Bitcoin's Existential Crisis Will Be Over Soon

Viewing the crypto rally as an asset class move and not bitcoin-specific makes it look curiously like stocks. A big rally, but with less gusto than in winter 2017/Jan 2018 when the S&P 500 reached its highest-valuation high of the bull market yet at 23x trailing earnings. While the index has set new records, it's been on lower valuations (20x earnings) and less breadth, analogous to crypto's rally to a lower high and less breadth. Equity money flows have also dramatically subsided since then.

Using bitcoin as a barometer for risk, the reading is clear: risk-on, but not as much as 2017. And thus we end up with a high of 14,000 instead of 20,000, and a stock market where investors are willing to pay less per share of earnings.

Bitcoin's utility as a means to hedge against the proliferation of negative-yielding assets and currency debasement depends on how investors adopt the asset for this purpose. The backdrop for such an asset is better than it's ever been, but the price of bitcoin is not higher than it's ever been. That is highly problematic for both its role as a speculative asset and a store of value. Speculators require increasingly higher highs, and store of value holders require increased adoption, best measured by its path along a logarithmic price chart.

Ask any cryptoknight what they thought of last year's 85% decline and the answer would invariably come back: bitcoin's life cycle is characterized by booms and busts, and the booms are bigger every time. This is what one would theoretically expect for an asset on the course of adoption. By that logic you don't need to be a CMT to know that if bitcoin does not resume its ascent soon, it risks breaking the all-important series of higher-highs. And if this latest run is indeed another speculative digital-gold rush and the price crashes severely again, it risks breaking the lower bound of the trend in its logarithmic chart.

Bitcoin is, as some have noted, a virus. For a virus to survive, it must keep growing. For its store of value proposition to work, it must be adopted. Price remains the best way to gauge all of this, and right now the selloff should be deeply concerning because it suggests fewer people are adopting bitcoin despite the improving backdrop. Why they are not is an entirely separate conversation, but as technical analysts say, charts are not concerned with why. For a share of corporate stock, that explanation may be a cop-out, but for bitcoin, it is truth.

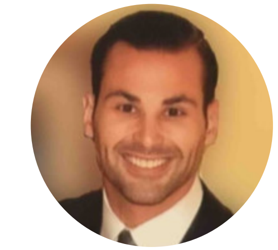
BTC must make a new high, and it probably has to do it soon. This week marks a pivotal moment for the financial market, where investors have cast huge opposing bets on what happens if the Fed embarks on a rate-cutting cycle. In one corner, stock & bond bulls believe lower rates equal higher prices forever. In the other, gold bugs & cryptoknights believe this is the final straw for central banks, and the system is on the verge of uprooting. Most likely is something in between. But bitcoin cannot thrive in a world of in-between, and it just so happens – with central bank accommodation at the center of all this – stocks may not either. If bitcoin extends its selloff, watch out for equities. If it suffers another 80% plunge, it will likely mark the beginning of the end of its use-case as digital gold. ***If it rallies past $20,000 to a new high, I'll be the first in line to buy your bags.***

Crypto Hedge Fund Landscape: 1H 2019

VISION HILL GROUP

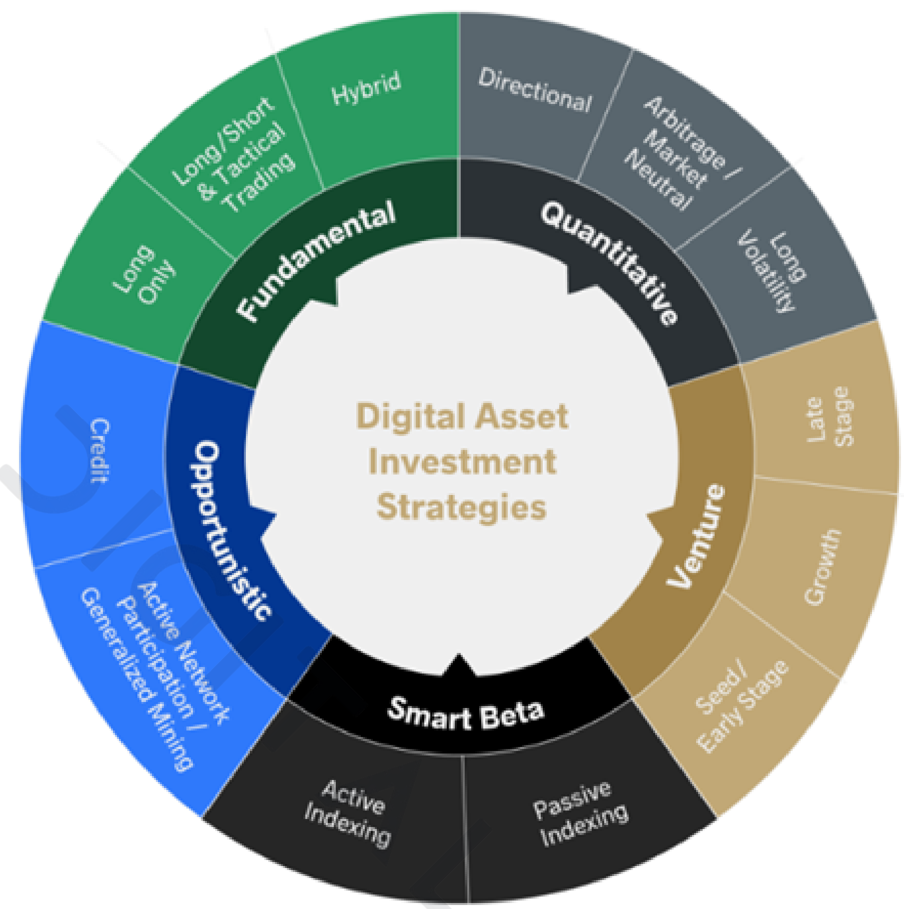
Scott Army
Founder & CEO

Vision Hill Group is a full-service digital asset management and solutions firm, leading investors and clients into the future of digital assets. Vision Hill brings together a team with extensive experience in traditional financial markets, a deep passion and understanding of crypto and digital asset markets, and a history of risk and portfolio management. Vision Hill has three main divisions: Asset Management, Research/Data, and Consulting/Advisory. Learn more: https://www.visionhill.com



Daniel E. Zuller, CFA
Partner

Vision Hill breaks down the investable crypto and blockchain universe into five main categories: 1) Fundamental, 2) Quantitative, 3) Opportunistic, 4) Venture and 5) Smart Beta, as illustrated below. Vision Hill further segments all crypto hedge funds into one of three categories: 1) Fundamental, 2) Quantitative and 3) Opportunistic, exemplified in greater detail through the Vision Hill Active Crypto Indices (https://visionhill.com/benchmarks/). The Vision Hill Active Crypto Indices are non-investable reference indices designed to be representative of the overall composition of the crypto and blockchain-focused hedge fund universe.



In the first half of 2019, crypto and blockchain-focused hedge funds generated positive net returns on an absolute basis and generally tracked passive public market counterparts such as Bitcoin and well-known passive crypto indices on a relative basis, although more so in Q1 2019 than in Q2 2019. Nonetheless, when taking 2018 into consideration, a number of crypto and blockchain-focused hedge funds still relatively outperformed passively holding digital assets (some more than others) from the beginning of 2018 through Q2 2019. More information on the Q2 2019 crypto hedge fund landscape performance (both overall and segmented by strategy) will be published to the Vision Hill website by mid-August.

The information and the presentations herein are for informational purposes only, was prepared by Vision Hill Group, is believed by Vision Hill Group to be reliable and, wherever appropriate, has been obtained from sources believed to be reliable. The content provided herein should not be considered investment advice, and is not a recommendation of, or an offer to sell or solicitation of an offer to buy, any particular security, strategy, or investment product.

Ethereum In 2019

CONSENSYS

Everett Muzzy
ConsenSys

Everett Muzzy is a researcher, writer, and product marketer at ConsenSys. He is the co-founder of ConsenSys Research, a content portal providing original, in-depth research pieces about network developments, Web3 evolution, and societal outlooks for decentralized technologies.

Cheryl Douglass is a growth and product marketer at ConsenSys. She works on market strategies for Infura, a ConsenSys-backed company, a development suite that provides instant, scalable API access to the Ethereum and IPFS networks. She additionally works on the Ethereal Summit, a global series of conferences championing those building the infrastructure and applications driving blockchain technology.

Cheryl Douglass
ConsenSys

Introduction

Halfway through the year, many of the predictions about crypto in 2019 have not materialized (namely, the conviction that this would be the year of Security Tokens). What we have seen instead is a doubling-down of core ideologies (developers and decentralization) and the emergence of more promising challenges (DeFi and Interoperability).

Developers

Developers and developer community sizes are important factors when considering the potential of a protocol and its related assets. The growth of the Ethereum ecosystem is, like all others, directly correlated to the number of new and existing developers it can maintain. Though statistics are difficult to come by, Electric Capital's March 2019 report shows Ethereum as far outpacing other blockchain technologies with respect to the size and activity of the dev community on both the protocol and application layer.

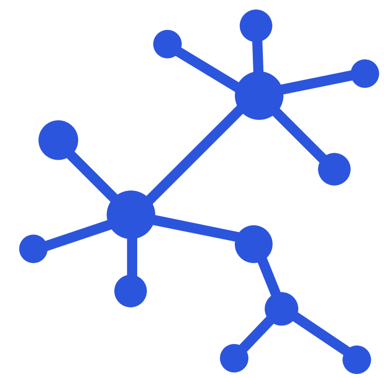
A not-infrequent sentiment from within and outside the dev community is frustration with the EF and core developers about apparent 'delays' on shipping crucial EIPs, hard forks, and Ethereum 2.0 along a specified timeline. Open source, 'bazaar-style' platform development, however, is rarely if ever beholden to firm roadmaps; and all things considered, Ethereum continues to march steadily forward to its goals of Serenity, PoS, and eWASM - all while maintaining decentralization (discussed below). Development of Ethereum 2.0 Phase 0 was 'frozen' on June 30 - meaning research and development are done; we are arriving at the delivery stage. The Ethereum Foundation recently released its (arguably) most transparent report ever this Spring, detailing its involvement in 2.0, 1.x, the dev community, and allocated funds for all its initiatives.

All of this is to say: Ethereum continues to demonstrate the greatest opportunity for Web3 developers, despite delays in hard fork upgrades (Constantinople) and changing timelines for Ethereum 2.0. This is demonstrated by the size of the dev community, even in the face of many emerging and promising "competitive" decentralized protocols ("competitive" being in quotes depending on your belief if protocols have to be competitive vs. opportunities for interoperability & cooperation). As long as Ethereum continues to maintain (& grow) developers building on the platform and remains transparent about 2.0 progress, there is little reason to be concerned for the protocol's success.

Ethereum In 2019: ConsenSys & Developers

Consensys' mission is to transform the world's digital architecture toward a more open, inclusive, and secure internet of value, commonly called Web3. We believe the growth of the Ethereum community and related assets is dependent on the maintenance and growth of the Ethereum developer community. Accordingly, each of ConsenSys' operating arms aims to support the new and existing developers who evolving and growing the blockchain ecosystem. We build infrastructure and development tools like Infura, Truffle, Metamask, Pegasys, Alethio, MythX, and Kaleido to make developers' lives easier. We have programs (ConsenSys Academy, Developer Portal) designed to train the next generation of Web3 developers. ConsenSys also provides support and funding to developers and projects using Ethereum's technology to drive progress through sustainable and open-source projects, including through Gitcoin, ConsenSys Grants, EF Grants, and MolochDAO.

Ethereum In 2019: Decentralization



Ethereum has remained committed to decentralization at a very fundamental level. It has refused to sacrifice this decentralization despite the emergence of protocols that laud comparable decentralization and security with improved scalability. This commitment has meant that the core devs behind protocol development and those working on layer-2 scalability solutions have moved deliberately and, consequently, a bit slower than what traditional market minds believe is 'appropriate' for an emerging technology. As mentioned in the section above, this has materialized as frustration with the teams behind these developments and claims that Ethereum needs to hurry up or it will fall behind.

We believe this commitment to decentralization is Ethereum's saving grace and greatest long-term indicator of success - and that a slower short-term roadmap is a small price to pay for the eventual payoff that true, radical protocol decentralization will provide. Decentralization has always been the name of the crypto/blockchain game. The pressures for market-ready scalability and UX are the result of traditional competitive mindsets. Though reasonable, we don't necessarily believe they reflect the reality of co-operative business models in the future, which will require decentralization and interoperability.

Ethereum's decentralization and the consequential shifting roadmap aren't considerably concerning when looking at the strong governance the protocol has. Bitcoin benefits massively from decentralization, but can suffer from a lack of governance when it comes to consensus on how to improve the network. The team behind Lightning has been one of the most impressive governance examples to come from the Bitcoin community, but also stands out as almost the only recent one. [This is not to discount Bitcoin's potential as a SOV and transaction mechanism - just to highlight that decentralization without stable governance can be messy]. Ethereum has committed and transparent sources of governance: the Ethereum Foundation, EthMagicians, the Ethereum Enterprise Alliance, etc., and larger establishments committed to the ecosystem, such as ConsenSys. None of these entities seek to dictate or control the direction of the ecosystem, but serve as sources of truth, guidance, resources, and transparency when it comes to the priorities and opportunities for the technology.

All of this is to say: Many of the complaints concerning the speed of Ethereum's progress can be traced back to ecosystem refusal to compromise decentralization (or security) for scalability or (perceived) "on-time" shipping. We believe this commitment to decentralization is one of the greatest indicators of Ethereum's long-term success.

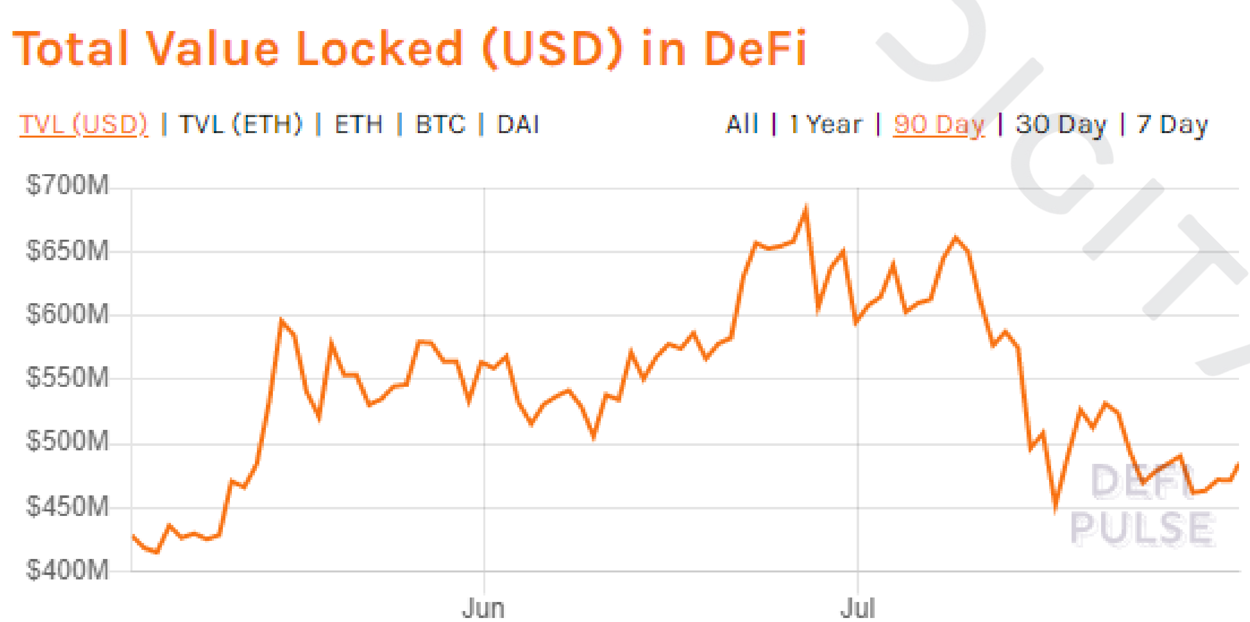
Ethereum In 2019: DeFi

The goal of Decentralized Finance (DeFi) is to reconstruct traditional financial instruments in a decentralized and open architecture, outside of any companies' or governments' direct control. Recently, a vast spectrum of DeFi has emerged, validating crypto's real utility and applicability as the most tangible, immediate, and UX-friendly use case of blockchain. With respect to flexibility and remaining committed to ethos of decentralization, Bitcoin and Ethereum remain the primary vehicles of DeFi, and Ethereum's DeFi landscape in particular provides unique potential to establish an ecosystem with global network effects and interoperability.

Currently, most DeFi applications are built on Ethereum. Thus, DeFi's adoption is tied to the scalability and usability of the Ethereum network. This leads us to somewhat of a catch-22, as adoption is required to generate liquidity, but liquidity is needed to drive that adoption. Even assuming these markets find a way to provide the necessary liquidity, Ethereum's infrastructure today is not scalable enough to handle the volumes processed by centralized exchanges (nor, for that matter, is the infrastructure of any sufficiently-decentralized protocol). Additionally, adoption is constrained to users who are comfortable with the existing UX/UI challenges of decentralized applications, a subset a users that likely would not include the un- and underbanked populations who stand to benefit most from these open, permissionless systems.

We believe DeFi's long-term potential hinges on the interoperability of major protocols and applications - i.e. value tokens and DeFi applications on separate protocols being programmed to operate seamlessly with one another (as opposed to a competitive architecture that would, for instance, not allow an Ethereum-based DeFi app to work with a dapp built on a different protocol). Interoperability helps normalize DeFi market lending rates and make it easier to interact with multiple DeFi applications in a single location. We have seen this in solutions like Instadapp's MakerDAO x Compounder Protocol Bridge, which allows users to transfer their CDP from Maker to Compound and vice versa in order to achieve the best rates possible. This allows underlying DeFi protocols to become the base layer for other applications to build upon, thus shifting away the burden of solving of interoperability and user experience challenges so they can focus on improving the base layer itself.

DeFi interoperability will also be an interesting sandbox of how open-source, public protocols can operate competitively in a capitalist market. As more and more DeFi applications operate with one another, Web3 users will migrate seamlessly to the application that fits their needs best, forcing the development teams of other DeFi projects to respond faster to match user needs and expectations.



Ethereum In 2019: Interoperability

As the blockchain ecosystem grows and evolves, we are seeing a growing tension between ideology and market reality. Much of the ecosystem conversation (and Ethereum is not exempt) mimics that of today's Web2 tech startups and the competitive years of Web1.0. Fierce market competition has constructed the idea that one (or, at most, a select few) blockchain protocols will emerge on top and be the sole executors of every piece of code that could benefit from a decentralized protocol.

Competition is necessary. Many (most) of the protocols, tokens, and applications that have been created so far will disappear. Network effects and peoples' fierce loyalty to projects simply because of personal investments may keep some of the less-viable ones around for longer than they should be. The reality is that blockchain ideology, however, seeks to hedge against the existence of one (or a select few) entities through which all technological transactions must occur. Much of the vision of blockchain technology requires that our future is comprised of a constellation of blockchains - an ecosystem of many different, even competitive, protocols with which people can choose to engage.

Core to the efficacy of this vision of a multi-protocol ecosystem is interoperability - the idea that at all levels of the blockchain stack (protocol, value, application, enterprise, etc.), the technology is built to interact natively with other (yes, even competitive) protocol stacks. This necessity is cast into sharp relief when we think of even just two fundamental components of a decentralized future: identity and deep liquid markets. Identity cannot be universal and singularly owned if it cannot be easily viewed, transferred, and retrieved as a singular unit. If it is fractured among multiple protocols and applications, none of which can 'speak' to each other, we see a Web3 future that is nearly identical to our fractured Web2 identities today. Deep liquid markets is the idea that we will arrive at a market structure that is radically fluid and supported by tokens that can provide liquidity to even the most illiquid physical assets. If we create multiple markets on different chains that cannot interoperate, we are creating siloed financial systems that are similar (though admittedly, not as restrictive) as today's.

This year, we will see the discussion of interoperability appear with recurring frequency. The projects that embrace the ideology and tread the line between competition and cooperation will gain more developers and more users.

Cheryl and Everett are employees of ConsenSys; the views in this piece are their own and do not necessarily represent any official ConsenSys viewpoint or endorsement.

CONSENSYS

Crypto Recruiting Outlook

Rob Paone
Founder

Rob Paone is the founder of Proof of Talent, a technical recruiting firm focused on the blockchain industry. With over a decade of combined experience in the recruiting and blockchain spaces, Proof of Talent connects qualified engineers with the most prestigious companies looking to hire technical talent. For more information, visit ProofofTalent.co.

Proof of Talent

With the US unemployment rate under 4%, hiring quality talent is not an easy task. The task is even more difficult when hiring the type of technical talent required to build a company in the blockchain industry.

While Bitcoin is down about 50% from it's all time high, competition for software engineers among tech firms feels like it's reaching new all time highs on a daily basis. Whether it's public goliaths like Facebook, Google, Microsoft, or deep-pocketed venture startups, the competition blockchain companies face for top talent is severe.

So what are job seekers looking for? Here are two quick anecdotes from my conversations with talent interested in working in the industry.

1. Sustainable Business Model:

While there are a number "decentralized dreamers", the vast majority of job seekers I speak with are interested in working for a company with a sustainable business model. Candidates considering leaving a F500 company behind want to know their future startup has, at the very least, a fighting chance of being around in 5 years with plans for sustainability.

Not only has the market moved past the irrational exuberance of 2017, I believe job seekers have as well. It's no longer sufficient to simply pitch "The Decentralized version of XYZ" and garner top talent. Candidates have a better idea of what is likely to succeed and what companies in the industry have no chance at product/market fit.

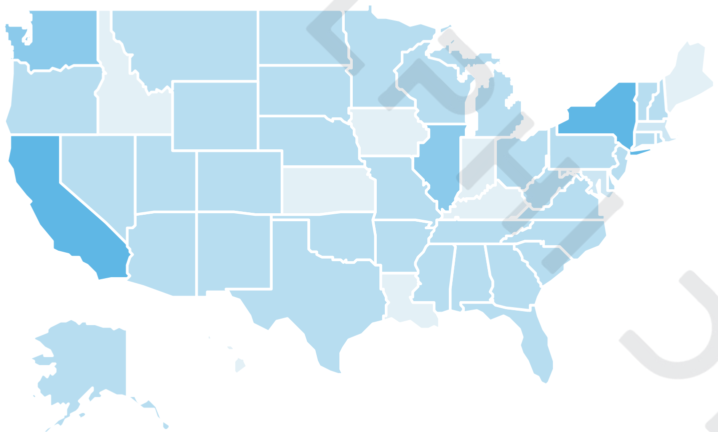
Crypto Recruiting Outlook

2. (Articulate Your) Upside

I was having a conversation the other day with a highly qualified software engineer who works at a public tech company in the Bay Area. This person has an incredible passion for Bitcoin, Ethereum and the technology being developed in the industry. The only catch? His RSU (restricted stock unit) grant has nearly tripled since he joined the company.

I referenced the candidate above because he is the exact type of person who desperately wants to combine his personal passion with his profession. Yet to “sell” a candidate like the one previously mentioned, companies need to be prepared to accurately articulate the potential upside of the opportunity presented.

Why is the role at your company worth ditching six figures worth of unvested RSUs? Is it the equity, the growth of the company, the innovative technology you’re building? Understand the upside to improve the quality of candidates you can bring onto your team.



Trends in Geography

One thing I’m personally keeping close tabs on are the emerging work locations for the blockchain industry. In the United States, both San Francisco/Silicon Valley and New York City lead the way by a wide margin, followed by Los Angeles, Chicago and Washington DC. The majority of my clients have locations in either SF or NYC, with some covering both locations to maximize on-site exposure to talent.

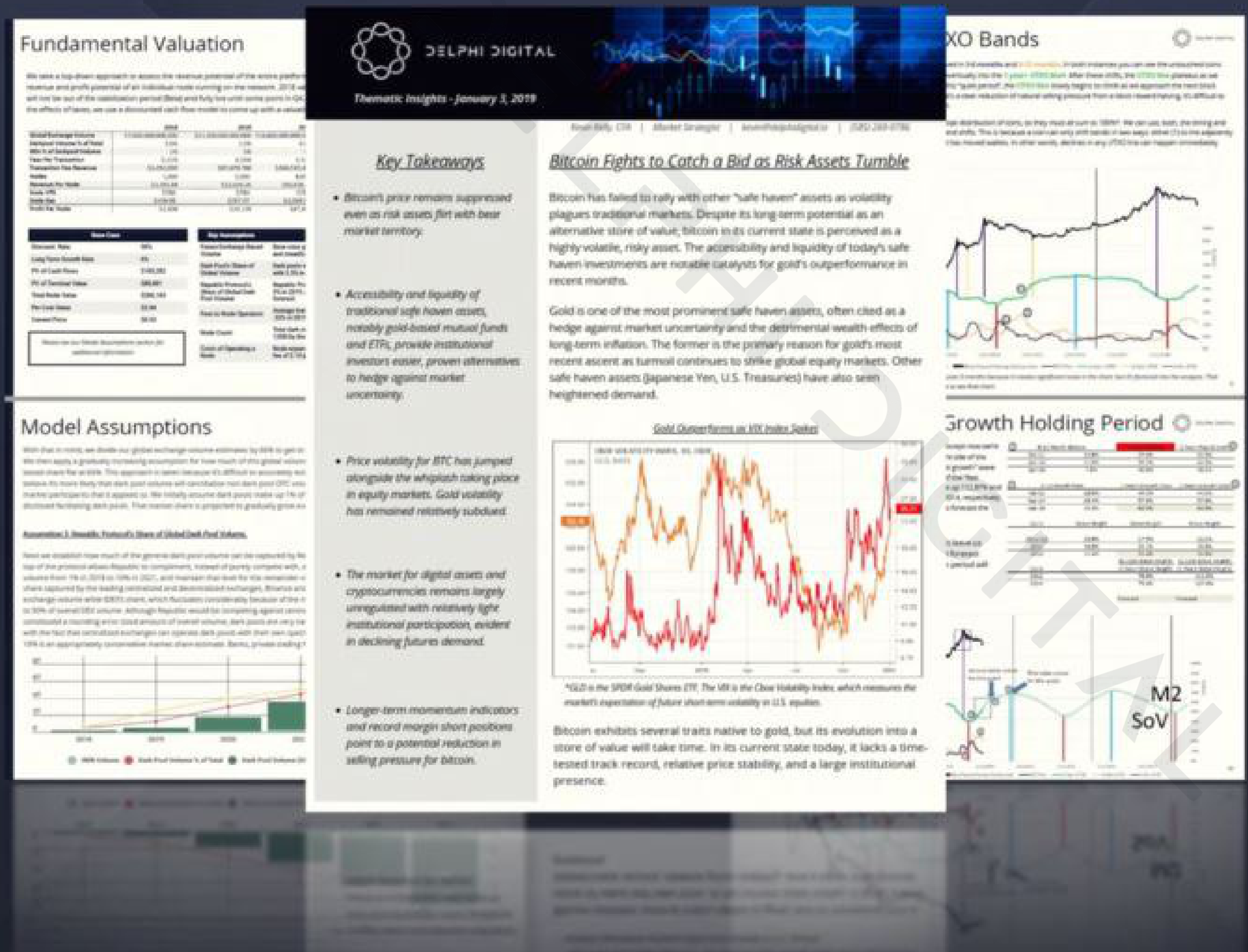
However, with regulatory uncertainty for companies in the US, some have started to look for workplace locations elsewhere. Is this just a strong-arming scare tactic to force regulators to bend on favorable regulations at the risk of “losing innovation” to overseas jurisdictions or are these

Subscribe Today!

DELPHI DIGITAL

This was an example of our **Quarterly Macro Outlook**, one of the many different products we provide within both of our **Delphi Subscriptions.** We have two plans (**Delphi Insights** at $25/month and **Delphi Institutional** at $1,000/month).

Sign up here to get access to our Member's Portal, where you can access all the reports we've released!



Disclosures

The Research Team may own the tokens represented in this report, and as such this should be seen as a disclosure of any potential conflict of interest. Anyone can contact Delphi Digital for full token disclosures by team member at Team@DelphiDigital.io. This report belongs to Delphi Digital, and represents the opinions of the Research Team.

Delphi Digital is not a FINRA registered broker-dealer or investment adviser and does not provide investment banking services. This report is not investment advice, it is strictly informational. Do not trade or invest in any tokens, companies or entities based solely upon this information. Any investment involves substantial risks, including, but not limited to, pricing volatility, inadequate liquidity, and the potential complete loss of principal. Investors should conduct independent due diligence, with assistance from professional financial, legal and tax experts, on topics discussed in this document and develop a stand-alone judgment of the relevant markets prior to making any investment decision.

Delphi Digital does not receive compensation from the companies, entities, or protocols they write about. The only fees Delphi Digital earns is through paying subscribers. Compensation is not received on any basis contingent upon communicating a positive opinion in this report. The authors were not hired by the covered entity to prepare this report. Delphi Digital did not receive compensation from the entities covered in this report for non-report services, such as presenting at author sponsored investor conferences, distributing press releases or other ancillary services. The entities covered in this report have not previously paid the author in cash or in stock for any research reports or other services. The covered entities in this report are not required to engage with Delphi Digital.

The Research Team has obtained all information herein from sources they believe to be accurate and reliable. However, such information is presented “as is,” without warranty of any kind – whether expressed or implied. All market prices, data and other information are not warranted as to completeness or accuracy, are based upon selected public market data, reflect prevailing conditions, and the Research Team’s views as of this date, all of which are accordingly subject to change without notice. Delphi Digital has no obligation to continue offering reports regarding this topic. Reports are prepared as of the date(s) indicated and may become unreliable because of subsequent market or economic circumstances. The graphs, charts and other visual aids are provided for informational purposes only. None of these graphs, charts or visual aids can and of themselves be used to make investment decisions. No representation is made that these will assist any person in making investment decisions and no graph, chart or other visual aid can capture all factors and variables required in making such decisions.

The information contained in this document may include, or incorporate by reference, forward-looking statements, which would include any statements that are not statements of historical fact. No representations or warranties are made as to the accuracy of such forward-looking statements. Any projections, forecasts and estimates contained in this document are necessarily speculative in nature and are based upon certain assumptions. These forward-looking statements may turn out to be wrong and can be affected by inaccurate assumptions or by known or unknown risks, uncertainties and other factors, most of which are beyond control. It can be expected that some or all of such forward-looking assumptions will not materialize or will vary significantly from actual results.

DELPHI DIGITAL

85 Broad Street
New York, NY, 10004
www.delphidigital.io

team@delphidigital.io