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Bloomberg Crypto Outlook – October 2018 Edition

A Resting Bear

- Caged bitcoin risks lower exit on unfavorable market Indicators
- Bitcoin, crypto supply-and-demand indicators remain unfavorable
- The future of cryptocurrencies: lower volatility, stable coins
- Volume, volatility, tradable coins, addresses and NVT ratio portend lower prices

Note - Click on graphics to get to the Bloomberg terminal

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BI COMD (the commodity dashboard)

Most data as of Oct. 3

Performance: *Bloomberg Galaxy Crypto Index (BGCI), September -0.21%, YTD -69.2% (to Oct. 3).*
Bitcoin: *September -5.7%, YTD -52.7% (to Oct. 3)*

Are Bitcoin, Cryptos Bottoming or a Resting Bear? Expect Growls

(Bloomberg Intelligence) -- The receding cryptocurrency tide is unlikely to reverse soon, and a proliferation of pundits calling for a bottom may need to diminish, in our view. The extent of the frenzy and primary indicators trending quite unfavorably portend an enduring lack-of-faith period before reaching bottom. Bitcoin trading within its most-confined 20-week range in two years indicates a breakout soon, while risks appear tilted toward resuming the 2018 trend.

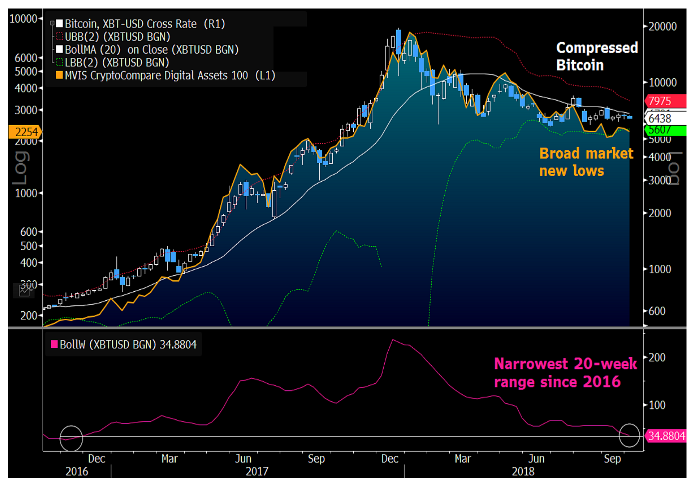
It could be different this time: This is a unique, nascent market with companions that have proven to be robust crypto indicators. Primaries -- including volume, volatility, number of addresses used, tradable coin supply and network value-to-transactions (NVT) ratio -- suggest more mean reversion. Some less-measurable factors should be needed to reverse the downtrend.

Hibernating Bitcoin Bear

Caged Bitcoin Risks Lower Exit on Unfavorable Market Indicators. Market indicators that have proven healthy in the past remain decidedly negative for the Bitcoin price. Restrained within the narrowest 20-week range in two years, the declining broader market, along with depressed volume and volatility measures, tilt uncoiling risks downward.

Bitcoin Likely Leaves Cage Through the Bottom. Compressed within the narrowest 20-week range in two years, Bitcoin's exit risks point lower. Stability is a key prerequisite missing from most cryptocurrencies, yet in this case is likely an omen for a consolidating bear market. Since the April 6 low, Bitcoin is essentially unchanged to Oct. 3, yet the broad market is down about 15%, as measured by the **Bloomberg Galaxy Crypto Index**. Speculative overhang is pressuring the broader market that, along with increasing EM currency volatility, has been somewhat supportive of Bitcoin.

Bitcoin Appears to be a Consolidating Bear Market

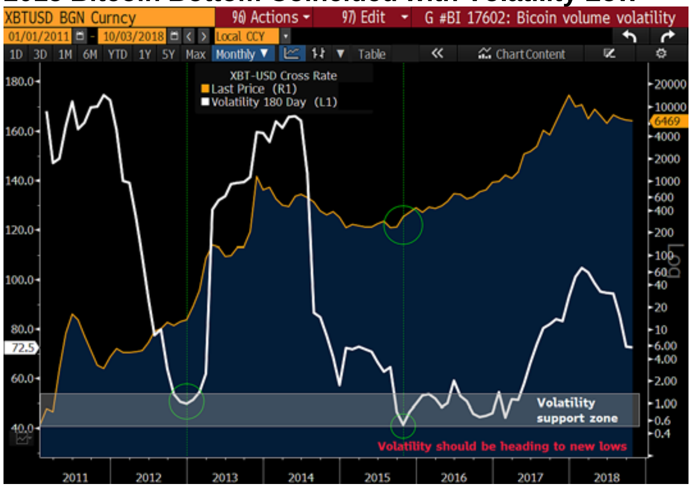


Near the end of 2016, the last time Bitcoin traded within a similarly tight range, was during the recovery from an extended bear market. It lasted about two years vs. one in 2011 that corrected about 93% in a matter of months. Maturation suggests greater duration this time.

Bitcoin Volatility on Track to New Lows. Bitcoin is unlikely to bottom until volatility reaches new lows, if history is a guide. In 2015, the Bitcoin bear market abruptly ended in October (+36%), the year's best month, as 180-day volatility reached a near-low of about 40%. This volatility measure should decline below that 2015 low, which is appropriate in a maturing market with increasing participation, competition and new trading and hedging vehicles (derivatives).

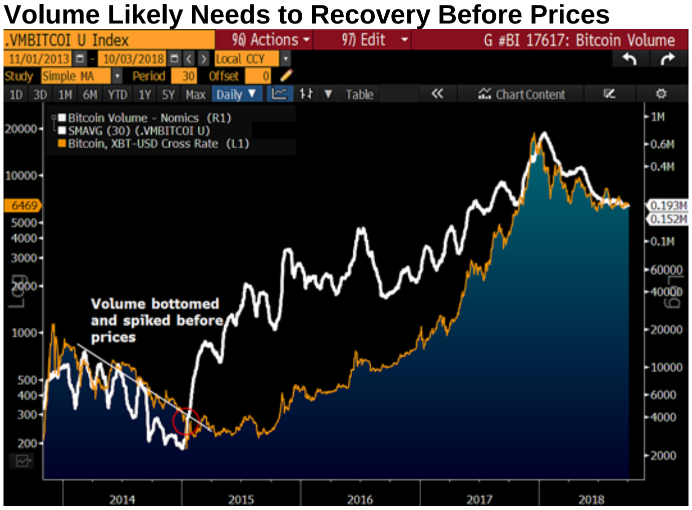
Among the many measures of volatility, the 180-day gauge is longer term and significant for bottoming along with the last bear market. Market dynamics will likely be different this time, but high and increasing volatility in cryptos has been synonymous with similar trends in prices and speculation. Low uncertainty is necessary for most proper peer-to-peer electronic-currency use-cases.

2015 Bitcoin Bottom Coincided with Volatility Low



A Lower Price Indicator - Bitcoin Volume. Volume is a lagging measure that can be a leading Bitcoin price indicator, the way it was in 2015. The 30-day measure of daily volume in Bitcoin units from Nomics bottomed from a one-year low on Jan. 2 of that year and the lowest Bitcoin closing price of that bear market occurred about two weeks later. Prices remained stagnant for most of 2015 despite steadily increasing volume. Even as Bitcoin prices have remained unchanged since the middle of June, virtually every measure of volume has declined, with the 30-day gauge down more than 20%.

Volume Likely Needs to Recovery Before Prices



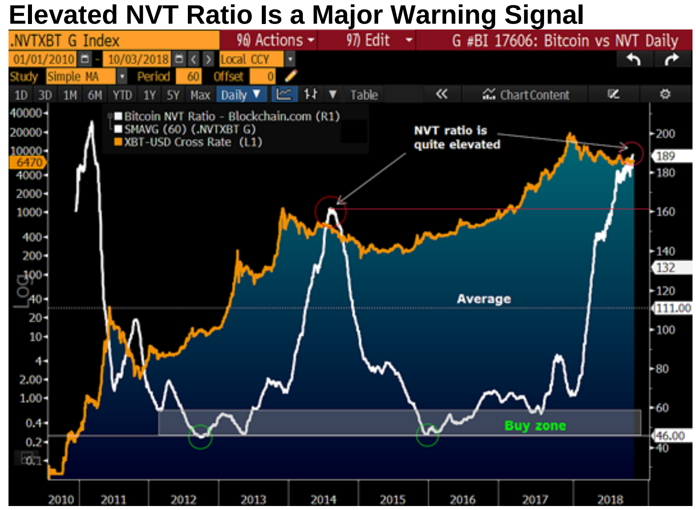
Volume will need to not just stop declining, but increase and sustain a higher trajectory for prices to do similar, based on past performance.

Fundamentals Indicate Lower

Bitcoin, Crypto Supply-and-Demand Indicators Remain Unfavorable. If the history of the nascent cryptocurrency market is a guide, prices should continue to decline based on these primary indicators: Supply, as measured by tradable coins, remains parabolic; demand, as measured by number of Bitcoin addresses used, has declined to when the price was last near $2,000; and the NVT ratio remains too high.

Bitcoin NVT Ratio Indicates Extreme Danger. A primary indicator that Bitcoin is overvalued is the network value-to-transactions (NVT) ratio. A direct, defensible measure, the ratio calculated from Blockchain.com is historically elevated: It hasn't been higher since the very early days of 2011, just before the 93% Bitcoin price correction. Typically, strong bull markets have commenced when the ratio reaches lows around 46. Currently about 190, the 60-day average of the ratio is above the 2014 peak, which came in the midst of that bear market and was followed by another 70% decline in price.

Elevated NVT Ratio Is a Major Warning Signal



Things may be different this time. Bitcoin may be migrating away from it original intention -- a "peer-to-peer electronic cash system" -- to more of a digital gold, primarily used for storing value, not actual transactions.

Addresses Used May Show Gravity Pull to $2,000. The number of unique Bitcoin addresses used, a demand proxy, has declined to a level last associated with prices at about $2,000. Indicating the extent of the 2017 frenzy, and the potential for a substantial shift in market dynamics since the inception of Bitcoin trading in 2009, most measures of addresses used, including the 12-month average, have declined sharply for the first time.

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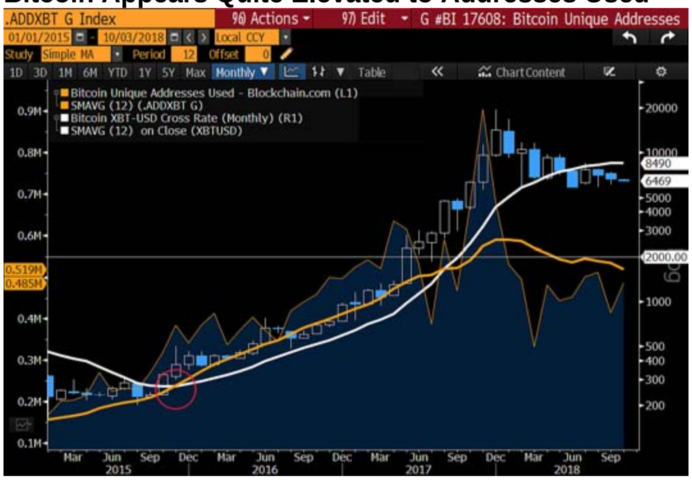
A Bitcoin address identifies the alphanumeric characters representing a possible destination for payment. The decline in unique addresses appears to have stabilized, but seems at a wide disparity to the elevated price.

Bitcoin Appears Quite Elevated to Addresses Used



Parabolic Supply Portends Lower Prices. Cryptocurrencies may be different from other assets, but the laws of supply and demand should prevail in the long term. The parabolic pace of supply is unsustainable and a strong price suppressant, if crypto's track record is any indicator. The last time the Coinmarketcap measure of tradable cryptocurrencies flatlined coincided with the 2014-15 bear market. Likely more than coincidence, the lack of new coins then also indicated declining faith in rapid price appreciation. Current conditions are far from such bottom signals.

Rapidily Increasing Supply Is a Price Suppressant

At over 2,000, tradable coin supply is up 50% from the end of 2017. The average market cap per coin has slipped to almost $100 million from a peak of almost $600 million and there is little indication it will stall its fall anytime soon. Stable coins represent some of the new supply.

Movers Going Stable

The Future of Cryptocurrencies: Lower Volatility, Stable Coins. Declining prices should continue to reduce volatility in cryptocurrencies. For most use-cases other than speculation, high volatility is a detriment. The success of stable coins as an aftereffect of the 2017 frenzy indicates a longer-lasting peak and the future of cryptocurrency.

A Lower Volatility and Stable Coin Future. The 2018 trend in cryptocurrencies -- lower prices, declining volatility and advancing stable coins -- suggests migration from the speculative frenzy past to a more enduring future. Tether, the predominant yet controversial stable coin, has advanced eight places since the end of last year, the most among the top cryptos as measured by Coinmarketcap. The proliferation of new stable coin launches reflects a maturing cryptocurrency marketplace. No longer a niche arena of speculative cryptographic assets for the select few, stable cryptocurrencies for a broadly accepted "peer-to-peer electronic cash system" is a logical future.

Receeding Speculative Tide vs. Rising Stable Coins

Top Ten Crypocurrencies By Market Capitalization

	End of 2017			Oct. 2, 2018					
		Mkt Cap. $ Billions	% of Top 10		Mkt Cap. $B	% of Top 10	Mkt. Cap. Change 2018	1-month Change	2018 Rank Chg.
1	Bitcoin	216.3	45.1%	Bitcoin	113.7	60.1%	-47%	-10%	
2	Ripple	81.2	16.9%	Ethereum	23.4	12.4%	-66%	-19%	+1
3	Ethereum	68.9	14.4%	Ripple	22.3	11.8%	-73%	69%	-1
4	Bitcoin Cash	40.1	8.4%	Bitcoin Cash	9.3	4.9%	-77%	-14%	-
5	Cardano	16.7	3.5%	EOS	5.1	2.7%	5%	-12%	+6
6	Litecoin	11.8	2.5%	Stellar	4.8	2.5%	-15%	11%	+3
7	IOTA	9.2	1.9%	Litecoin	3.5	1.9%	-70%	-11%	-1
8	DASH	7.8	1.6%	Tether	2.8	1.5%	100%	1%	+8
9	Stellar	5.7	1.2%	Cardano	2.2	1.1%	-87%	-21%	-4
10	Monero	5.1	1.1%	Monero	1.9	1.0%	-63%	-15%	-
	Total	462.8		Total	187.2		-60%		

Sources: Bloomberg Intelligence, Coinmarketcap.com. 1-month change is from Sept. 4

The highly speculative Ripple token XRP is the best performer from a month ago, but emphasizes how inappropriate it is as a medium of exchange. The 2018 EOS pump appears most at risk.

Receding Crypto Tide Supports Stable Coins. A proper alternative cryptocurrency with enduring success should have stability and independence similar to gold. Stability is a key prerequisite lacking in most cryptocurrencies, which are primarily used as speculative assets, and a receding tide and declining volatility are necessary for most use-cases. Stability-based coins should continue to prosper and a select few should dominate. Tether is the predominant stable coin, but the controversial cryptocurrency has an additional key issue that may hinder its success as an alternative medium of exchange: its connection to the U.S. dollar.

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Advancing Tether Benefits From Stability

First born Bitcoin's main flaw is its inefficiency as a medium of exchange, in addition to excessive volatility. Price and volatility moving lower are positives, but gold-like stability is a long way off.

Ethereum Bottom Unlikely Yet

Elevated Ethereum Volatility Indicates Still-Lower Prices. Increasing competition and still-elevated volatility indicate the Ethereum price hasn't yet bottomed, if the history of a less-competitive and lofty market is a guide.

Ethereum Subject to Competition, High Volatility. The price of Ethereum (ETH) has lower to go, if its relationship with volatility is repeated. Under the premise that overall crypto market volatility should continue to decline with maturation, increasing participation and competition, ETH 90-day volatility should reach a new low before indicating a price bottom. That's what it did during the last similar consolidation period. Conditions may be different this time but appear more favorable for volatility and price suppression. The main-net launch of prime competitor EOS adds pressure on the ETH price.

In November 2016, ETH volatility bottomed near 45% -- the low close was about a month later at about $7. Appearing to be a similar market consolidation pattern as 2016, ETH is facing much more competition from loftier levels and amid elevated volatility.

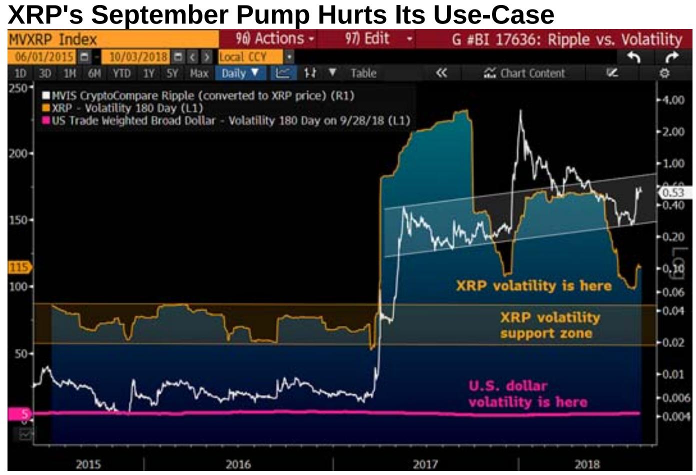
Ethereum Bottom Unlikely With High Volatility

Ripple vs. XRP

Ripple Use-Case Looks Great, Volatile XRP Is Primary Detriment. The sharp September rally in the Ripple XRP token appears to be a bear-market bounce. Speculating in XRP for gains vs. using it for cross-border payments are its primary use-cases and volatility is the key mediator. Sharp rallies benefit long speculators, but the associated volatility reduces its potential as a medium of exchange.

Sharp Rally Good for XRP, Bad for Business. What XRP needs is lower volatility, which is more likely to come with continued price mean reversion. The 120%-plus rally in the Ripple token was a key development in September, but was likely a bear-market bounce that hinders its use as a medium of exchange. More efficient cross-border payments via Blockchain make sense, but adding excessive volatility with reduced transactions-security doesn't.

XRP's September Pump Hurts Its Use-Case



Many measures of the global reserve currency, the U.S. dollar, trade with 180-day volatility near 5%. XRP volatility is currently 115%, vs. its support zone of 60-80%, still about 15x that of the dollar. The XRP price has been holding the upward sloping channel established with the May 2017 peak of about 40 cents. Key support is this year's low of about 26 cents.

Custody Solutions: ICE/Bakkt

Contributing Analysts ***Ben Elliott & Paul Gulberg***

ICE's Bakkt Could Fuse Bitcoin and Retail, Generate $200 Million. Intercontinental Exchange's plan to disrupt the $22.6 trillion global retail-payments market could generate $200 million in fee revenue, catalyze demand for cryptocurrencies such as bitcoin and displace payment systems. The first move by ICE's Bakkt is a bitcoin future that retailers can use to hedge intraday price volatility, but its ambitions are much larger.

ICE's Bakkt: A Moonshot at the Retail Future of Digital Assets. ICE's new Bakkt initiative will connect investors, merchants and consumers transacting in digital assets via an introduction of an initial product -- a physically settled Bitcoin futures contract. Bringing Starbucks into the partnership implies that ICE is looking at the retail end-user. The nominal price of a cup of coffee is too volatile for a retail store to manage in digital assets, but what if it could hedge revenue the way energy producers and farmers do today using futures?

Revenue Opportunity: Retail Sales Hedging

$22.6	Trillion	eMarketer, 2017 Global Retail Sales
5%	of Trade	~>crypto (represented by bitcoin)
$1.1	Trillion	
1	Bitcoin	Contract Size
$6,260		Bitcoin Price
180.8	Million	Contracts/Year
$1.08		RPC - Other Financials
$195.3	Million	Annual Revenue Potential

Source: Bloomberg Intelligence Bloomberg

With $23 trillion in global 2017 retail sales, according to eMarketer, if 5% of those hypothetically become crypto and require hedging, ICE can make almost $200 million a year trading and clearing futures, based on current pricing. It's a moonshot to be sure: 5% is about 5x today's digital assets, yet ICE is known for vision.

Bakkt's Core Offering Is One-Day Physically Settled Futures. ICE's proposed one-day, physically settled bitcoin future may help retailers hedge crypto price volatility better than CME and Cboe's contracts. A storage solution could solve custody issues for some institutional investors. Daily futures let retailers lock in crypto-asset prices each day. Bakkt's warehouse would likely allow retailers to trade into fiat currency each evening. Physical settlement could exempt Bakkt from CFTC supervision. As a result, ICE could control a high-volume payments ecosystem that reduces friction and underlying risks for merchants, customers and financial institutions.

Key Points:

- One-day futures lock-in prices, allowing retailers to accept bitcoin
- Bakkt will compete with Coinbase, Gemini on custody and trading
- ICE's future contract and warehouse very likely receive regulatory approval
- Futures trades will be cleared by ICE Futures U.S.

Total Addressable Market: All Retail Payments? The universe of consumers that want to use bitcoin -- a digital store of value that has appreciated over time -- at point-of-sale transactions remains very small relative to total U.S. payments, in our view. Yet Bakkt's partnership with Starbucks and other retailers could help speed the adoption of cryptocurrency-based payment solutions, perhaps beyond bitcoin, if barriers to entry are reduced and crypto demand picks back up. Card payments totaled $5.65 trillion in the U.S. in 2015, though total crypto-assets listed on coinmarketcap.com have dipped below $200 billion.

Addressable U.S. Payments Market

Growth rates by payment type, 2015-16

Noncash payment type	2015 Number (billions)	2015 Value (USD trillions)	2015 Average (USD)
Card payments	103.5B	$5.65T	$55
Debit Cards	69.6	2.56	37
(Non-prepaid)	59	2.27	38
(Prepaid)	10.6	0.3	28
Credit cards	33.9	3.08	91
ACH	19.3	41.64	2,159
Check	17.9	28.97	1,614

Source: The Federal Reserve Payments Study: 2017 Annual Supplement, https://www.federalreserve.gov/paymentsystems/2017-December-The-Federal-Reserve-Payments-Study.htm
Numbers in billions. Values in USD trillions. Averages in USD. Bloomberg

Warehousing Solution Gives ICE Leg Up on Coinbase, Gemini. ICE could address a much larger market for crypto payments by warehousing crypto-assets and building a frictionless, federally regulated layer on top of the bitcoin blockchain. Institutions and large retailers would be attracted to ICE's offering relative to existing, less regulated markets for crypto-assets. ICE plans to physically store hard drives holding bitcoin and other cryptos.

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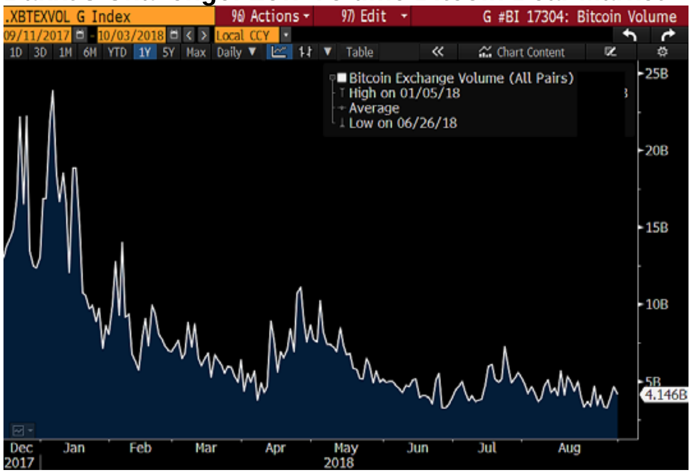
Bakkt's Challenge: Low-Volume Bitcoin Bear Market



Bakkt's planned launch may be challenging, with bitcoin volume significantly reduced from last January's peak. ICE can offset this through warehousing fees, which will comprise one of two main revenue sources for Bakkt. Warehouse receipts serve as evidence of physical delivery, possibly exempting transactions from CFTC oversight.

Performance, Sorted by 1-Month Change

Name	1 Mth % Change	3 Mth % Change	YTD % Change	1 Yr % Change	2 Yr % Change
Bloomberg Galaxy Crypto Index					
Bloomberg Galaxy Crypto Index (BGCI)	-3.3	-24.8	-66.5	69.1	
USD Cross					
Ripple (XRP)	55.4	5.6			
Bitcoin (BTC)	-11.6	-2.5	-54.9	50.6	953.1
Litecoin (LTC)	-13.3	-35.1			
EOS (EOS)	-15.7	-38.9			
Monero (XMR)	-15.7	-19.1			
Bitcoin Cash (BCH)	-18.4	-33.4			
Dash (DASH)	-18.8	-29.5			
Zcash (ZEC)	-22.6	-33.1			
Ethereum Classic (ETC)	-22.8	-33.3			
Ethereum (ETH)	-24.5	-53.4			
MVIS CryptoCompare Indices					
Single Asset Indices					
Ripple (XRP)	55.7	4.5	-68.6	159.7	6,368.6
Bitcoin (BTC)	-10.9	-1.7	-55.8	57.0	1,157.9
Litecoin (LTC)	-11.9	-34.1	-77.3	10.0	1,384.3
NEM (XEM)	-11.9	-48.1	-89.9	-54.8	2,242.4
Monero (XMR)	-13.0	-18.2	-69.0	26.9	1,347.8
Dash (DASH)	-14.8	-30.1	-84.4	-40.4	1,394.7
Bitcoin Cash (BCH)	-17.8	-33.4	-81.5	29.7	
ZCash (ZEC)	-19.2	-34.3	-77.6	-50.7	
NEO (NEO)	-20.9	-51.4	-74.2	-45.5	4,532.3
Iota (MIOTA)	-21.2	-53.0	-85.0	4.4	
Ethereum Classic (ETC)	-21.4	-32.8	-61.2	-8.2	824.9
Ethereum (ETH)	-23.8	-53.3	-70.6	-24.3	1,532.4
Multi-Asset Indices					
Digital Assets 5	-6.0	-23.9	-65.8	41.5	1,638.6
Digital Assets 10	-6.7	-25.9	-67.5	37.9	2,344.1
Digital Assets 100 Large Cap	-9.2	-19.8	-66.5	26.6	1,173.9
Digital Assets 100	-9.7	-22.5	-67.5	26.8	1,211.8
Digital Assets 25	-13.2	-34.6	-69.6	46.4	2,152.0
Digital Assets 100 Mid Cap	-13.5	-42.2	-78.8	8.1	2,086.0
Digital Assets 100 Small Cap	-21.3	-57.7	-77.7	13.6	1,202.2
MVIS IP owned by Van Eck, distributed by ...					
Bitwise Crypto Indices					
Multi-Asset Indices					
Bitwise 100 Total Market Crypto Index	-4.7	-13.9	-66.9	34.6	
Bitwise Hold 10 Large Cap Crypto In...	-6.0	-23.9	-65.8	41.5	1,638.6
Bitwise 70 Small Cap Crypto Index	-16.1	-48.5	-82.7	-30.1	
Bitwise 20 Mid Cap Crypto Index	-18.6	-44.8	-79.7	-6.0	
Bitwise IP Owned by Bitwise Asset Manage...					
BTC Cross					
Ripple (XRP)	73.0	6.8	-43.4	69.3	
Litecoin (LTC)	-1.8	-33.5	-45.3	-27.2	
Monero (XMR)	-4.6	-17.0			
EOS (EOS)	-4.9	-37.6			
Dash (DASH)	-8.2	-27.7			
Bitcoin Cash (BCH)	-8.5	-32.2	-52.2		
Zcash (ZEC)	-12.5	-31.5			
Ethereum Classic (ETC)	-12.8	-31.7			
Ethereum (ETH)	-15.0	-52.4	-34.7	-50.3	

Supplemental data

Name	2018	2017	2016	2015
Bitcoin				
Blockchain Size (Bytes)	857,106.0	1.037M	871,708.0	564,869.0
Block Time (Seconds)	459.0	548.0	510.0	425.0
Cost Per Transaction ($ USD)	54.2	126.0	7.4	
HashRate (Gh/s)	46.483B	15.177B	2.479B	803.647M
Market Capitalization ($USD Billions)	114,023.0	237,620.0	15,333.7	6,430.7
NVT Ratio (Mkt Cap/Tx$)	131.7	71.5	48.5	64.4
Supply (Bitcoins)	17.300M	16.775M	16.074M	15.025M
Transactions Per Day	242,820.0	290,422.0	286,818.0	181,836.0
Transaction Value ($ USD)	687.192M	1.143B	316.214M	99.927M
Bitcoin Active Addresses	484,982.0	678,712.0	496,024.0	342,062.0
BTC/USD Exchange $Volume ($ USD)	417.587M	1.143B		
Bitcoin Exchange $Volume (All Pairs) ($USD)	4.146B	13.026B		
Bitcoin Futures $Open Interest ($USD) (CME & CBOE)	154.590M	123.177M		
Bitcoin Futures $Volume ($USD) (CME & CBOE)	63.161M	82.192M		
Ethereum				
Blockchain Size (Bytes)	24,593.0	25,038.0	1,544.0	1,057.0
Block Time (Seconds)	13.9	14.3	14.3	17.0
HashRate (Gh/s)	259,027.0	156,919.0	5,957.6	542.7
Market Capitalization ($USD Millions)	23,622.2	71,661.5	704.1	72.3
Supply (Ether)	102.309M	96.631M	87.462M	76.140M
Transactions Per Day	476,308.0	946,981.0	41,220.0	10,301.0