



## **Makin' Moves**

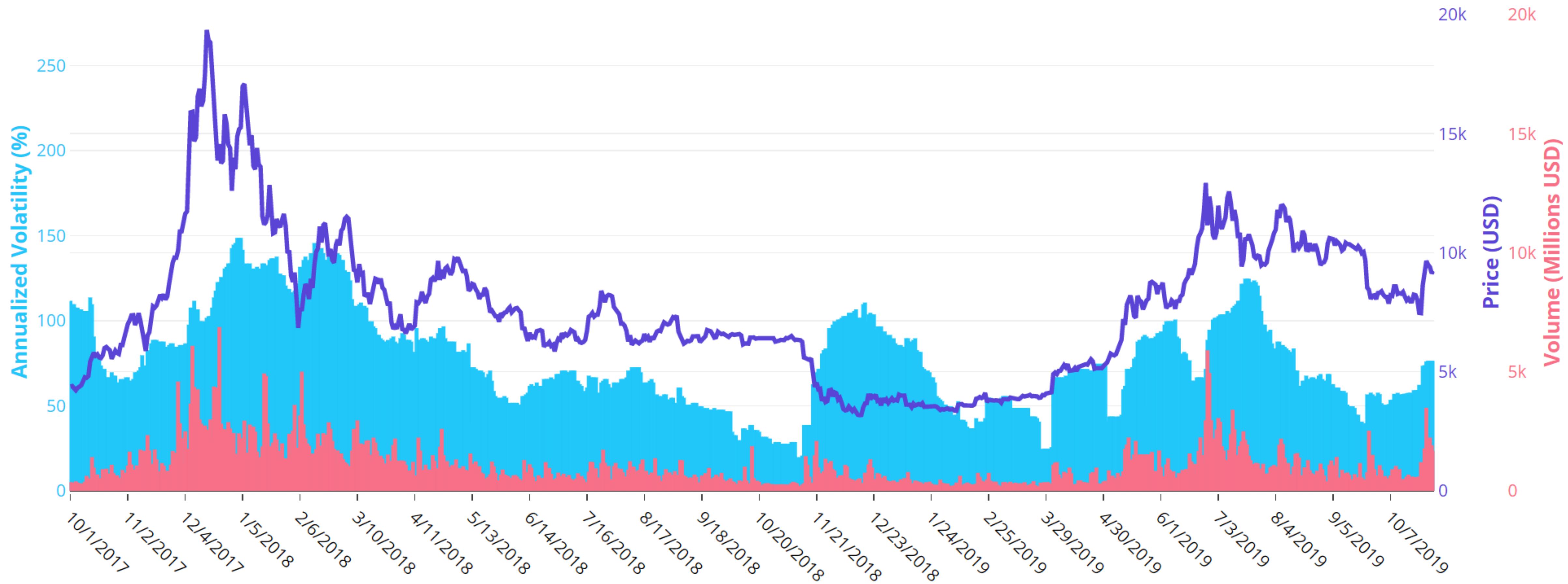
October 2019 Volatility Report

# October 2019 Takeaways

- After leaping **+43% to a 7-week high of \$10,580** in under 48 hours, bitcoin's annualized volatility climbed to a **10-week high of 75.8%**.
- Bitcoin's velocity was the only tracked metric to fall in October as volatility, price, and volume all closed higher, bouncing off of 5-month lows set in September.
- Pressure from US regulators and legislators on Libra and TON, two high profile digital currency projects, set the tone for much of October; China's President Xi urged the country to "seize the opportunity" afforded by blockchain, lifting market sentiment into month-end.
- The US **lowered interest rates** and announced **a new bond buying program**, while the ECB left negative interest rates unchanged. US-China trade relations remain in the spotlight, with suggestions that the two parties are engaged in a multi-phase trade deal. Concurrently, the IMF **cut global growth estimates slightly** and resurfaced concerns over default risk in the non-financial corporate debt markets under a major economic downturn scenario.
- Price and volatility trends in October suggest that bitcoin is tracking a 2015 trend that may represent an inflection point. Further, based on bitcoin price and volatility observations dating back to 2011, **November may turn out to be more volatile than October**.

# Volatility Trends

- As October came to an end, bitcoin's annualized volatility **soared to a 10-week high of 75.8%** on October 28th; additionally, October 26th marked bitcoin's largest 1-day increase in volatility (+56.6%) and 1-day price appreciation (+26.4%) since April 2nd.
- Following a quiet second half of September and first half of October, **trading volumes advanced to a 4-month high of \$3.48B** on October 27th.
- The price of bitcoin rallied +43% through October 25th and 26th, hitting a **7-week high of \$10,580 in less than 48 hours**.



**sources:** Kraken Intelligence, CoinMarketCap, CoinGecko, CoinMetrics.io

**notes:** trading volumes summed across Kraken, Bittrex, Binance, Binance Jersey, Binance US, Bitfinex, Bitstamp, Coinbase, EOSfinex, Gemini, Poloniex

# The Month-Over-Month Report

- After 3 consecutive months of declines, bitcoin's annualized volatility broke trend in October for a reading of **76%**. The MoM **+34% gain** and **20 percentage point increase** constitutes the largest monthly increase since April.
- Total trading volume in October grew **+15%** after back-to-back MoM declines in August and September; the last 7 days of October made up **45% of the month's trading volume**.
- Velocity was **the only metric that receded in October**, falling -6.7% to a 1-year low of 10.4x.
  - The sudden surge in volatility, volume, and price can perhaps be explained by a mean reversion of volatility, technical indicators pointing to "oversold" conditions, and positive comments from President Xi Jinping causing momentum to take off.

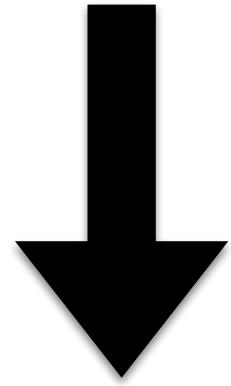
	10/18	11/18	12/18	01/19	02/19	03/19	04/19	05/19	06/19	07/19	08/19	09/19	10/19
<b>Annualized Volatility</b> (% Change)	27.6%	96.8%	90.1%	50.2%	53.0%	24.4%	74.1%	92.4%	100.3%	93.4%	64.2%	56.6%	75.8%
	-41.6%	250.8%	-6.9%	-44.3%	5.5%	-53.9%	203.4%	24.6%	8.5%	-6.8%	-31.3%	-11.8%	34.0%
<b>Volume</b> (% Change)	\$11,287M -36.3%	\$18,367M 62.7%	\$17,800M -3.1%	\$9,978M -43.9%	\$8,613M -13.7%	\$7,512M -12.8%	\$15,359M 104.5%	\$34,252M 123.0%	\$42,360M 23.7%	\$50,761M 19.8%	\$31,346M -38.2%	\$23,350M -25.5%	\$26,837M 14.9%
<b>Closing Price</b> (% Change)	\$6,308 -4.3%	\$3,969 -34.9%	\$3,692 -7.7%	\$3,410 -8.9%	\$3,794 11.3%	\$4,095 6.9%	\$5,272 28.1%	\$8,552 62.5%	\$10,752 25.7%	\$10,090 -6.2%	\$9,765 -3.2%	\$8,310 -14.9%	\$9,236 11.1%
<b>Annualized Velocity</b> (% Change)	12.61x 2.8%	13.8x 9.4%	16.63x 20.5%	13.98x -15.9%	13.08x -6.4%	15.17x 16.0%	17.97x 18.5%	18.02x 0.3%	21.73x 20.6%	17.88x -17.7%	10.89x -39.1%	11.15x 2.3%	10.4x -6.7%

**sources:** Kraken Intelligence, CoinMarketCap, CoinMetrics.io  
**notes:** trading volumes summed across Kraken, Bittrex, Binance, Binance Jersey, Binance US, Bitfinex, Bitstamp, Coinbase, EOSfinex, Gemini, Poloniex  
annualized velocity = (monthly transaction volume (USD) ÷ average market capitalization) × 12

# Correlations – Traditional Financial Assets

- **1-month** - Bitcoin's correlation with the S&P500 increased from **0.08** to **0.33**, the most notable shift in 1-month correlations; high-yield credit turned positively correlated while investment-grade and risk-free credit became more inversely correlated.
- **3-month** – excluding the S&P500 and oil, all correlations either weakened or flipped MoM:
  - Gold: **-0.28** → **0.17**
  - US high-yield bonds: **-0.43** → **-0.32**
  - US investment grade bonds: **-0.32** → **-0.23**
  - US 10-Year Treasury: **-0.22** → **-0.07**
- **6-month** – bitcoin's correlation with US high yield bonds strengthened from **0.25** to **0.31** while all other correlations notably weakened.
- **1-year** – compared to September, all assets became more positively correlated with bitcoin; excluding oil, bitcoin's correlation with other financial assets remains **strongly positively correlated**.
- **2-year** – aside from a **moderately positive correlation** with US high-yield bonds & investment grade bonds, there were no significant shifts relative to September.

BTCUSD Correlation - September					
	1 Mo.	3 Mo.	6 Mo.	1 Year	2 Year
S&P500	0.08	-0.18	0.37	0.71	0.23
Gold	0.26	-0.28	0.75	0.74	0.38
Oil	0.15	0.00	-0.65	0.10	0.00
U.S. HY Corp. Bond	-0.07	-0.43	0.25	0.63	0.50
U.S. IG Corp. Bond	-0.14	-0.32	0.77	0.82	0.56
U.S. 10 Yr. T-Bond	0.06	-0.22	0.79	0.75	N/A

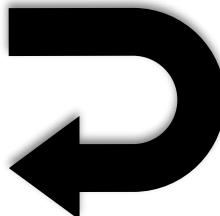


BTCUSD Correlation - October					
	1 Mo.	3 Mo.	6 Mo.	1 Year	2 Year
S&P500	0.33	-0.40	0.28	0.73	0.19
Gold	0.13	0.17	0.46	0.76	0.35
Oil	0.16	0.16	-0.18	0.13	-0.06
U.S. HY Corp. Bond	0.07	-0.32	0.31	0.64	0.61
U.S. IG Corp. Bond	-0.20	-0.23	0.45	0.83	0.56
U.S. 10 Yr. T-Bond	-0.23	-0.07	0.42	0.81	N/A

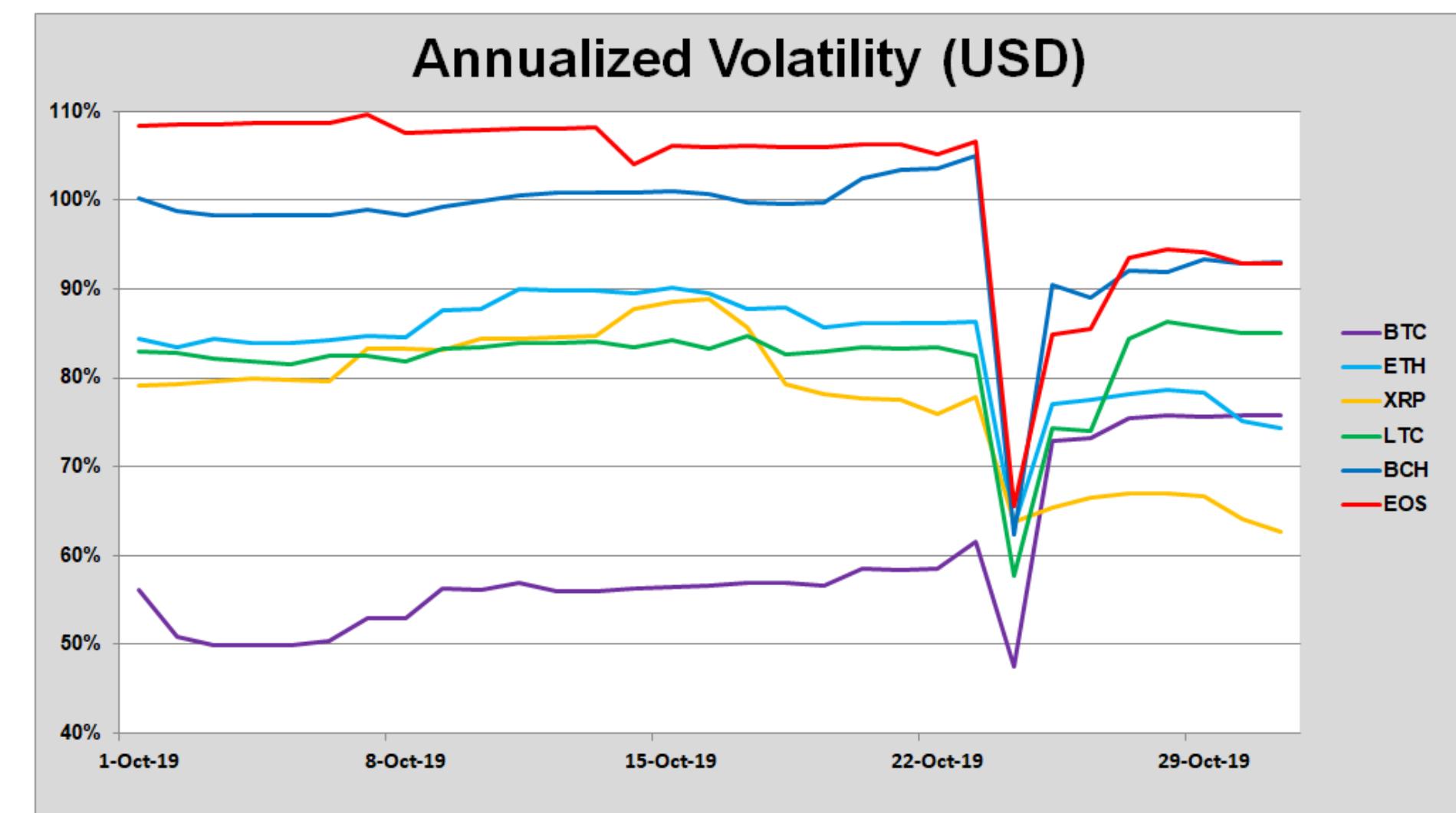
# Correlations – Crypto Assets

- Excluding XRP, bitcoin's 3-month correlation with the largest altcoins strengthened substantially from September as we lap the month of July, when bitcoin continued to outperform:
  - ETH: 0.67 → 0.71**
  - BCH: 0.83 → 0.95**
  - LTC: 0.68 → 0.90**
  - EOS: 0.68 → 0.86**
- On all other time horizons, most correlations weakened for the fourth month in a row, though many still remain strongly positively correlated:
  - 1-month** – correlation with ETH strengthened materially while XRP fell
  - 6-month** – EOS remains negatively correlated, albeit barely; correlations are at their weakest relative to all other time horizons
  - 1-year & 2-year** – ETH, BCH, and LTC are more strongly correlated than XRP or EOS
- Over the past several months bitcoin's correlation with the top 5 altcoins have continued to strengthen on the 1-month and 3-month time horizons, but have weakened across longer-dated periods. This trend could perhaps be explained by BTC's relatively **stagnant dominance**, or a lack of rotation, and a **decline in volatility** since August.

BTCUSD Correlation - September					
	1 Mo.	3 Mo.	6 Mo.	1 Year	2 Year
<b>ETH</b>	0.38	0.67	0.57	0.82	0.63
<b>XRP</b>	0.50	0.63	0.02	0.02	0.54
<b>BCH</b>	0.94	0.83	0.37	0.63	0.71
<b>LTC</b>	0.86	0.68	0.29	0.76	0.81
<b>EOS</b>	0.77	0.68	-0.17	0.49	0.45



BTCUSD Correlation - October					
	1 Mo.	3 Mo.	6 Mo.	1 Year	2 Year
<b>ETH</b>	0.70	0.71	0.42	0.82	0.61
<b>XRP</b>	0.39	0.33	0.06	-0.01	0.57
<b>BCH</b>	0.89	0.95	0.29	0.69	0.69
<b>LTC</b>	0.82	0.90	0.29	0.73	0.79
<b>EOS</b>	0.84	0.86	-0.02	0.45	0.41



# The Macro Trend

## United States

- The Federal Reserve implemented two important measures in October: 1) an interest rate cut of 25bps, the third cut this year; and 2) plans to purchase \$60B of T-bills per month into 2Q2020. The former is an effort by the Fed to stay ahead of a slowing economy, while the latter influences benchmark interest rates to guide monetary policy.
- The unemployment rate fell to a record 50-year low of 3.5% (though job and wage growth are slowing), consumer prices were unchanged, and durable goods orders fell -1.1% MoM. Manufacturing PMI remained well below levels seen earlier this year but did increase to 51.1, marking the second consecutive month of growth and the highest level in six months. The US reported a fiscal 2019 budget deficit of \$986B, the largest deficit in seven years and the largest increase in spending since 2009. Deficit growth was driven by an ongoing increase in government spending, made worse by recent tax cuts.
- In mid-October, the US agreed to postpone tariff increases scheduled for Oct. 15 on Chinese imports and China agreed to buy \$40B – \$50B worth of US agricultural goods. The two committed to spending 3-5 weeks to complete a first-phase agreement, which would address intellectual property rights and currency manipulation. US trade negotiators have said they are “close to finalizing some sections” of the first phase trade agreement.

## Europe

- Mario Draghi concluded his term as President of the ECB by *leaving negative interest rates unchanged*. Draghi stated that negative rates are positively impacting the Eurozone. Critics continue to believe that negative rates result in a misallocation of capital in the business environment and encourages excessive risk-taking, which inflates asset prices.
- The Eurozone's PMI revealed that the regional economy remains unchanged in October with a reading of 45.7, a sign of rapid decline in activity. However, the separate services PMI did increase slightly to 51.8, reflecting modest growth. Germany, Europe's growth engine, saw its services PMI fall from 54.8 to 51.4, the lowest level in three years. Germany's composite PMI (services and manufacturing) also dropped from 51.7 to 48.5, its lowest level in six years. A reading below 50 is indicative of a contraction.

## Asia

- Japan's retail sales soared in anticipation of a national sales tax increase, but its industrial production fell (-4.7%) for the 8th time in the last 12 months. Industrial production out of South Korea also declined, driven by an ongoing trade war with Japan and the impact of weakened US-China trade relations.
- China reported 3Q2019 GDP growth of +6%, the slowest rate of growth since early-1992. China's slowdown reflects stifled US investment and trade flows, as well as recent actions taken by the PBOC to halt risky lending. Retail sales improved and had the best performance in three months (+7.8% YoY), industrial production had its best performance in three months after gaining +5.8%, and fixed asset investments increased +5.4% in the first nine months of 2019 vs. the same period earlier. Chinese exports fell -3.2%, representing a second month of declines and the sharpest in seven months. Inflation also soared to a six-year high, largely due to a surge in pork prices due to the African swine fever outbreak.

# Growth Concerns Surface

- The International Monetary Fund (IMF), an international organization that aims to promote global economic growth and financial stability, estimated that **2019 will represent the slowest year of economic growth since the global financial crisis.** The IMF projects growth to tick higher in 2020, driven by a rebound in emerging markets. Estimates for developed nations, including the United States, Europe, China, and Japan, point to a continued slowdown in 2020, assuming trade conditions do not worsen. The IMF trimmed its global growth forecast for 2020 by 0.1 percentage points to 3.4%.
- The discourse around economic slowdown has raised concerns over highly indebted corporations that may be unable to service their debt under a major economic downturn. The IMF estimated that **40%, or \$19 trillion, of corporate debt would be at risk of default** under such a scenario. Assuming the market value of corporate debt falls, a large enough amount of capital is likely at risk to cause capital markets to freeze up.
- The World Bank noted that China's growth in recent decades was a function of several factors that will likely disappear, including a growing working-age population, rapid migration of people from rural to urban regions, low wages that attracted foreign investment into export-intensive manufacturing, and an expansion of global trade liberalization. As these factors begin to decelerate or reverse, China will need to rely on other levers to sustain its significant economic growth in the future.

# Key Events

## **Libra Takes A Tumble (October 4th)**

- In early-October, nearly 25% of previously-committed Libra Association members, including Stripe, Visa, MasterCard, and Paypal, announced their departure from Libra. While many of these former Libra Association partners mentioned they remain supportive of Libra and are open to working together in the future, the lack of regulatory clarity was the driving area of concern.
- The head of Facebook's Calibra, David Marcus, commented, "I would caution against reading the fate of Libra into this update... I totally respect the fact that those businesses and those leaders have a responsibility to their shareholders, employees, and stakeholders. We are going to move forward. We are going to add more members." Days later Marcus noted that Libra could consider dropping Libra's "basket" approach, supported by multiple fiat currencies, and instead issue a number of fiat-pegged stablecoins.
- Libra continues to aim for a June 2020 launch date upon approval from regulators; perhaps lending confidence to the interest in pushing the consortium forward, Mark Zuckerberg testified at a US House Committee hearing that "if I feel like Facebook can't be a part of it, then Facebook won't be a part of it."

## **ETH Futures Soon? (October 10th)**

- CFTC Chairman Heath Tarbert announced that the CFTC is working with the SEC on guidance surrounding bitcoin and ether. Shortly after, Tarbert stated that the CFTC has "been very clear on bitcoin: bitcoin is a commodity" and that they "haven't said anything about ether - until now. It is my view as chairman of the CFTC that ether is a commodity." Tarbert also believes that the CFTC may allow ETH futures to trade on US markets.
- Roughly a week after the announcement, Tarbert said that he "absolutely" believes ETH futures could trade in the next 6-12 months, but that he doesn't know of any company that has applied to launch ETH futures. The Chairman also suggested that the CFTC may soon acknowledge other cryptocurrencies as commodities, "As the SEC sort of works through its process [and] we work through ours and other regulators, it's likely we'll see more but I can't tell this audience that it's necessarily coming soon because even the two that we thought about - bitcoin and ether - it took us quite some time to work through those."

## **SEC Halts Alleged \$1.7 Billion Unregistered Digital Token Offering (October 14th)**

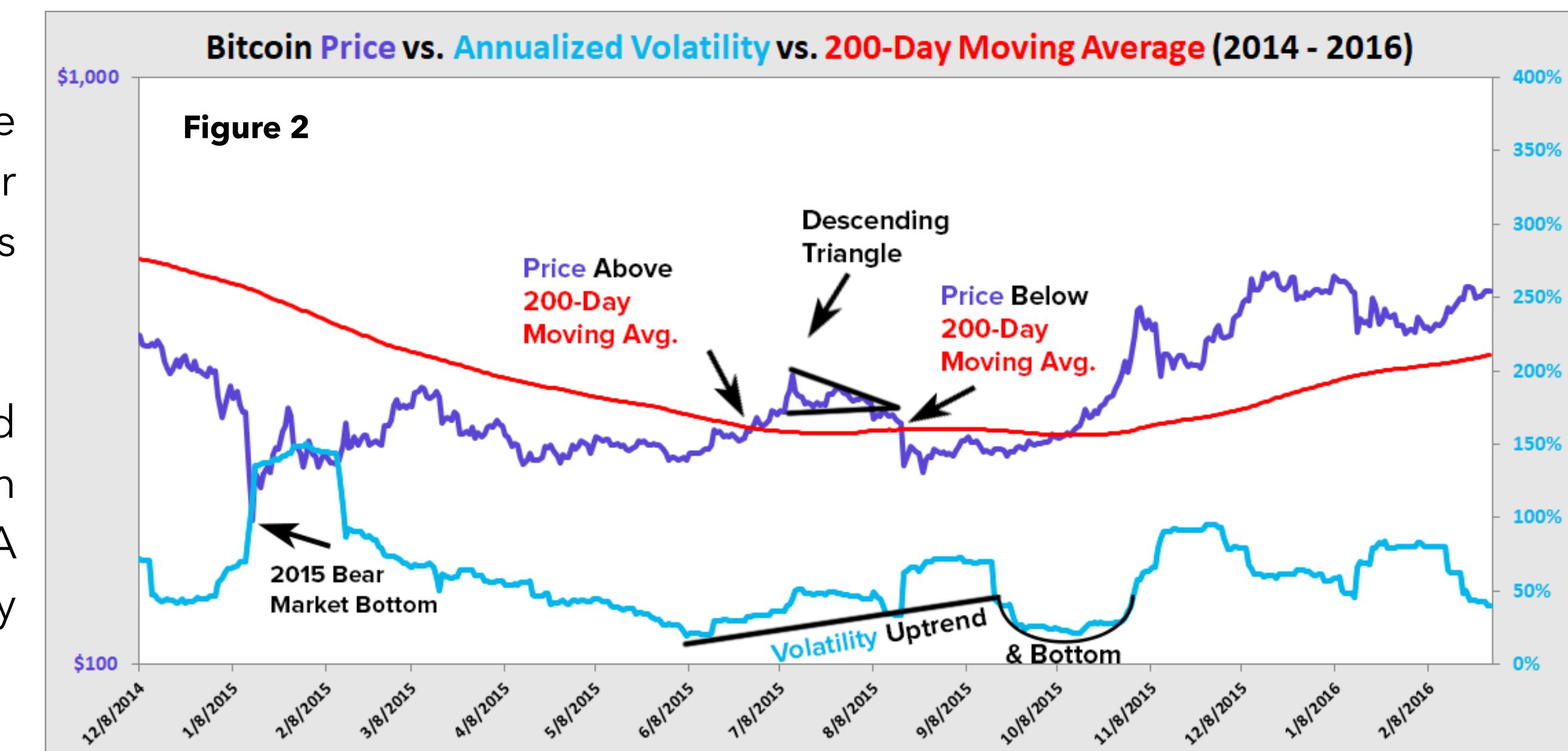
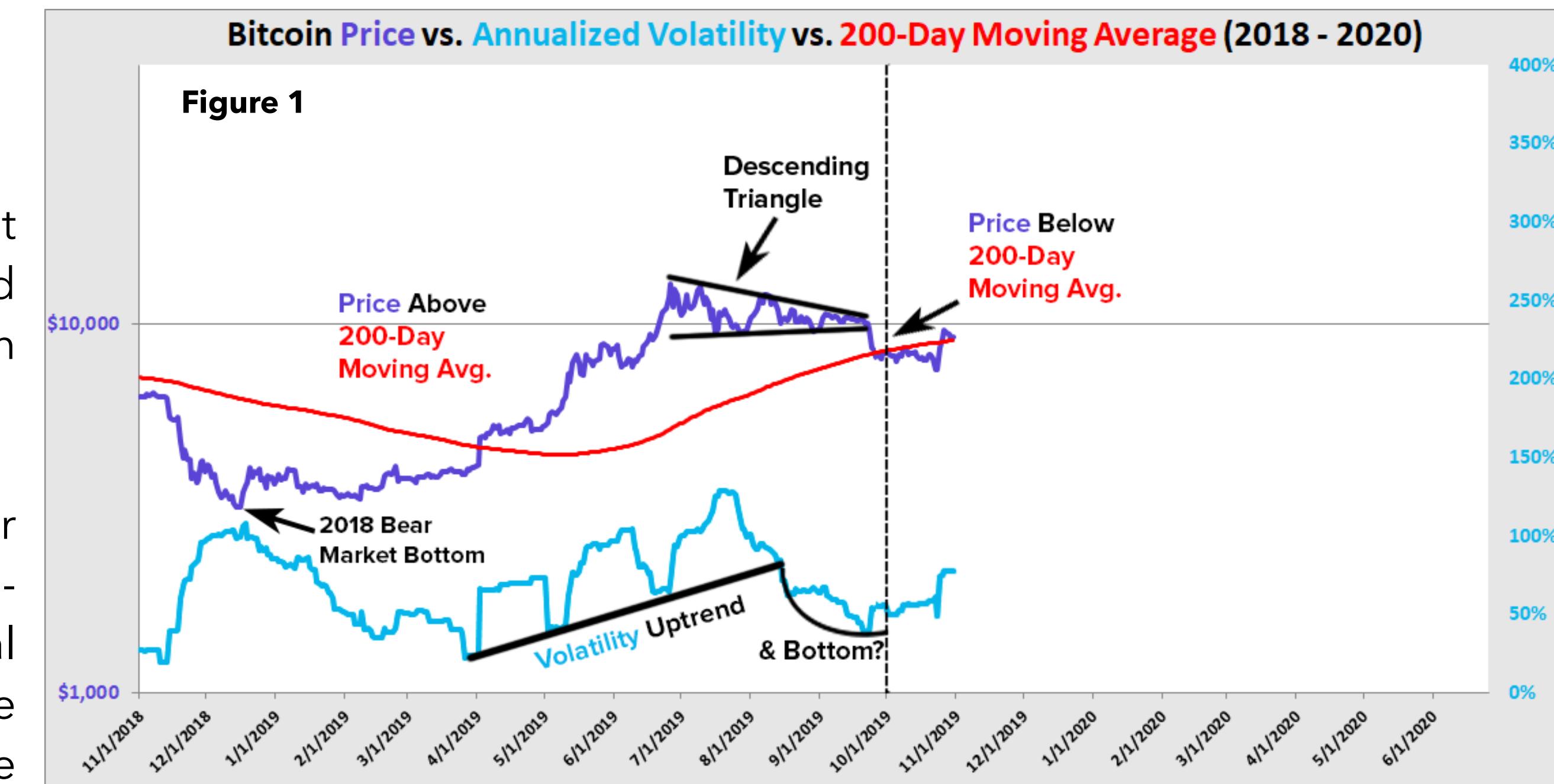
- Telegram, the messaging app behind the highly anticipated Telegram Open Network (TON) blockchain, received a temporary restraining order from the SEC just weeks ahead of their long-awaited release. The SEC alleged that Telegram is conducting an unregistered securities offering that has raised more than \$1.7B in the US and overseas.
- According to the SEC Division of Enforcement co-director, Stephanie Avakian, the emergency action by the SEC was "intended to prevent Telegram from flooding the US markets with digital tokens that we allege were unlawfully sold," and was a result of Telegram failing to provide investors with info about the GRAM token and Telegram's own operations.
- A Telegram-SEC case was originally scheduled to take place on October 24th but was postponed until February 18-19, 2020. Telegram commented, "We and our advisers will use the time to ensure that at the February hearing, the position of Telegram was presented and supported as much as possible." The launch of the TON blockchain network is also delayed until April 2020.

## **China Goes Full Blockchain (October 25th)**

- At the 18th collective study of the Political Bureau of the Central Committee in Beijing, President Xi Jinping said the country needs to "seize the opportunity" afforded by blockchain because of its wide array of applications.
- The president stated that "we must take the blockchain as an important breakthrough for independent innovation of core technologies. [We must] clarify the main direction, increase investment, focus on a number of key core technologies, and accelerate the development of blockchain technology and industrial innovation." Xi also called for the creation of "Blockchain+," a platform specifically for personal development such as education, employment, food, and medicinal safety, among others.
- Towards the end of October, Chinese citizens also began reporting that ads for blockchain courses began appearing on popular apps and social media sites having been previously banned.

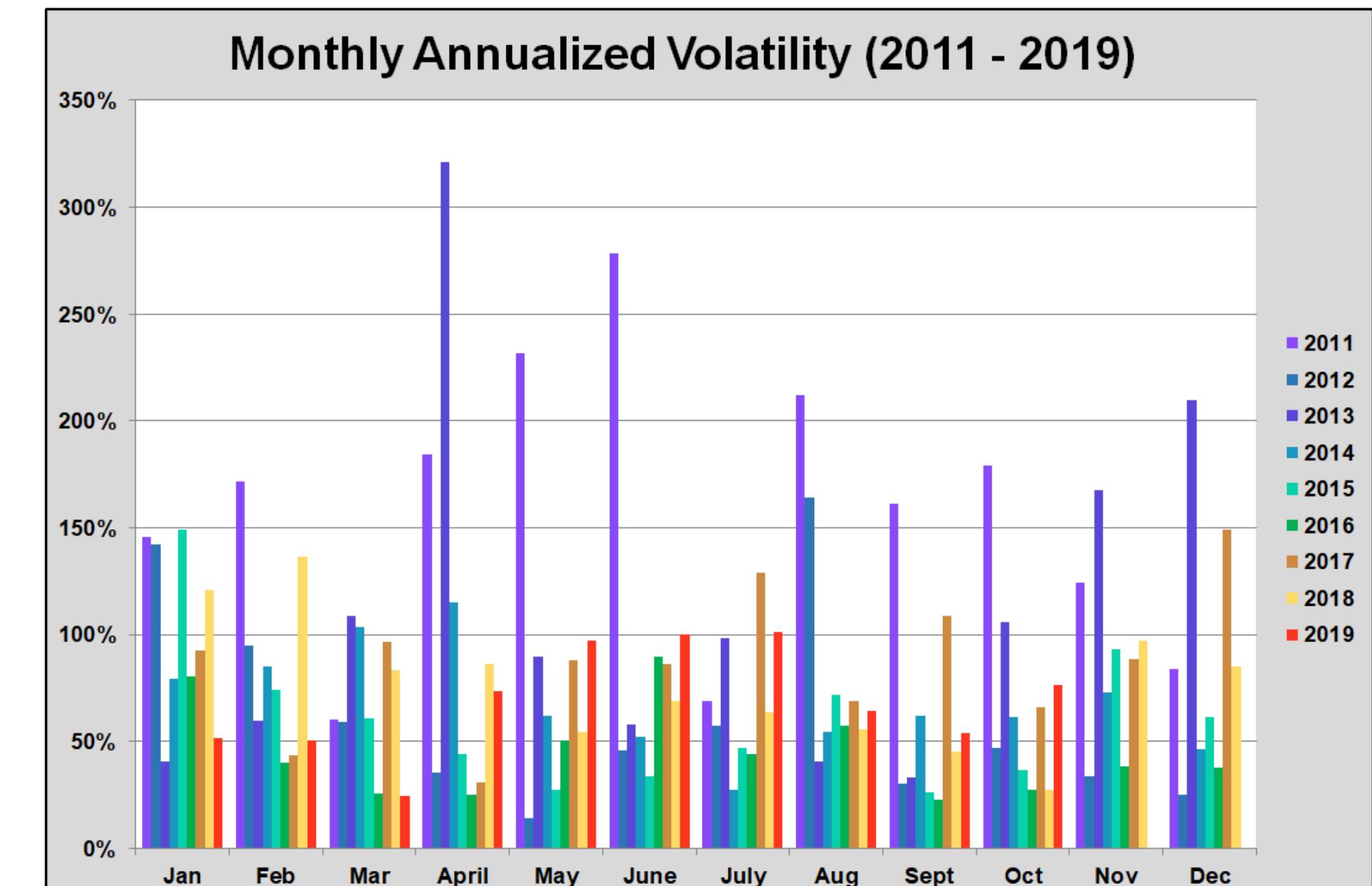
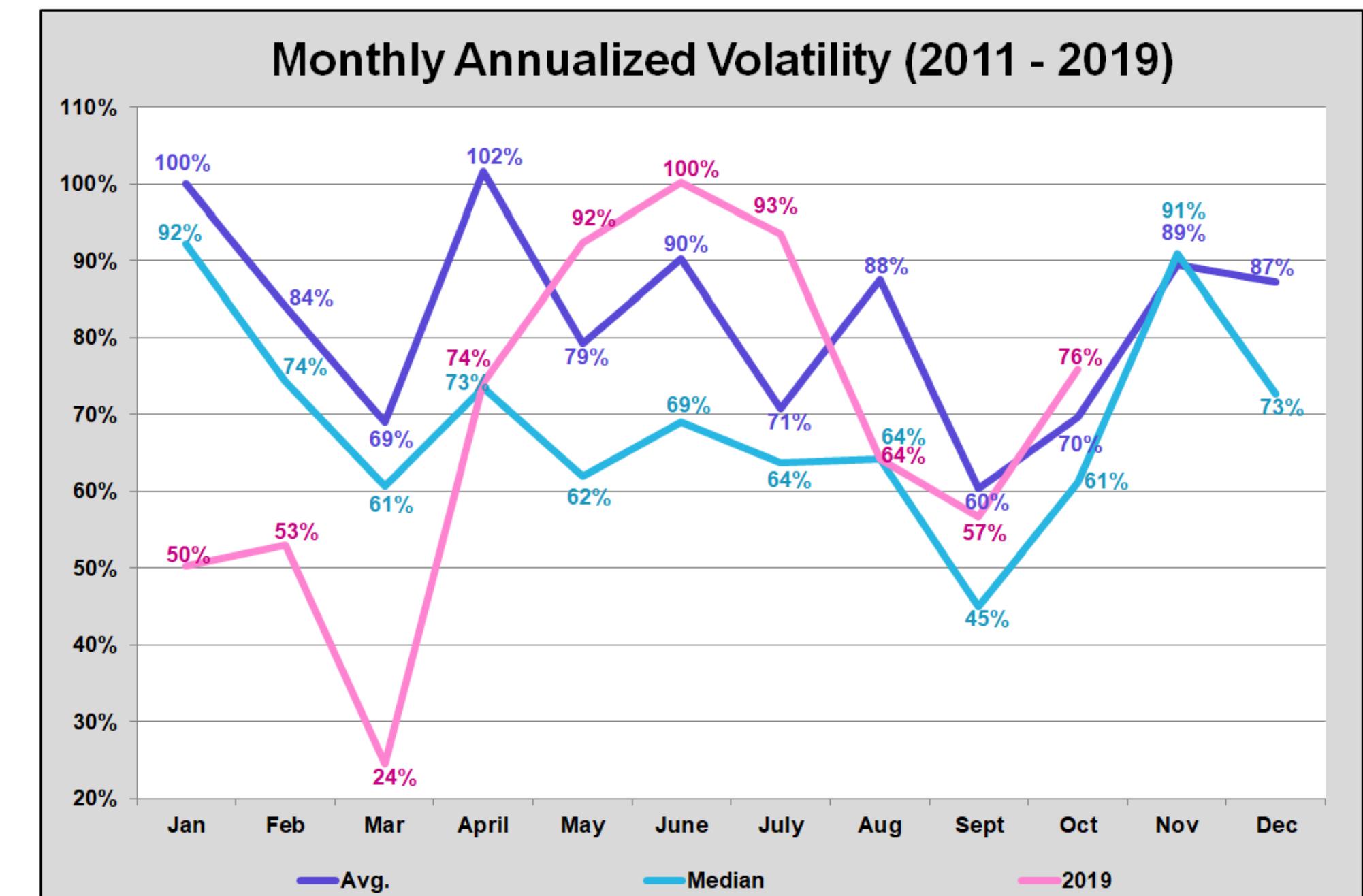
# Where to Next?

- Last month, we noted a trend formation that seemed reminiscent of patterns observed in 2015. We suspected that bitcoin could possibly cross back above the 200-day moving average, which would coincide with a surge in volatility.
- According to **figure 1**, we can see that volatility did surge higher in October, after capturing enough momentum to surpass its 200-day moving average. This corresponded closely with technical indicators having recently entered into "oversold" territory and the timing of China's Xi Jinping making positive comments on the need to invest in and advance blockchain technology.
- Turning to **figure 2** and assuming the current trend sustains, we may be due for further increases in volatility in the weeks and/or months to come, though a lack of hard catalysts suggests momentum will have to carry the day.
- If bitcoin falls below the 200-day moving average and fails to find the momentum to cross back over, market participants may begin to question whether the October rally was merely a bull trap. A loss of confidence in bitcoin's longer-term outlook would likely cause prices to plunge and volatility to surge.



# Where to Next? (cont.)

- Analyzing data as far back as 2011 we've observed that bitcoin's volatility, on average, rallies in October and until January of the following year, before trending lower in the first quarter.
- Looking at the median monthly annualized volatility over the past 9 years, November is the **second most volatile month** with an annualized volatility of **91%**, second to January at **92%**. Comparing averages, November is the **fourth most volatile month** at **89%**, mere inches away from June's reading of **90%**.
- Although there is no clear seasonal connection between volatility trends and the fourth quarter, anecdotally, we can point to several year-end holidays followed by the Chinese new year.
- Assuming a reversion to the mean or median over the last 9 years, bitcoin's volatility could increase between 13 to 15 percentage points in November from October's reading of 76%.



# What's Ahead?

Date	Notable Catalysts
Nov-18-2019	Maker Foundation Launches Multi-Collateral Dai
Nov-19-2019	India's Supreme Court Hearing on RBI's Crypto Ban
Nov-30-2019	Utah's Blockchain Pilot Evaluation Task Force to Propose Crypto Legislation
Dec-02-2019	CME BTC Futures BTCX19 Settlement Date
Dec-04-2019	Ethereum Istanbul Mainnet Activation
Dec-09-2019	Bakkt Launches BTC Options
Dec-30-2019	CME BTC Futures BTCZ19 Settlement Date
4Q2019	NASDAQ Launches BTC Futures

# Data

BTCUSD - October								
Date	Price	24hr Return	Annualized Vol.	Tx Volume	Exchange Volume*	Market Cap	Velocity**	
1-Oct-19	\$8,323	0.16%	56%	\$ 4,563,467,989	\$ 1,026,856,318	\$ 149,397,042,722	11.15x	
2-Oct-19	\$8,382	0.71%	51%	\$ 3,711,568,417	\$ 818,876,478	\$ 150,274,613,053	9.01x	
3-Oct-19	\$8,238	-1.72%	50%	\$ 4,433,422,571	\$ 485,341,152	\$ 148,345,592,161	10.91x	
4-Oct-19	\$8,152	-1.04%	50%	\$ 4,149,622,102	\$ 572,419,035	\$ 146,767,326,339	10.32x	
5-Oct-19	\$8,148	-0.05%	50%	\$ 2,885,074,255	\$ 476,354,170	\$ 146,351,095,556	7.20x	
6-Oct-19	\$7,867	-3.45%	50%	\$ 2,961,251,387	\$ 344,538,640	\$ 141,206,285,788	7.65x	
7-Oct-19	\$8,213	4.40%	53%	\$ 4,042,248,740	\$ 592,385,368	\$ 147,899,313,786	9.98x	
8-Oct-19	\$8,190	-0.29%	53%	\$ 4,089,973,264	\$ 858,330,176	\$ 147,270,287,407	10.14x	
9-Oct-19	\$8,591	4.90%	56%	\$ 5,022,376,202	\$ 520,058,284	\$ 154,625,456,579	11.86x	
10-Oct-19	\$8,589	-0.03%	56%	\$ 4,878,300,923	\$ 996,293,300	\$ 154,278,819,680	11.54x	
11-Oct-19	\$8,271	-3.70%	57%	\$ 4,238,851,065	\$ 665,452,612	\$ 149,110,991,493	10.38x	
12-Oct-19	\$8,305	0.42%	56%	\$ 2,757,510,400	\$ 861,086,139	\$ 149,734,524,822	6.72x	
13-Oct-19	\$8,280	-0.30%	56%	\$ 2,570,587,927	\$ 288,177,379	\$ 149,164,613,950	6.29x	
14-Oct-19	\$8,355	0.90%	56%	\$ 5,484,338,530	\$ 441,999,553	\$ 150,170,300,738	13.33x	
15-Oct-19	\$8,165	-2.28%	56%	\$ 3,858,726,123	\$ 436,135,349	\$ 146,845,534,513	9.59x	
16-Oct-19	\$8,000	-2.01%	57%	\$ 5,720,750,830	\$ 549,087,541	\$ 144,037,329,739	14.50x	
17-Oct-19	\$8,077	0.96%	57%	\$ 5,268,912,266	\$ 630,280,521	\$ 145,287,592,860	13.24x	
18-Oct-19	\$7,956	-1.49%	57%	\$ 4,170,075,912	\$ 469,753,202	\$ 143,266,919,855	10.62x	
19-Oct-19	\$7,959	0.03%	57%	\$ 2,426,551,663	\$ 550,648,985	\$ 143,085,646,029	6.19x	
20-Oct-19	\$8,240	3.53%	59%	\$ 2,280,835,259	\$ 389,017,252	\$ 147,875,242,280	5.63x	
21-Oct-19	\$8,218	-0.27%	58%	\$ 3,604,129,762	\$ 532,304,292	\$ 147,854,575,171	8.90x	
22-Oct-19	\$8,021	-2.40%	59%	\$ 3,840,507,381	\$ 486,803,575	\$ 144,586,456,293	9.70x	
23-Oct-19	\$7,475	-6.80%	62%	\$ 4,659,447,479	\$ 554,830,295	\$ 134,316,744,656	12.66x	
24-Oct-19	\$7,464	-0.14%	47%	\$ 4,764,919,230	\$ 1,160,334,063	\$ 134,263,137,184	12.95x	
25-Oct-19	\$8,640	15.75%	73%	\$ 5,923,478,691	\$ 520,622,824	\$ 155,932,804,287	13.87x	
26-Oct-19	\$9,120	5.56%	73%	\$ 5,113,825,689	\$ 1,737,200,696	\$ 166,630,581,069	11.20x	
27-Oct-19	\$9,657	5.88%	75%	\$ 4,053,079,049	\$ 3,448,276,904	\$ 172,202,055,439	8.59x	
28-Oct-19	\$9,497	-1.65%	76%	\$ 5,834,032,631	\$ 1,719,588,914	\$ 167,912,181,264	12.68x	
29-Oct-19	\$9,397	-1.06%	76%	\$ 4,602,979,662	\$ 1,739,019,265	\$ 169,946,389,585	9.89x	
30-Oct-19	\$9,138	-2.75%	76%	\$ 3,868,717,719	\$ 1,417,313,607	\$ 165,486,571,121	8.53x	
31-Oct-19	\$9,236	1.07%	76%	\$ 5,050,366,890	\$ 1,548,352,141	\$ 165,004,691,373	11.17x	
Mean	\$ 8,392	0.4%	59%	\$ 4,220,320,323	\$ 865,733,485	\$ 150,939,700,542	10.21x	
Median	\$ 8,240	-0.1%	57%	\$ 4,170,075,912	\$ 572,419,035	\$ 148,345,592,161	10.32x	
Total Volume	\$ 130,829,930,005		\$ 26,837,738,033					

sources: Kraken Intelligence, CoinMarketCap, CoinMetrics.io

notes: trading volumes summed across Kraken, Bittrex, Binance, Binance Jersey, Binance US, Bitfinex, Bitstamp, Coinbase, EOSfinex, Gemini, Poloniex  
 annualized velocity = (monthly transaction volume (USD) ÷ average market capitalization) × 12

# How To Reach Us & Where To Trade

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