

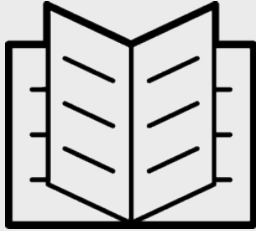
# STATE OF BLOCKCHAIN 2018

## Register for Consensus 2018!



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- Our annual [Consensus](#) events have attracted thousands of entrepreneurs, investors, executives, regulators, journalists and more to San Francisco and New York City
- Join us in May for our next event, [Consensus](#)!

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## 4. INVESTMENT

## 5. GOVERNMENT & REGULATION

## 6. SENTIMENT SURVEY

## 7. COINDESK

A. Research  
Framework



# 1

## EXECUTIVE SUMMARY





## Q4 2017 Overall Summary

### **Bitcoin & cryptocurrencies make historic moves:**

- After uncertainty around fork ends, bitcoin's price breaks free and topples multiple milestones. Meanwhile, BTC dominance shrinks to all time lows.

### **Demand for bitcoin tests market infrastructure:**

- Bitcoin fees increase dramatically. While Coinbase hits #1 app on iTunes, it and all exchanges struggle to cope with demand.

### **Key metrics up across public blockchains:**

- Hashrate, >1MB Bitcoin blocks, ethereum blockchain transaction records, all time valuations

### **ICOs and VC hit new highs:**

- \$3.23bn for ICOs and \$200mn for VC. However, forks were the largest token generating event of the year with \$44bn created.

### **Futures launch successfully:**

- CME & Cboe launch with high interest but low volume. Large traders shorted and small traders longed.

### **Sentiment Survey:**

- 81% did not go into debt to buy crypto. Of those that did, 52% already paid it back. 94% check prices at least every day.



## Q4 2017 Trends: Public Blockchains



- Total cryptocurrency market cap breaks \$600bn, nearly as much as the GDP of Argentina.
- Fees moderately increase in general, but soar for BTC.
- Bitcoin dominance falls below 40% after a rebound above 50% early in the quarter.
- Many cryptocurrencies reached all time highs, notably BTC at almost \$20k and ETH at almost \$1k.
- CryptoKitties' popularity slowed down the ethereum network but showed promise for future developments.
- Bitcoin Cash solidifies within the top 10 market cap with a hashrate that surpassed BTC's for one day in November.

Data Sources: [CoinDesk](#), [Image](#)  
Notes: Expanded upon in [Section 2: Public Blockchains](#)



## Q4 2017 Trends: Enterprise Blockchains



- R3 adds members, launches, Corda version 2.0. Corda becomes the first DLT to be accessible on Amazon Web Services (AWS).
- Enterprise Ethereum Alliance adds members & 3 new working groups.
- We.Trade, founded by 9 banks, aims to ease European domestic and cross-border trade with DLT made by IBM.
- Hyperledger lost CME Group, Deutsche Borse Group, R3, and about 15 other members.



## Q4 2017 Trends: Trading & Investment



- Total raised by ICOs hits \$3.23bn in Q4, with VC amounting to \$200mn. Q3 to Q4 growth less spectacular when shown in ETH (+56%) vs. USD (+146%).

- Forks have raised 8x more than ICOs. Token generating events (TGE) are split between \$44bn in forks vs. \$5bn in ICOs cumulatively.

- Bitcoin futures see high interest but low volume, with small traders going long and large traders going short.



## Q4 2017 Trends: Regulation & Government



- The CFTC approved CME & Cboe's launch of bitcoin futures contracts.
- South Korea sees higher levels of regulation on trading.
- Bitfinex & Tether become targets of US regulators after suspicious activity results in subpoena.
- Russia moves to define regulatory environment with submission of new bill.





# 2

## PUBLIC BLOCKCHAINS



## Q4 2017 Public Blockchain Summary

### **Aggregate market cap breaks \$600bn:**

- Public blockchain assets rallied 3x, over \$75bn in value over the quarter.

### **Bitcoin dominance falls below 40%:**

- Bitcoin ceded its +50% Q2 to Q3 comeback.

### **Some fees rise, but BTC's fees soar:**

- Fees generally increased but BTC saw record-breaking fees and congestion in Q4.

### **Ripple grew ~300x YTD:**

- All major cryptocurrencies are up approximately 1,000%.

### **Sector sees all-time high interest:**

- Google searches for blockchain terms see new highs, especially in December.

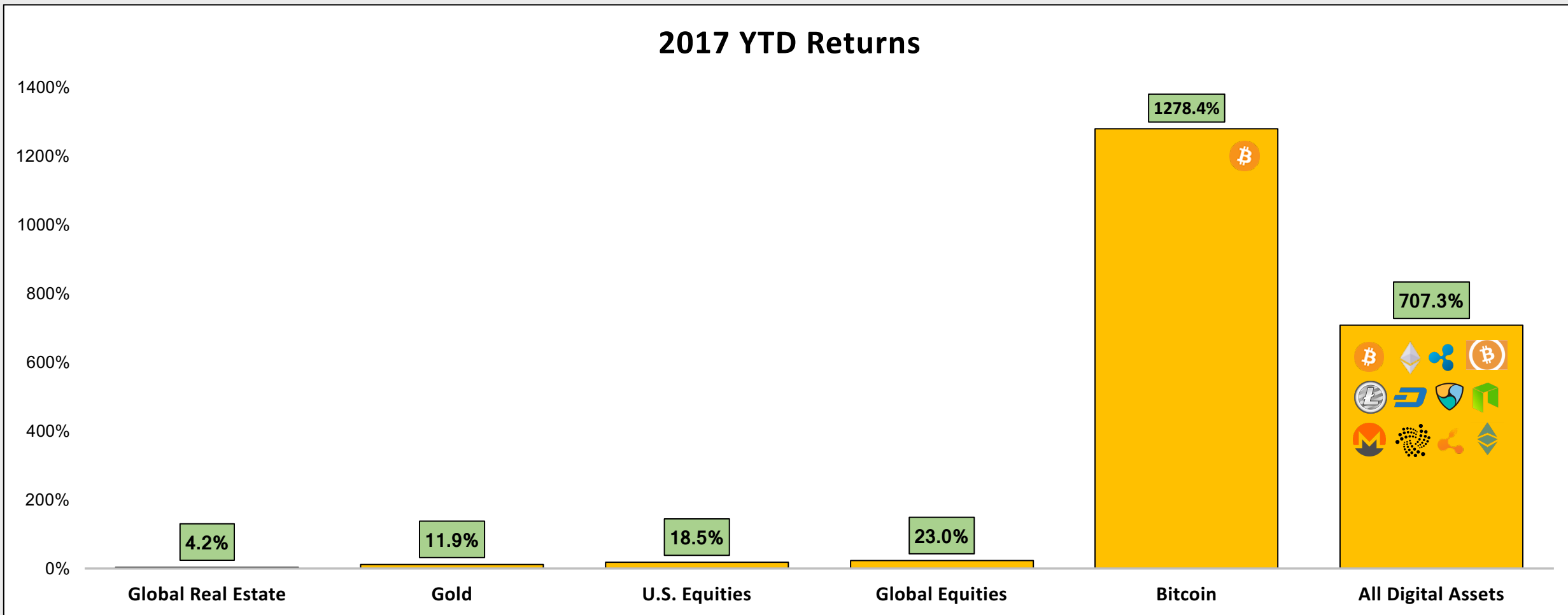
### **Transactions hit new highs:**

- Transactions on major blockchains increased, ethereum broke all-time transaction records.



# Digital Assets Outperformed Traditional Assets

## Nearly 13x Return YTD

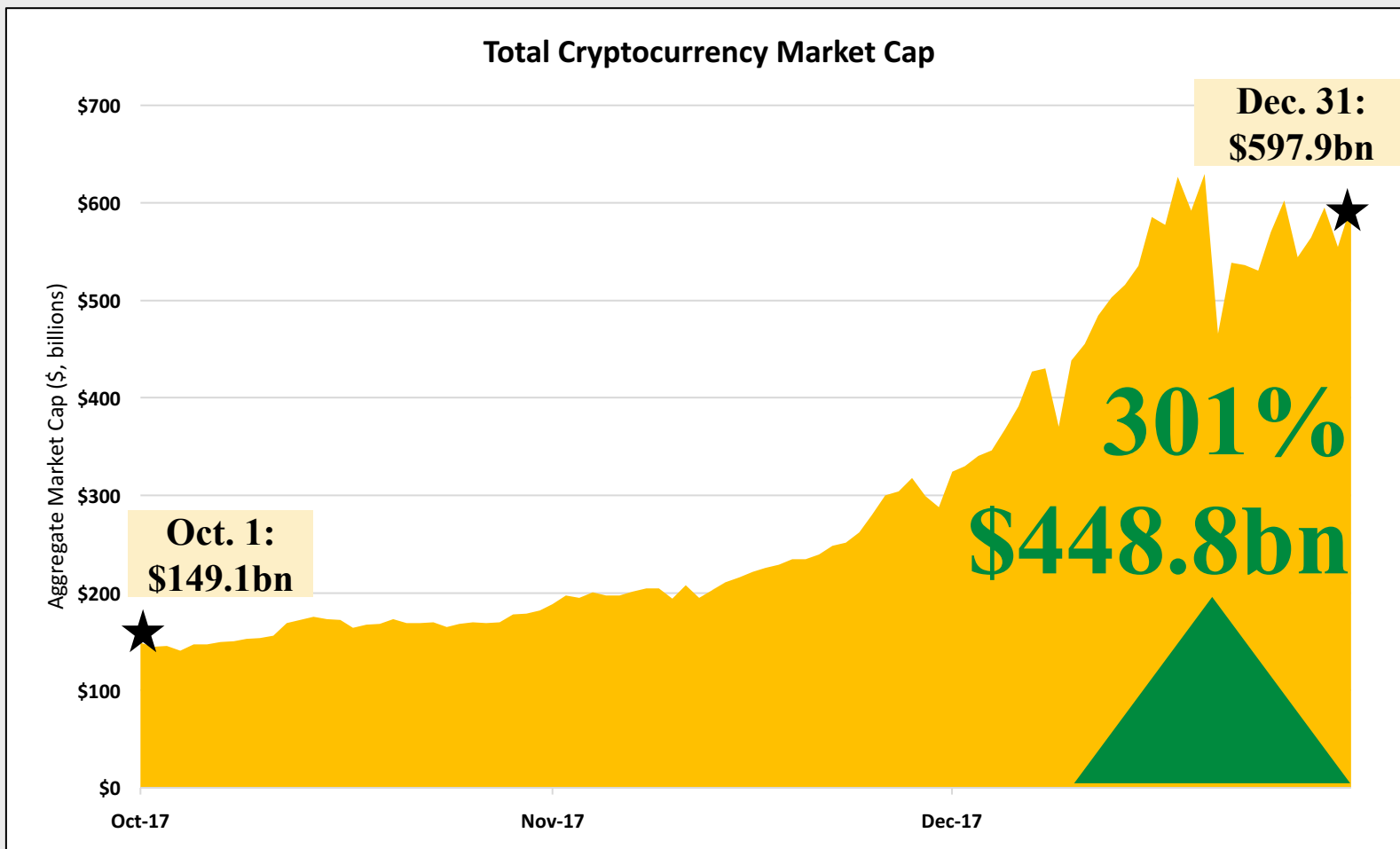


Data Source: [Yahoo! Finance](#), [Coincap](#), [Coin.Dance](#)

Notes: Daily data, RWO, GLD, SPY, CWI, & BTC prices, all cryptocurrency market cap, data through 12/31/2017



## Total Cryptocurrency Market Cap Increased Over 50% Reached All-Time High Above \$600bn in Q4



For some context, the market cap of:

Western Union ≈ \$10 billion

Ether ≈ \$70 billion

Bitcoin ≈ \$250 billion

All Cryptocurrencies ≈ \$600 billion

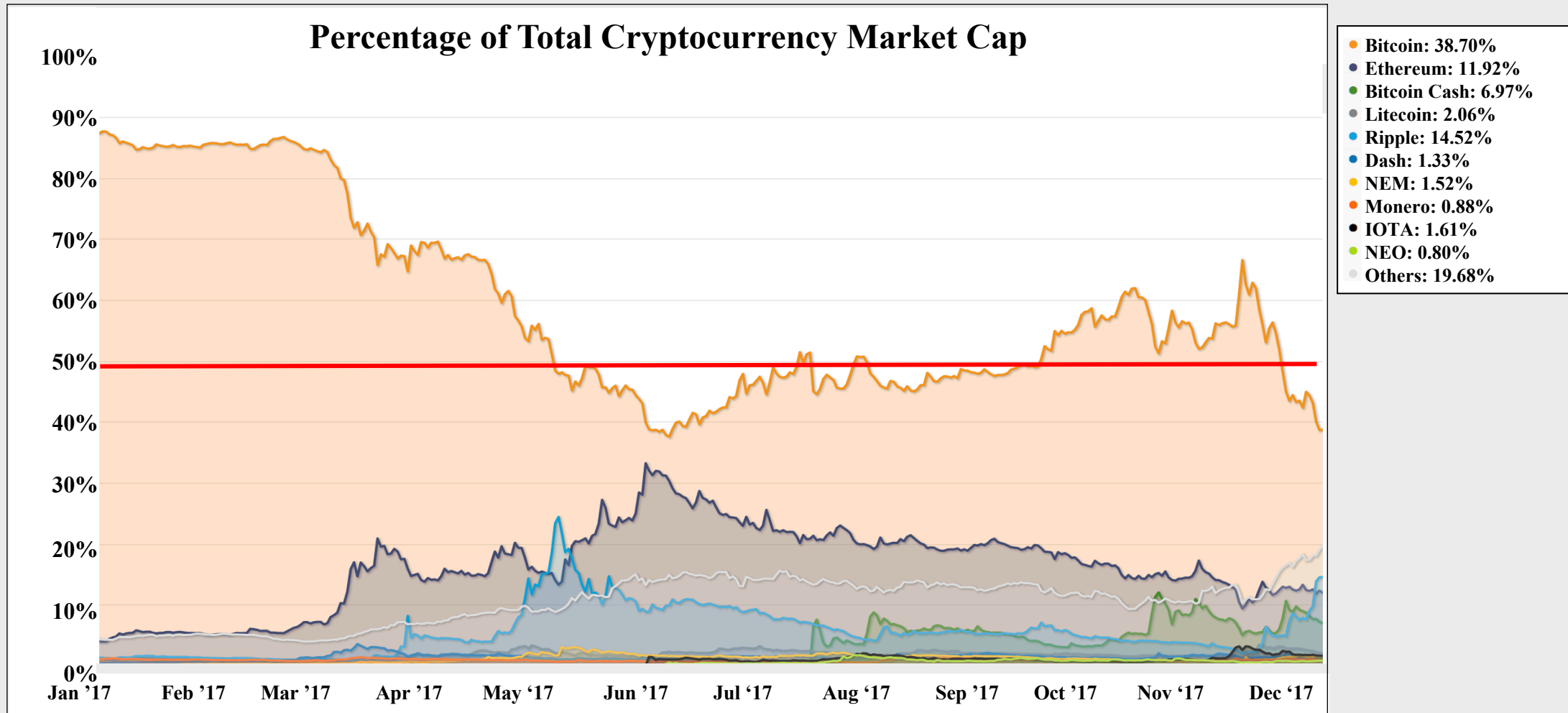
Visa ≈ \$250 billion

Gold ≈ \$8 trillion



# The Fall of Bitcoin Maximalism?

## BTC Dominance Fell below 40%



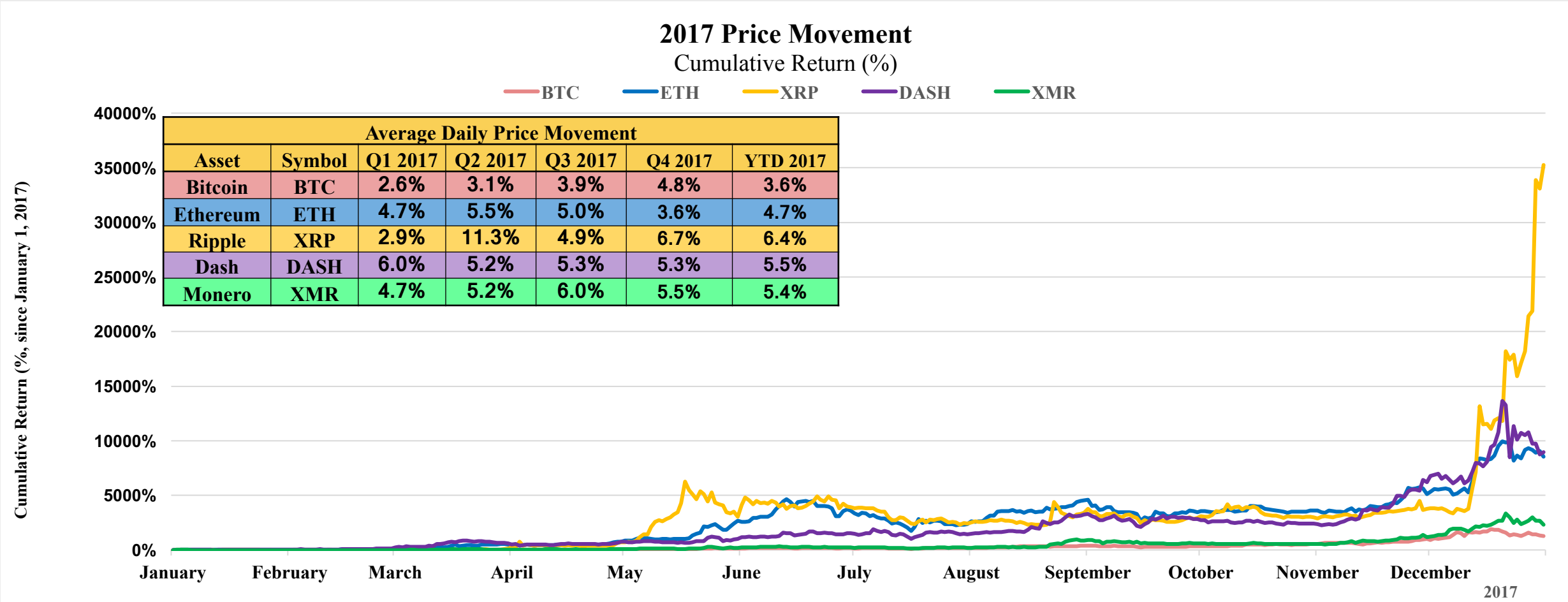
Data Source: [CoinMarketCap](https://coinmarketcap.com/)





# Ripple Rallied ~35000% Year to Date

## Exceeded 6% Average Daily Volatility



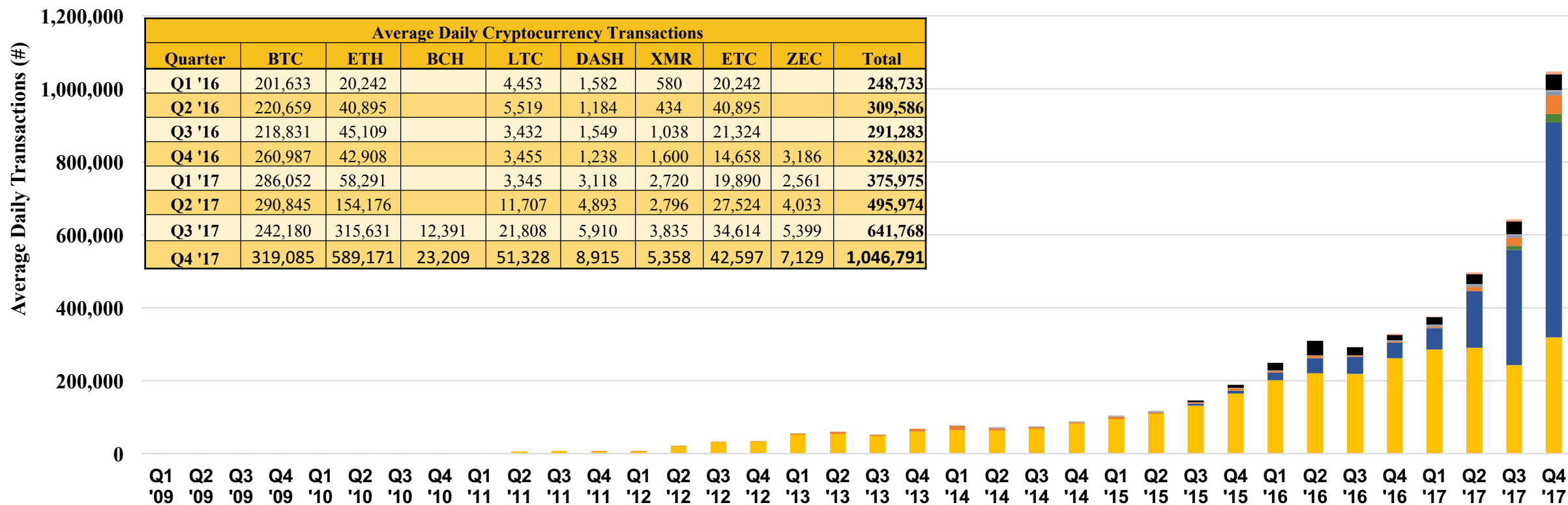
Data Source: [Coincap](#), [Coinmetrics](#), [CoinMarketCap](#)  
Notes: Average day over day price movement (absolute value)



# Transactions on Major Blockchains Increased, Especially ETH

Daily Cryptocurrency Transactions

■ BTC ■ ETH ■ BCH ■ LTC ■ DASH ■ XMR ■ ETC ■ ZEC



Data Source: [Bitinfocharts](#), [Coinmetrics](#)

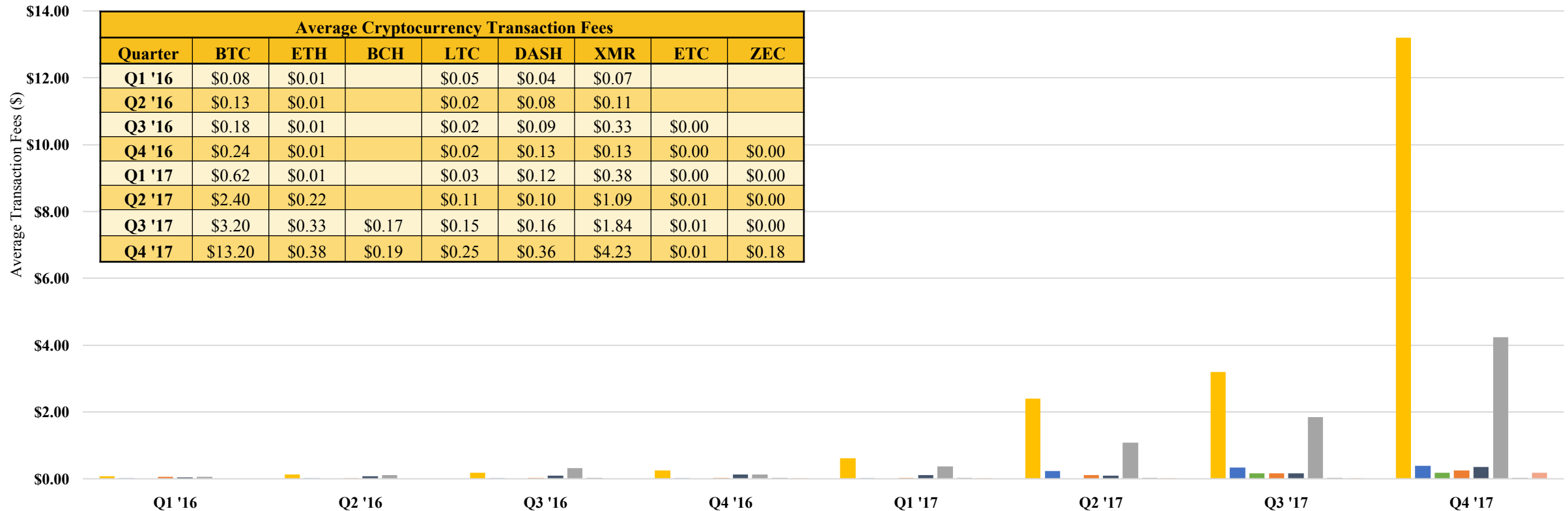


# Average Transaction Fees Rose for All Major Cryptocurrencies

## BTC Fees More Than 4x Since Q3

Cryptocurrency Transaction Fees

■ BTC ■ ETH ■ BCH ■ LTC ■ DASH ■ XMR ■ ETC ■ ZEC

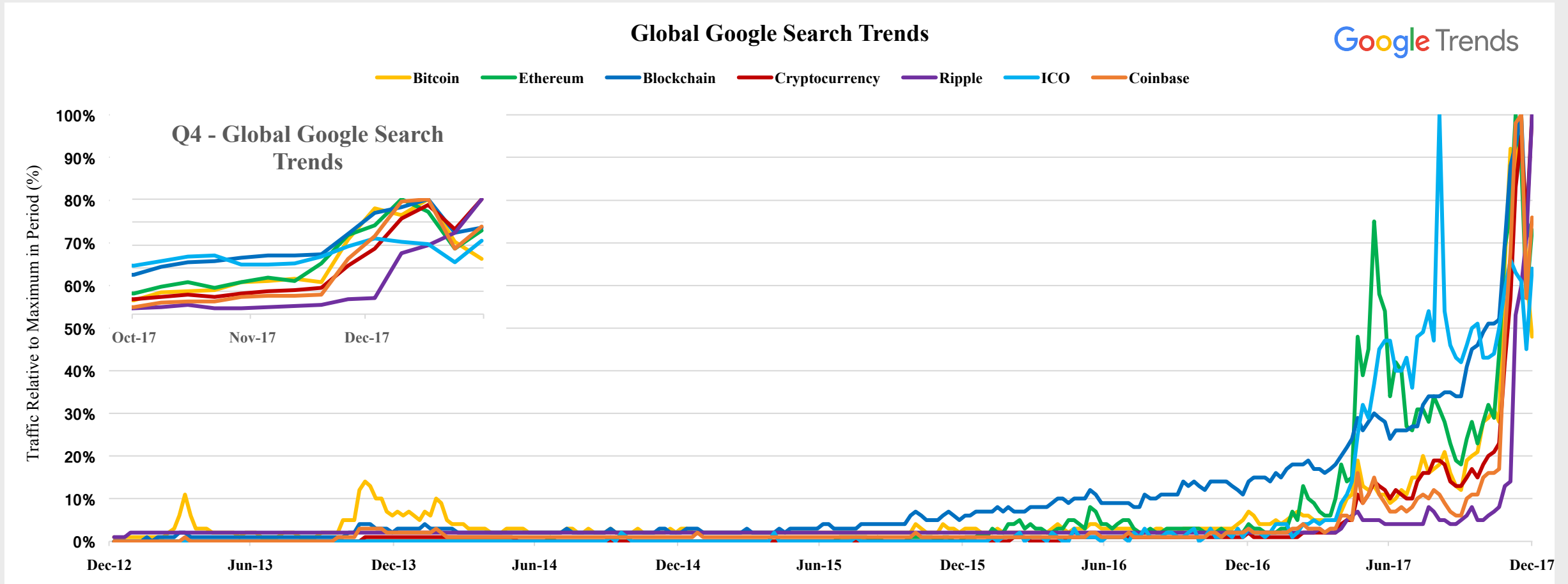


Data Source: [Bitinfocharts](#), [Coinmetrics](#)



# Many Blockchain Terms Hit an All-Time Google Search High

## Ethereum Searches Fell from a Peak in Q2 2017

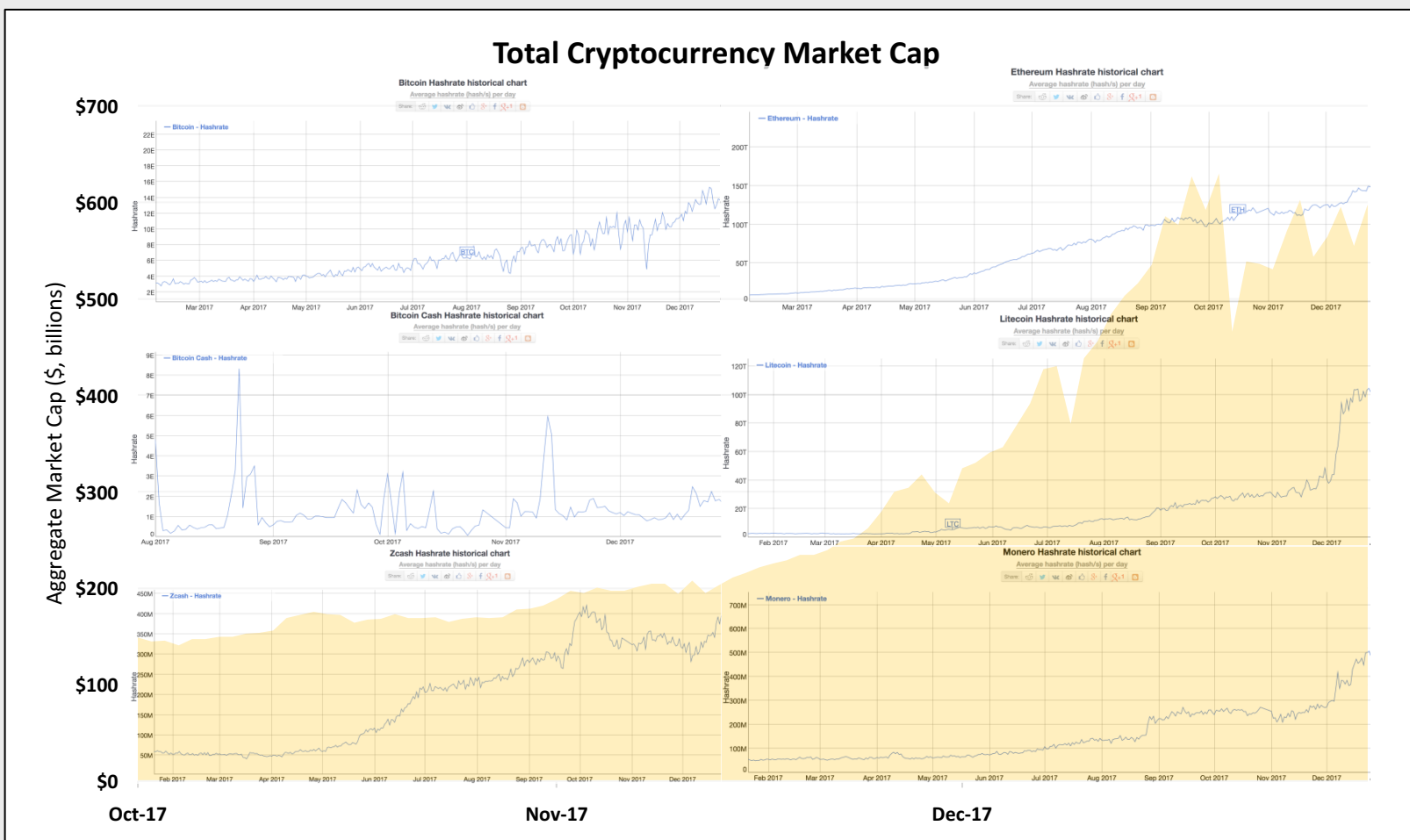


Data Source: [Google Trends](#)



# More Money, More Miners

## Increased Market Cap → Increased Hashrate Across Coins



Data Source:





# 2A

## BITCOIN



## Q4 2017 Bitcoin Summary

### **Bitcoin almost breaks \$20,000:**

- This quarter saw multiple all time highs that ranged from \$5k to \$19k.

### **Transaction fees soared:**

- Average transaction fees rose about 300% from Q3.

### **Fork postponed:**

- The 2 MB block size increase was called off due to lack of support.

### **Global trading volume continued growth:**

- JPY, USD solidify large shares.

### **Transactions rebound:**

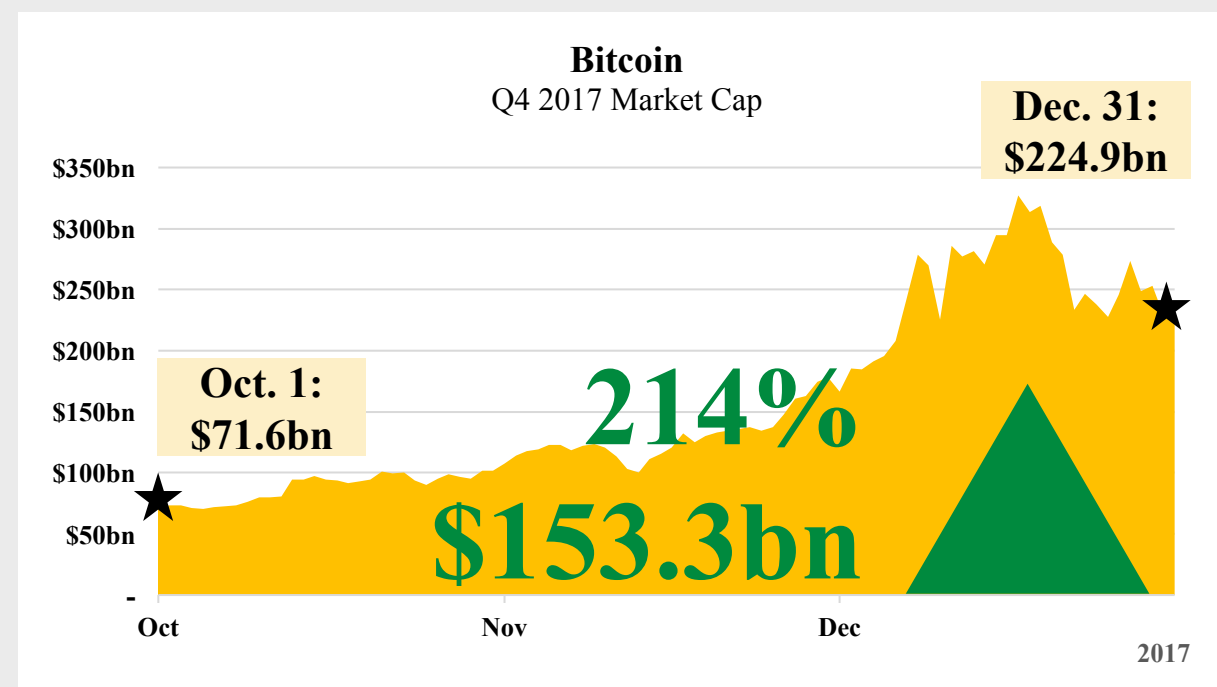
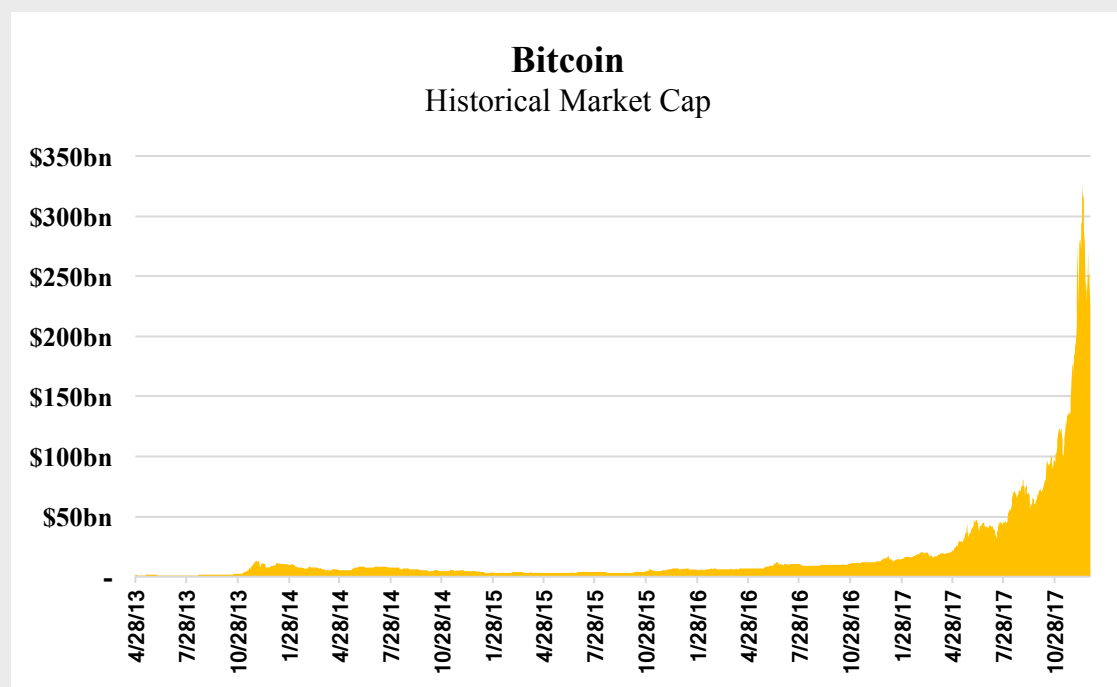
- The number of transactions rebounded about 30% from Q3 dip.

### **Hashrate up 60% to new all time high:**

- Network security continued to grow but BCH had more at one day in November.



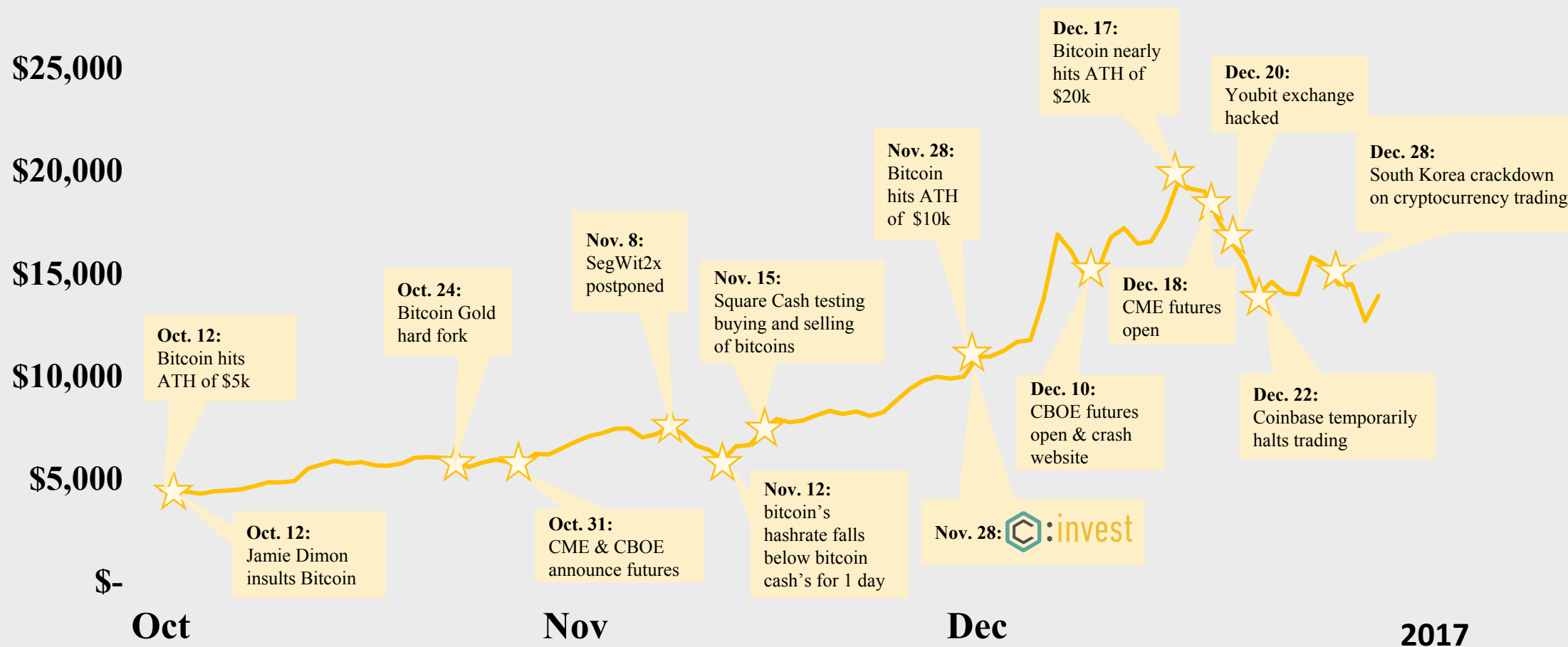
# Bitcoin Ended Ambitious Quarter Up 214% Set a New All-Time High Above \$300bn



Data Source: [Coincap](#), [Coinmetrics](#)



# Bitcoin Price & Key Market Events

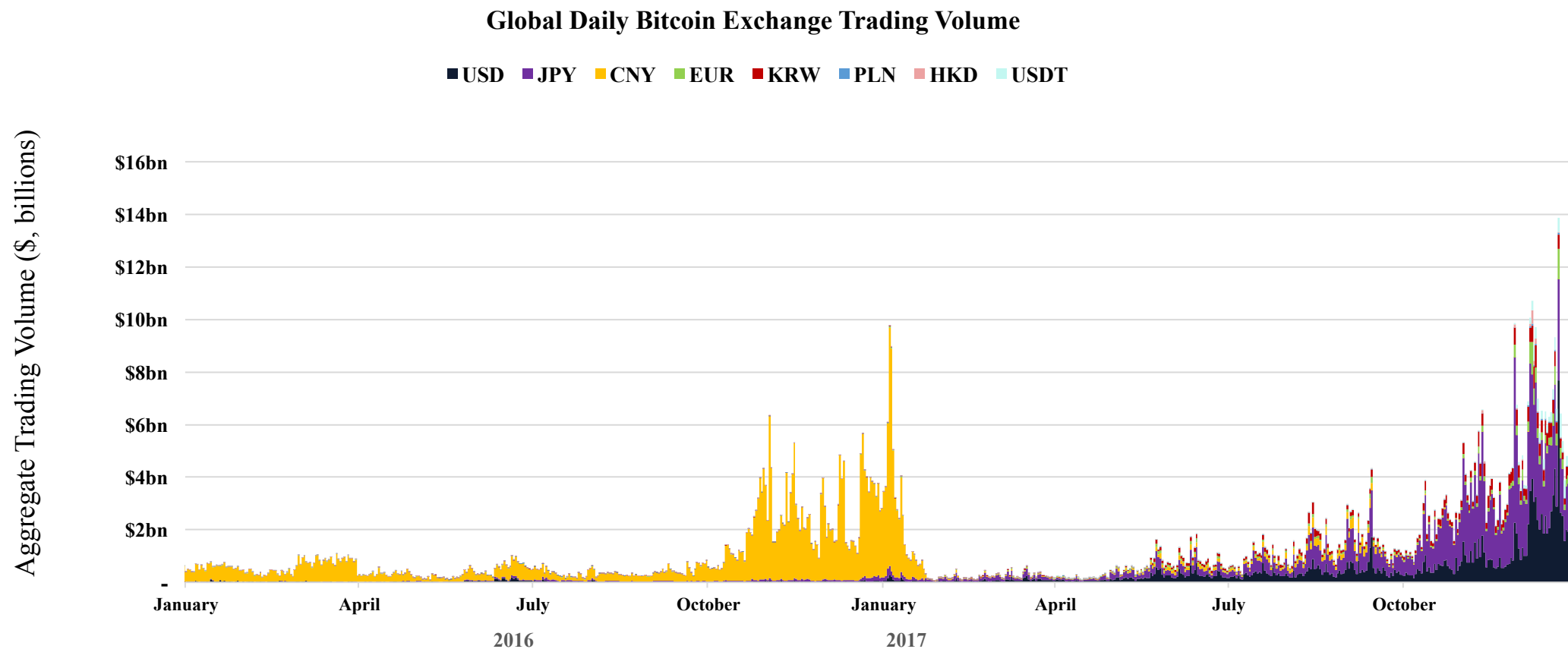


Data Sources: [CoinDesk](#), [bitcoin price page](#)



# Global Trading Volumes Take Off

## USD & JPY Solidify Large Shares

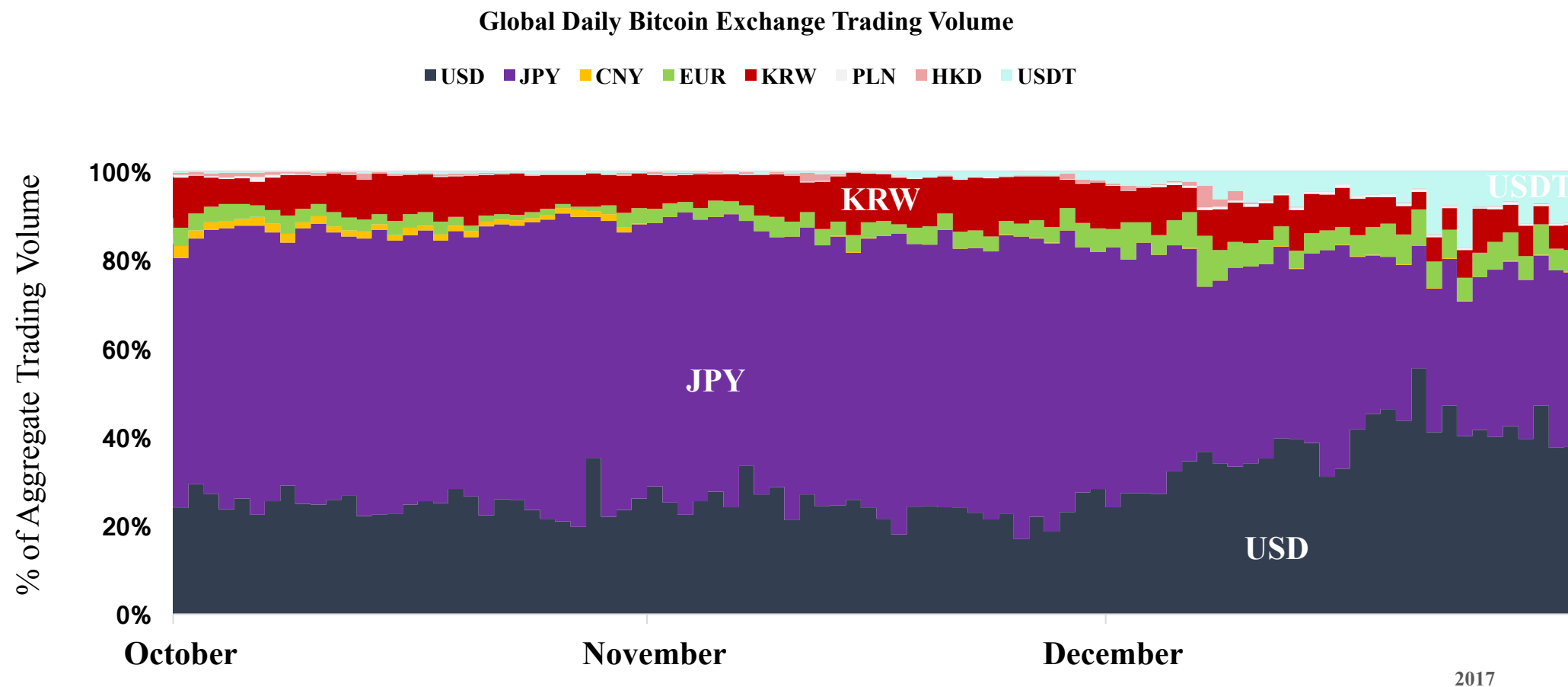


Data Source: [CryptoCompare](#)





# Q4 2017 - Global Daily Bitcoin Exchange Trading Volume

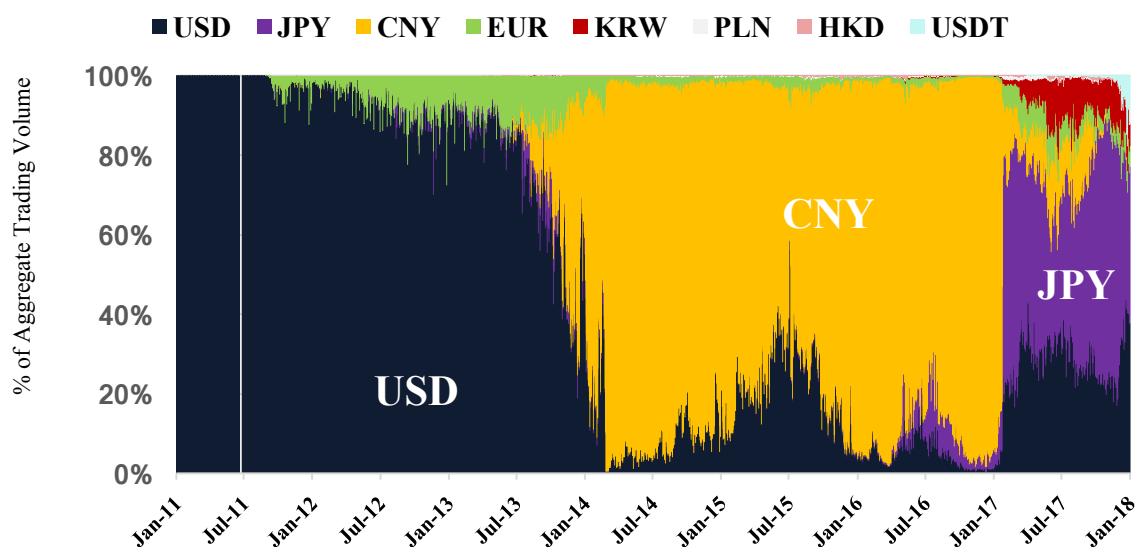


Data Source: [CryptoCompare](#)

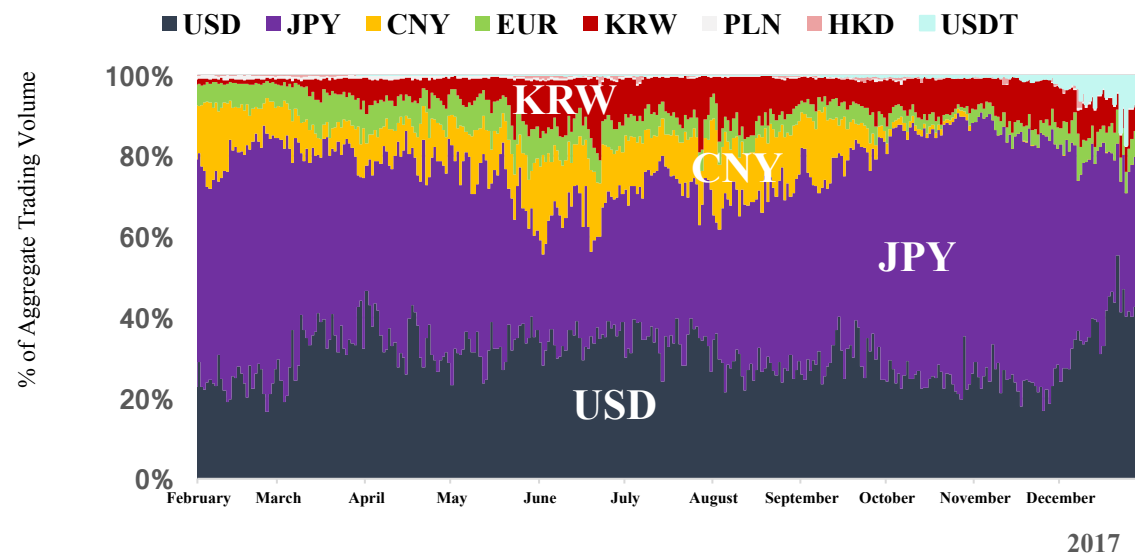


# Global Trading Volume Dominated by USD and JPY

Global Daily Bitcoin Exchange Trading Volume



Global Daily Bitcoin Exchange Trading Volume



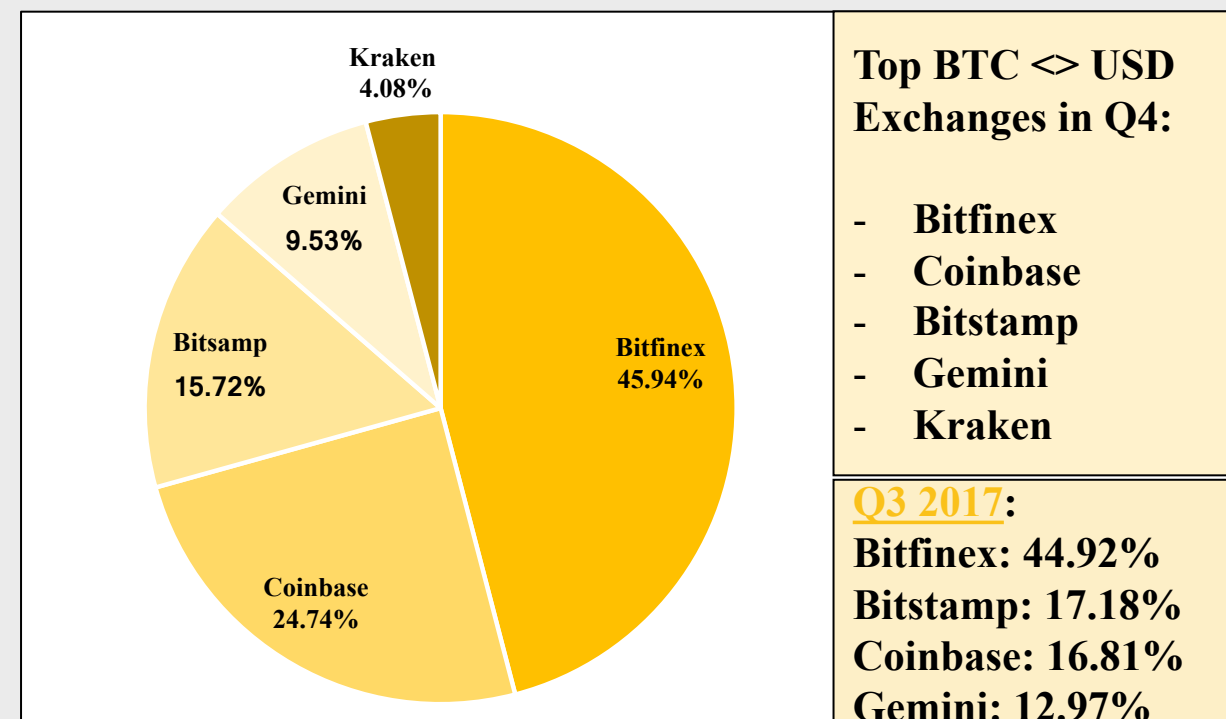
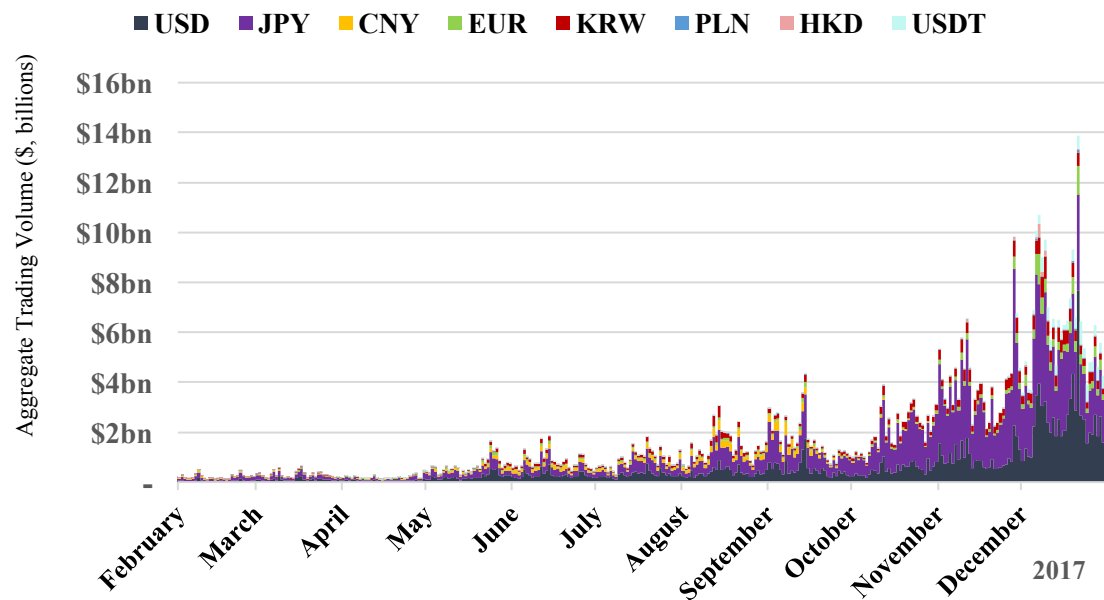
Data Source: [CryptoCompare](#)



# Exchange Trading Volume Increased

## Bitfinex, With Margin Trading, is the Largest USD Exchange

Global Daily Bitcoin Exchange Trading Volume

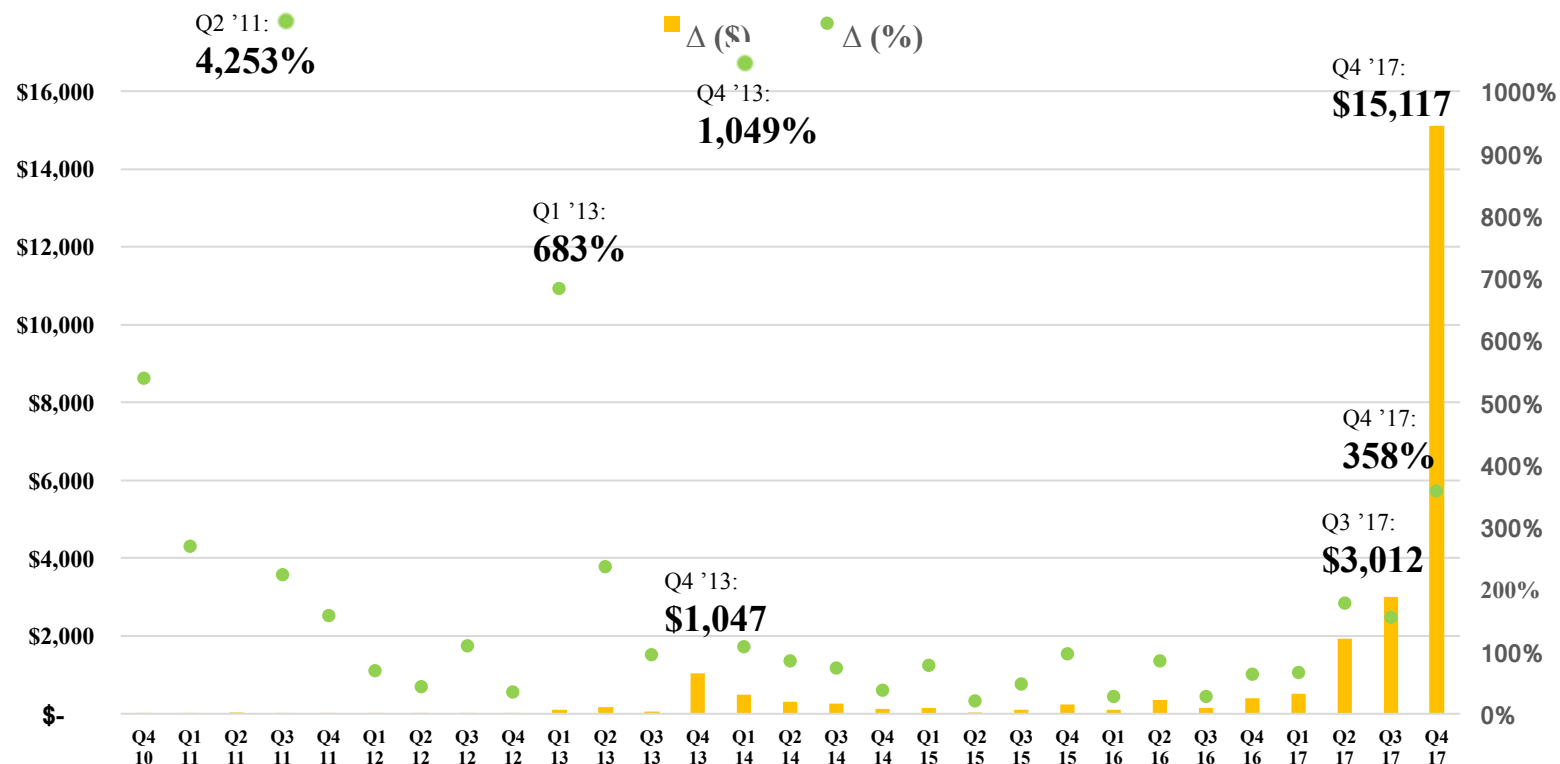




# Bitcoin Price Varied From \$2,000 to \$5,000

## Second Straight Largest Quarterly \$ Variation

### Quarterly Price Range



Quarter	High	Low	Δ (\$)	Δ (%)
Q4 10	\$0.39	\$0.06	\$0.33	538.3%
Q1 11	\$1.09	\$0.30	\$0.80	269.5%
Q2 11	\$29.60	\$0.68	\$28.92	4252.9%
Q3 11	\$15.44	\$4.77	\$10.67	223.7%
Q4 11	\$5.27	\$2.05	\$3.22	157.0%
Q1 12	\$7.11	\$4.22	\$2.89	68.5%
Q2 12	\$6.69	\$4.69	\$2.00	42.7%
Q3 12	\$13.50	\$6.45	\$7.05	109.3%
Q4 12	\$13.70	\$10.17	\$3.53	34.7%
Q1 13	\$104.00	\$13.28	\$90.72	683.1%
Q2 13	\$230.00	\$68.36	\$161.64	236.5%
Q3 13	\$129.46	\$66.34	\$63.12	95.1%
Q4 13	\$1,147.25	\$99.81	\$1,047.43	1049.4%
Q1 14	\$951.39	\$458.50	\$492.89	107.5%
Q2 14	\$665.73	\$360.84	\$304.89	84.5%
Q3 14	\$647.34	\$374.73	\$272.61	72.7%
Q4 14	\$427.24	\$309.87	\$117.37	37.9%
Q1 15	\$314.59	\$177.28	\$137.31	77.5%
Q2 15	\$262.48	\$218.27	\$44.21	20.3%
Q3 15	\$309.98	\$209.13	\$100.85	48.2%
Q4 15	\$465.50	\$237.40	\$228.10	96.1%
Q1 16	\$458.28	\$358.77	\$99.51	27.7%
Q2 16	\$768.24	\$417.01	\$351.23	84.2%
Q3 16	\$703.69	\$552.82	\$150.87	27.3%
Q4 16	\$997.69	\$609.38	\$388.31	63.7%
Q1 17	\$1,290.79	\$775.98	\$514.80	66.3%
Q2 17	\$3,018.55	\$1,089.51	\$1,929.03	177.1%
Q3 17	\$4,950.72	\$1,938.94	\$3,011.78	155.3%
Q4 17	\$19,343.04	\$4,225.92	\$15,117.12	357.7%

Data Source: [CoinDesk bitcoin price page](#)

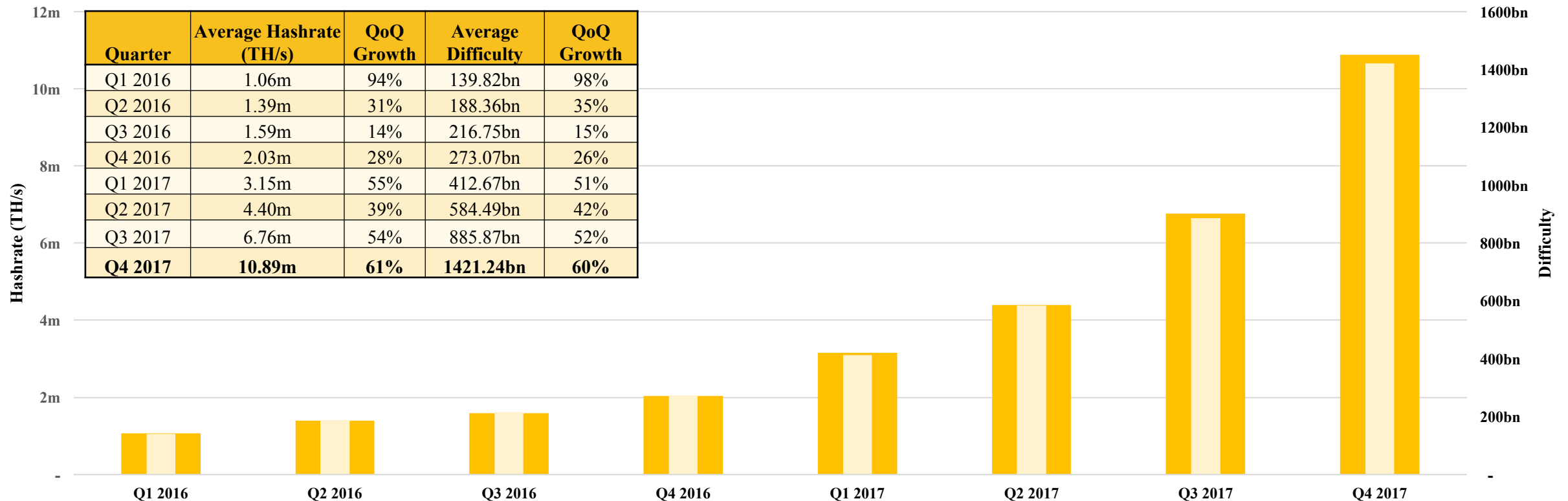


# Hashrate

## Hashrate and Mining Difficulty Up 50% to Another All-Time High

### Bitcoin Network Security

■ Average Hashrate (TH/s) ■ Average Difficulty



Data Source: [Blockchain](#)

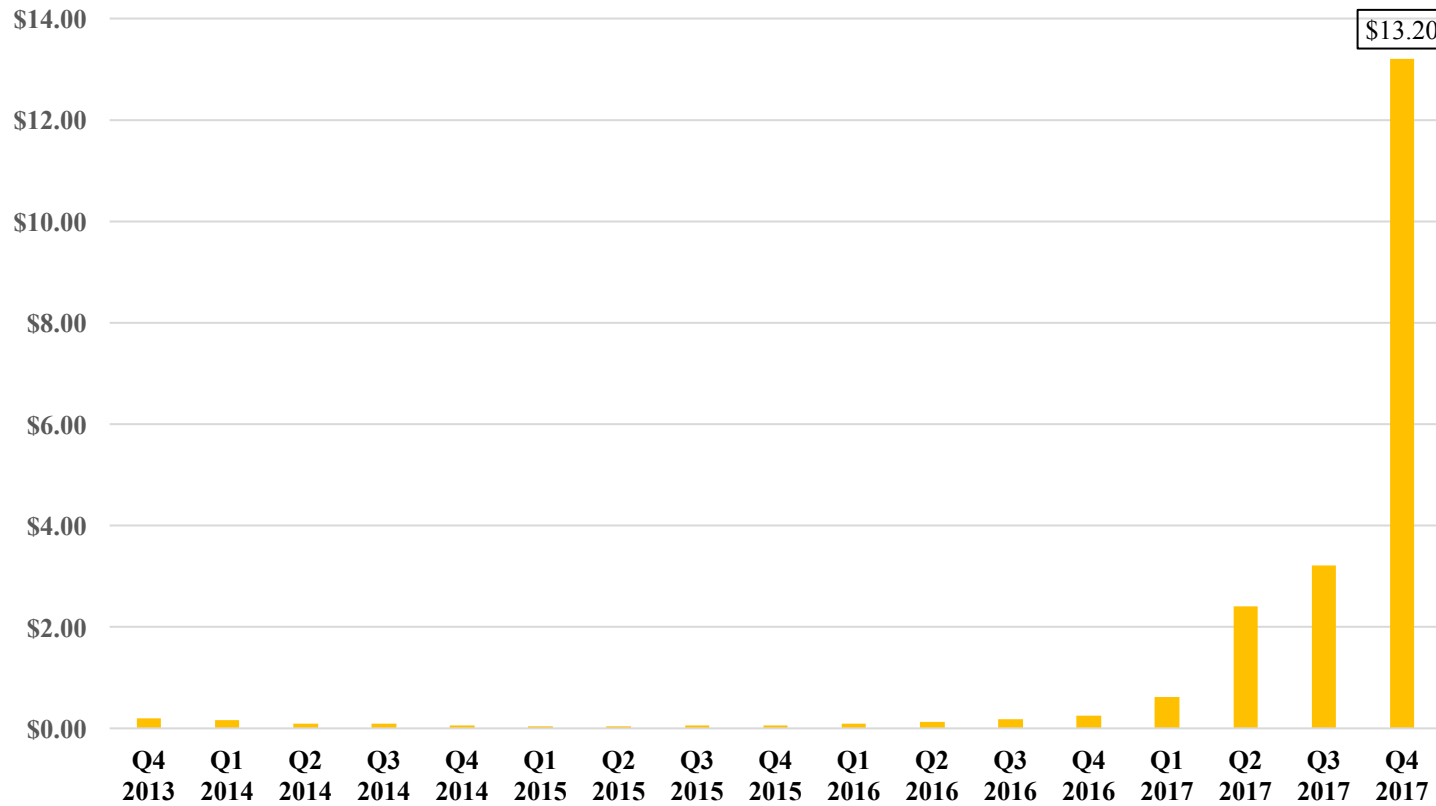
Notes: Daily data. 'TH/s' is the estimated number of tera hashes (trillions of hashes) per second, 'difficulty' is a relative measure of how difficult it is to find a new block, which is adjusted periodically as a function of how much hashing power has been deployed.



## The Transaction Fee Surge Slowed

### Fees Rose 33% After Nearly Tripling in Q2

**Bitcoin Transaction Fee Growth**  
(Average \$ per transaction)



Quarter	Average Daily Bitcoin Transaction Fees	QoQ Change
Q4 2013	\$0.19	125.8%
Q1 2014	\$0.15	-19.6%
Q2 2014	\$0.10	-35.3%
Q3 2014	\$0.09	-4.9%
Q4 2014	\$0.06	-40.8%
Q1 2015	\$0.04	-32.8%
Q2 2015	\$0.04	2.9%
Q3 2015	\$0.06	42.8%
Q4 2015	\$0.06	12.4%
Q1 2016	\$0.08	36.4%
Q2 2016	\$0.13	51.9%
Q3 2016	\$0.18	36.5%
Q4 2016	\$0.24	37.9%
Q1 2017	\$0.62	156.4%
Q2 2017	\$2.41	288.5%
Q3 2017	\$3.21	32.9%
Q4 2017	\$13.20	311.7%

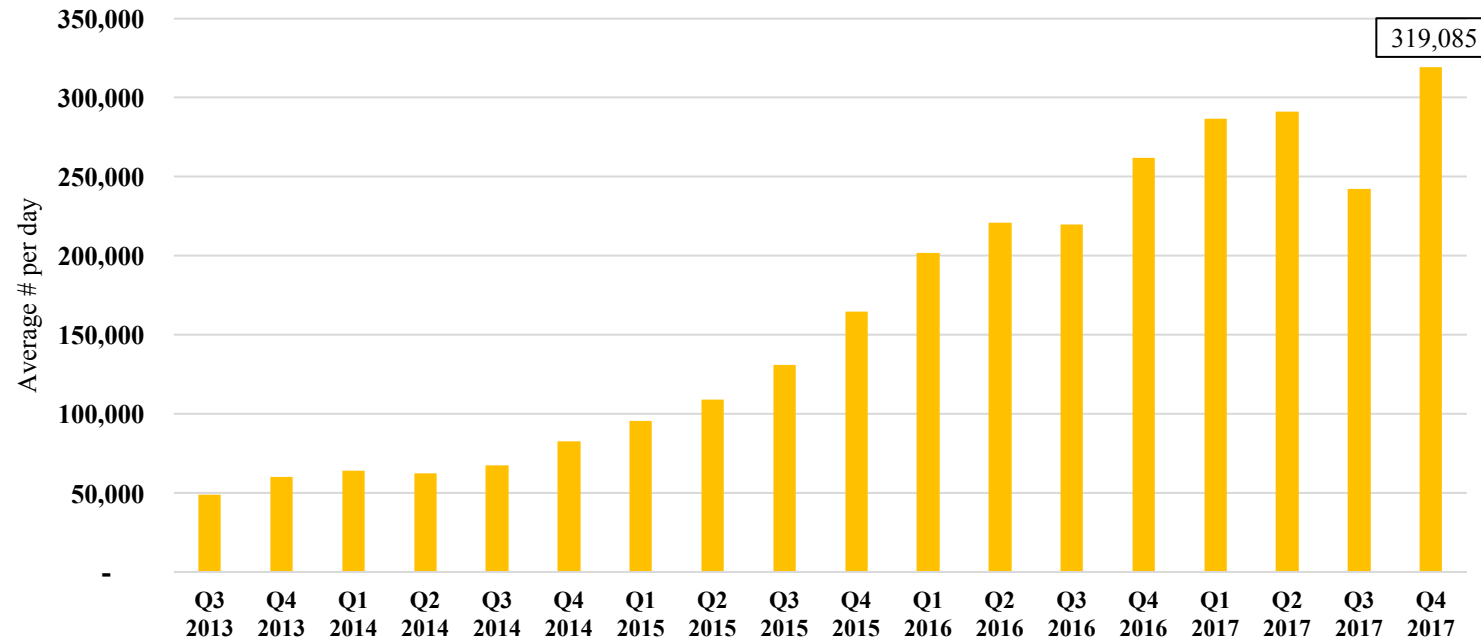
Data Source: [Blockchain](#)



# Transactions

## Transaction Volumes Rebound, Up 32%

Bitcoin Transactions



Data Source: [Blockchain](#)

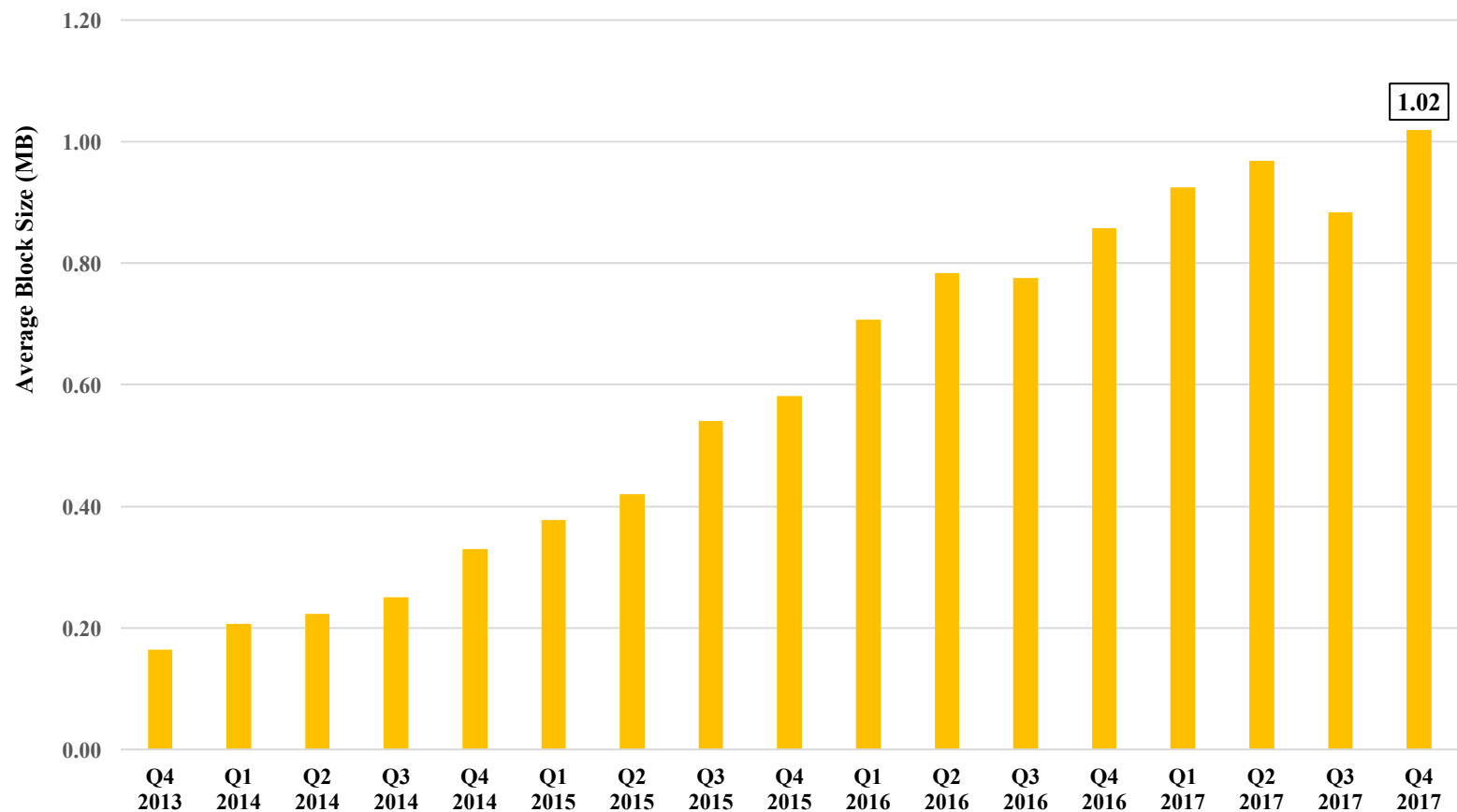
Quarter	Average Daily Bitcoin Transactions	QoQ Change
Q4 2013	60,280	22.9%
Q1 2014	63,991	6.2%
Q2 2014	62,639	-2.1%
Q3 2014	67,260	7.4%
Q4 2014	82,724	23.0%
Q1 2015	95,344	15.3%
Q2 2015	108,910	14.2%
Q3 2015	130,834	20.1%
Q4 2015	164,488	25.7%
Q1 2016	201,595	22.6%
Q2 2016	221,018	9.6%
Q3 2016	219,624	-0.6%
Q4 2016	261,710	19.2%
Q1 2017	287,098	9.7%
Q2 2017	291,091	1.4%
Q3 2017	242,334	-16.7%
Q4 2017	319,085	31.7%



# Blocks

## Average Block Size Above 1 MB

Bitcoin Block Size



Quarter	Average Daily Bitcoin Block Sizes (MB)	QoQ Change
Q4 2013	0.16	32.9%
Q1 2014	0.21	25.3%
Q2 2014	0.22	7.8%
Q3 2014	0.25	12.5%
Q4 2014	0.33	31.6%
Q1 2015	0.38	14.4%
Q2 2015	0.42	11.5%
Q3 2015	0.54	28.4%
Q4 2015	0.58	7.7%
Q1 2016	0.71	21.6%
Q2 2016	0.78	10.8%
Q3 2016	0.78	-0.9%
Q4 2016	0.86	10.6%
Q1 2017	0.93	7.8%
Q2 2017	0.97	4.6%
Q3 2017	0.88	-8.7%
Q4 2017	1.02	15.4%

Data Source: [Blockchain](#)





2B

ETHEREUM



## Q4 2017 Ethereum Summary

### **Hit all time high of almost \$1k:**

- Ethereum skyrocketed, along with other cryptos, especially in December.

### **Network Hashrate continues rise:**

- Hashrate grew by about 40% continuing the growth trend.

### **Successful Byzantium hard fork:**

- Ethereum successfully completed the Byzantium hard fork, verified zk-snark proof among other developments.

### **Transaction Volume bursts in Q4:**

- Ethereum transaction volumes continue to outpace BTC by almost 200%.

### **Exchange Volumes Nearly Double:**

- Ethereum's USD exchange volume grew by almost 2x on average for Q4, but suffered some drop-off at the end of the year.

### **CryptoKitties win hearts and minds:**

- CryptoKitties application launched on ethereum saw huge interest but resulted in a platform wide slowdown.



# Ethereum Increased 141% Over Q4 Reached All-Time High of \$68.9bn in Market Cap

**Ethereum**  
Historical Market Cap



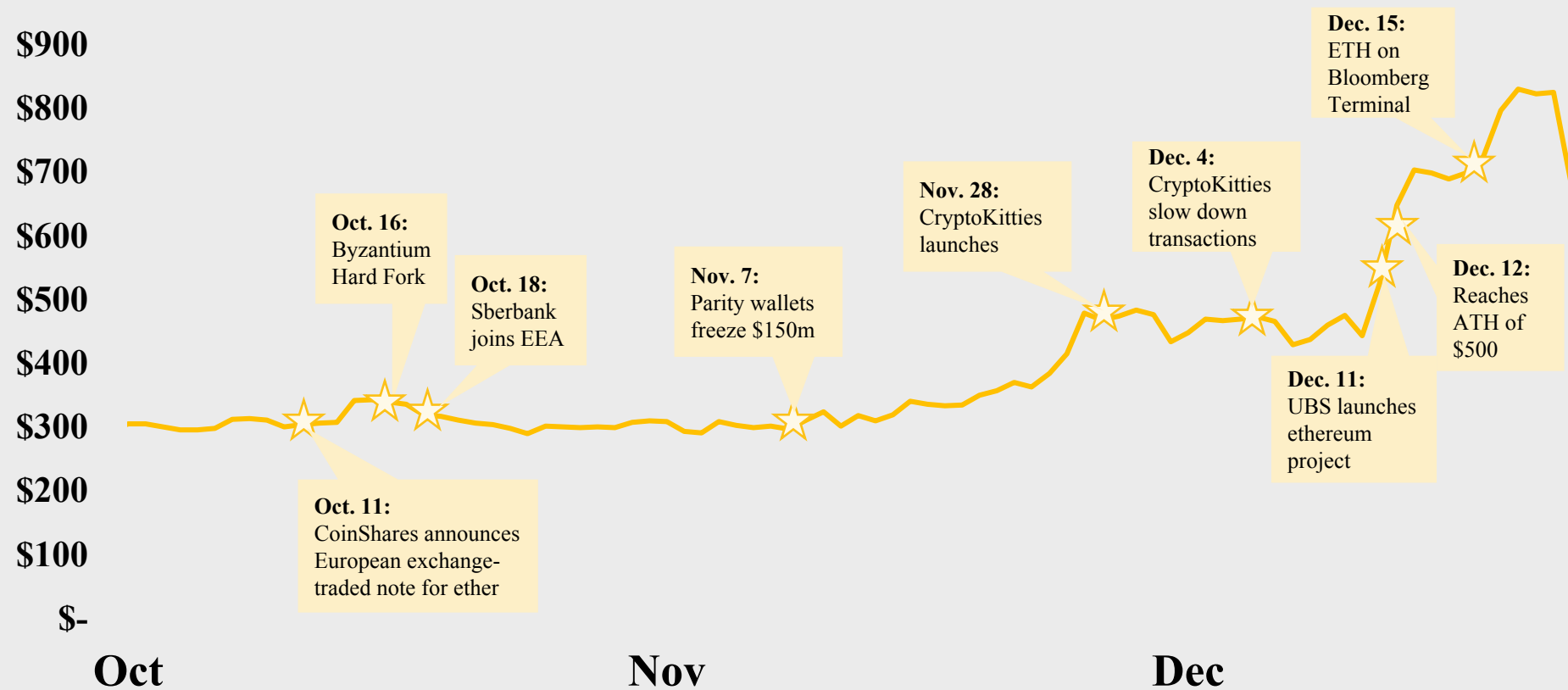
**Ethereum**  
Q4 2017 Market Cap



Data Source: [Coincap](#), [Coinmetrics](#)



# Ethereum Price & Key Market Events

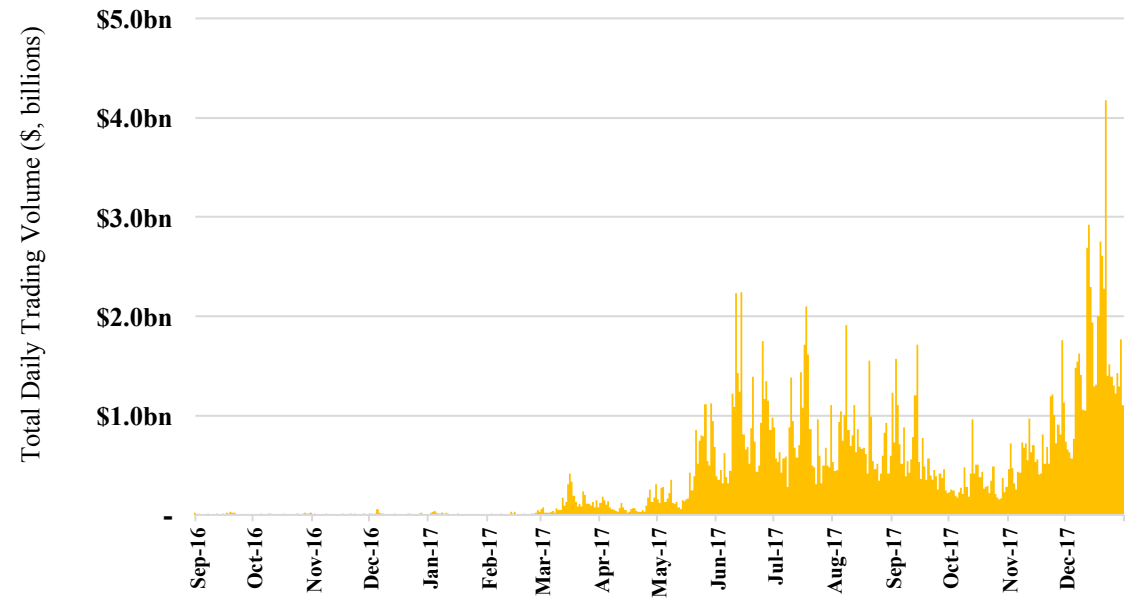


Data Sources: [CoinDesk](#), [CoinDesk ether price page](#)

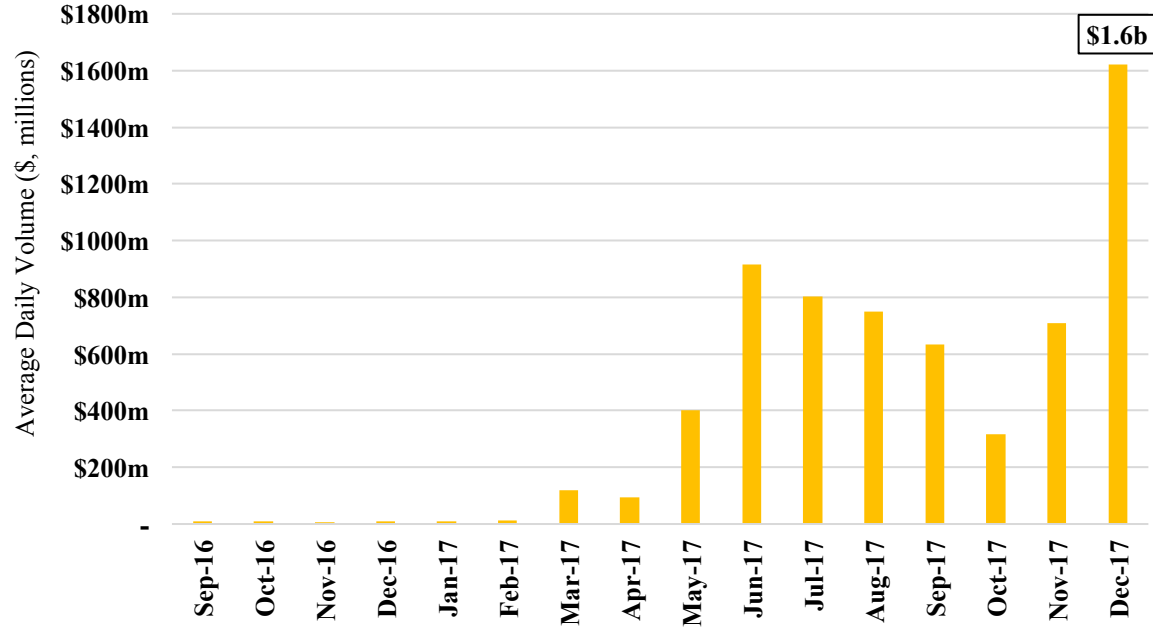


# Ether Exchange Trading Volume Nearly Doubled

Global Daily Ether Exchange Trading Volume



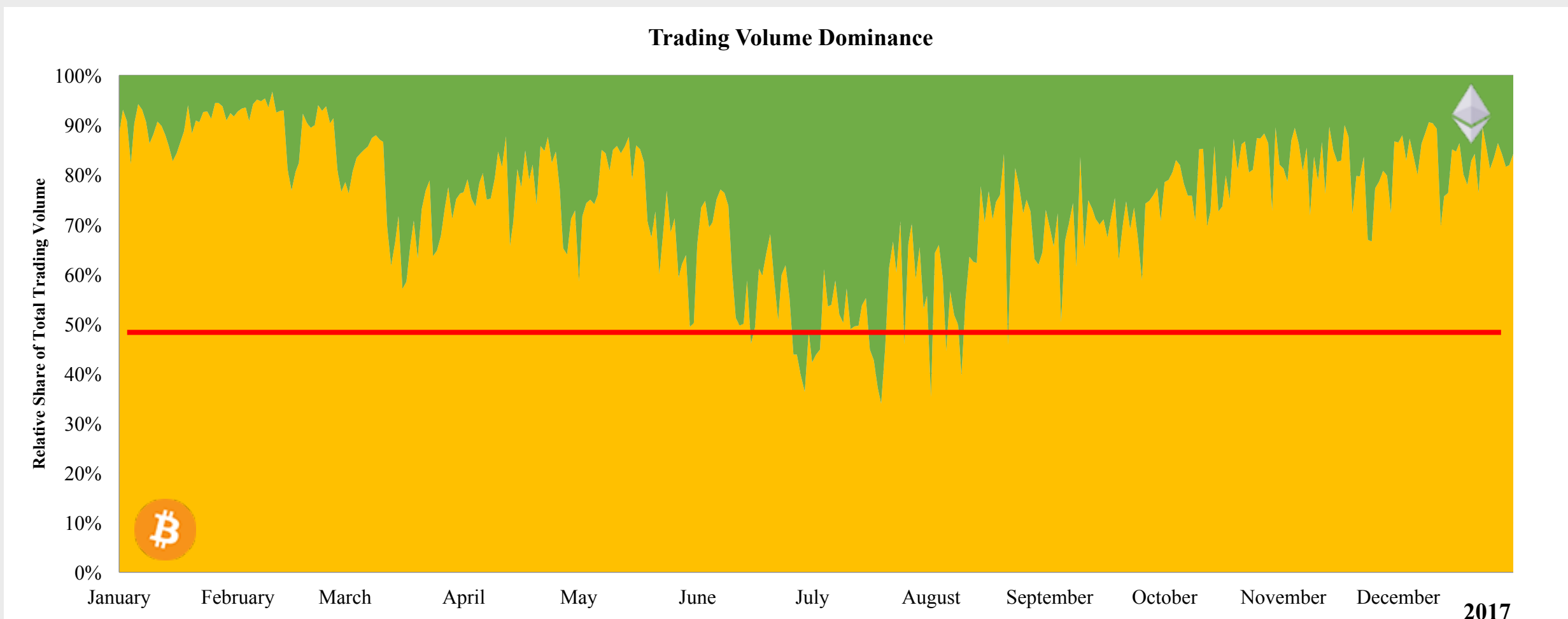
Average Daily Ether Exchange Trading Volume



Data Sources: [Cryptocompare](#), [CoinDesk ether price page](#)  
Notes: \$ value at the time across all listed currencies and exchanges



# Ether Exchange Trading \$ Volume Fell to Earlier Levels After Surpassing Bitcoin



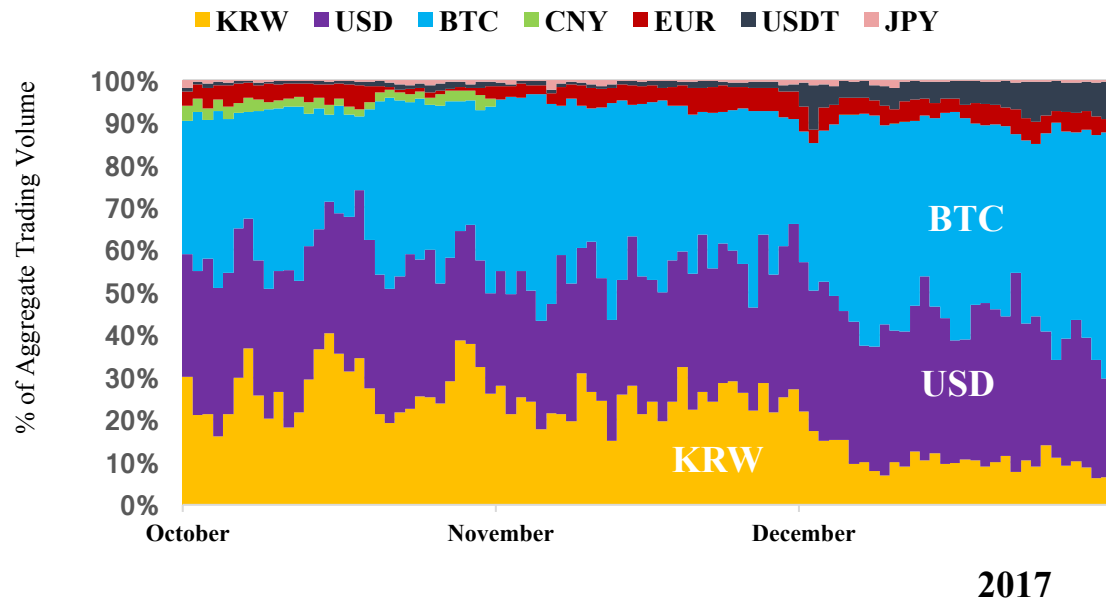
Data Source: [Coincap](#), [Coinmetrics](#)



# ETH Most Heavily Traded with BTC

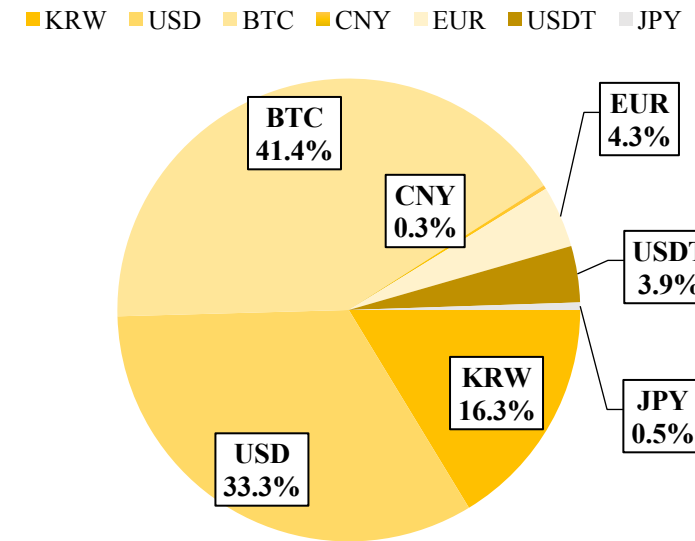
## BTC Gained Market Share to USD and KRW

Global Daily Ether Exchange Trading Volume



Q4 2017 Ether Exchange Trading Volume

Share of Volume Across Currencies



**Q2 2017:**

**BTC: 31.6%**

**USD: 25.5%**

**KRW: 29.5%**

**Q3 2017:**

**BTC: 19.6%**

**USD: 28.9%**

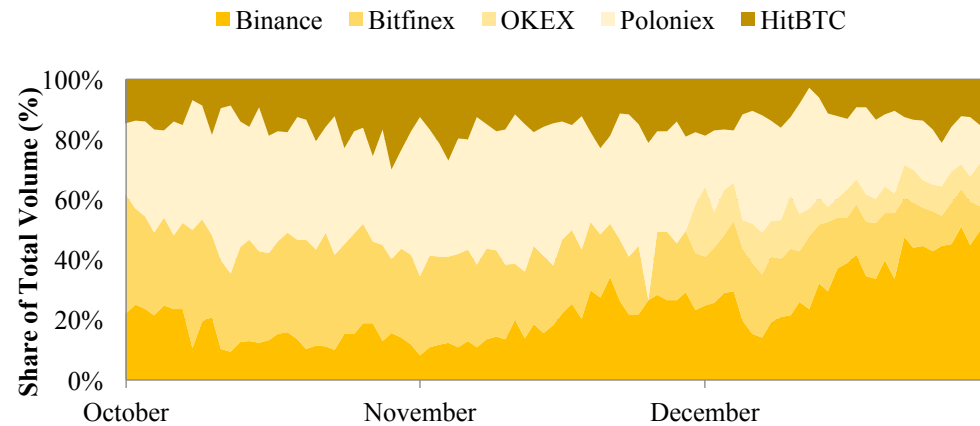
**KRW: 36.9%**



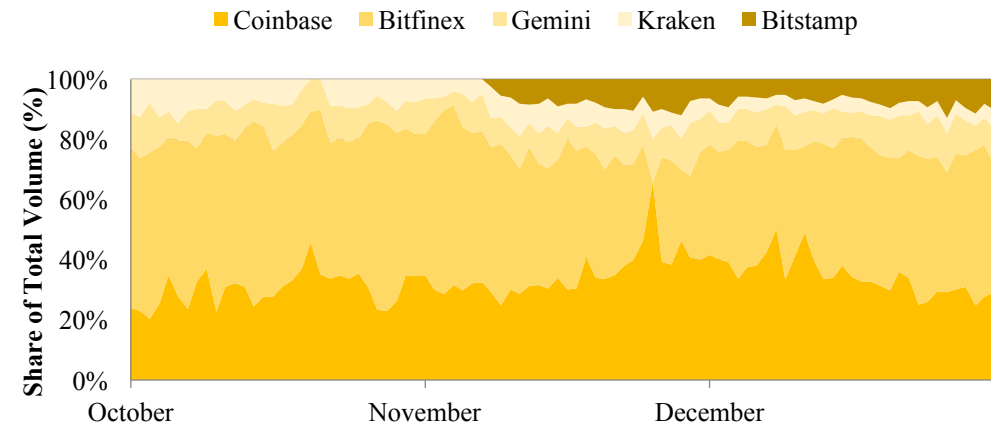
# Poloniex Led Volume in BTC Markets

## Bitfinex Displaced Coinbase in USD

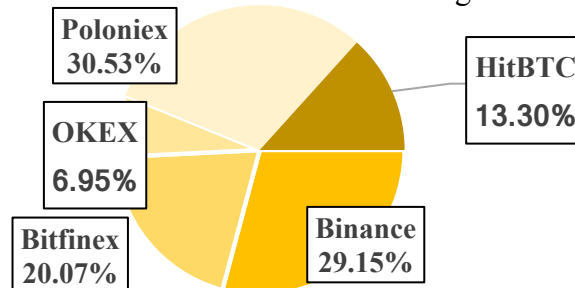
**Ether Exchange Trading Volume (BTC)**  
Share of Total Volume Across Exchanges



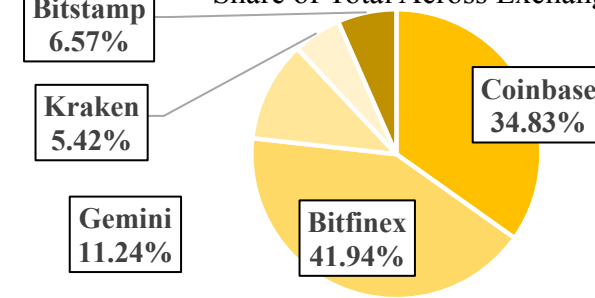
**Ether Exchange Trading Volume (USD)**  
Share of Total Volume Across Exchanges



**Ether Exchange Trading Volume (BTC)**  
Share of Total Across Exchanges



**Ether Exchange Trading Volume (USD)**  
Share of Total Across Exchanges



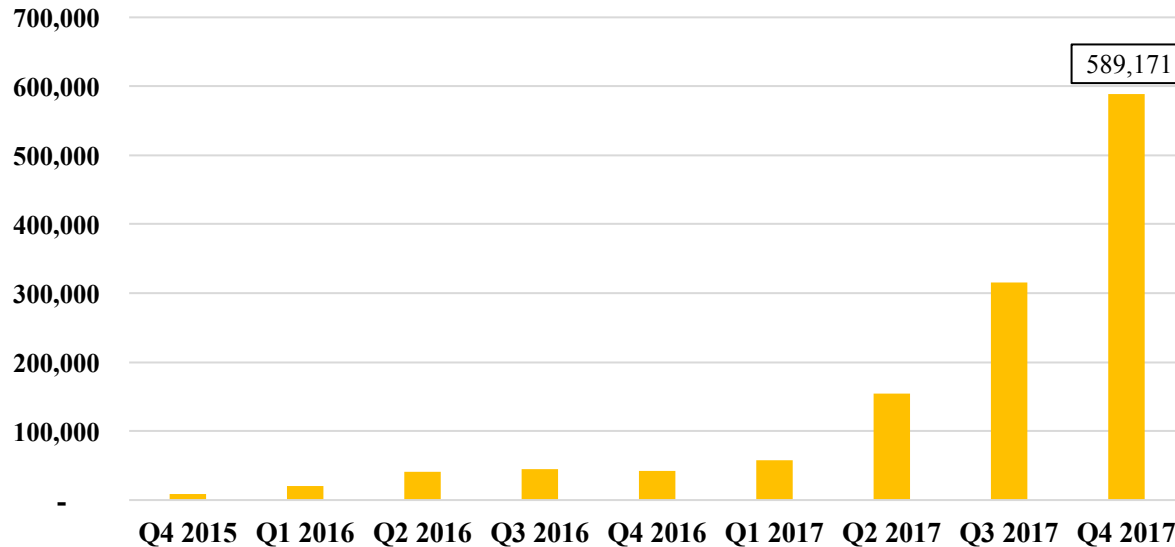




# Transactions

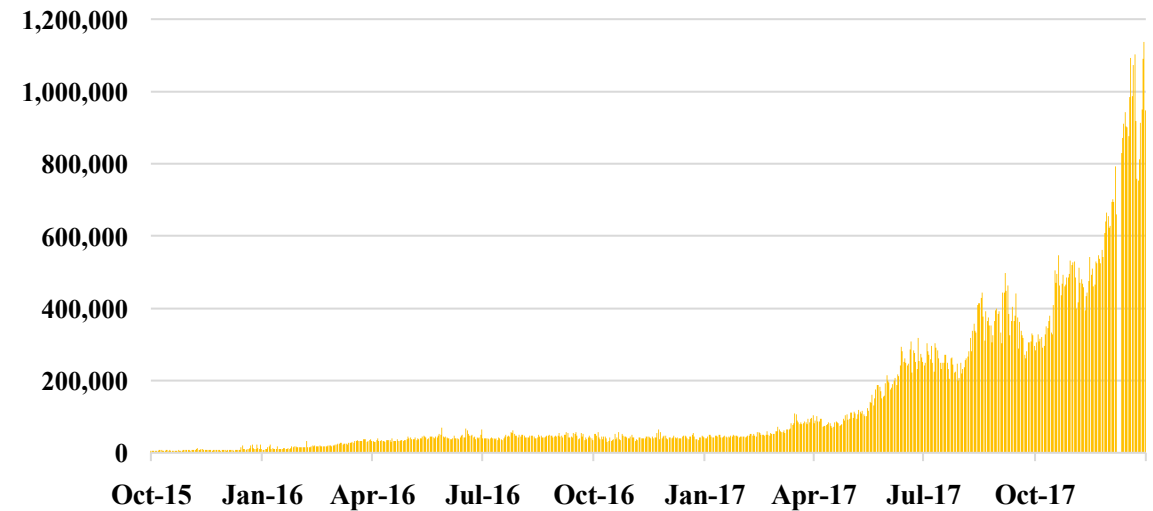
## ETH Transaction Numbers Rise Again Surpassed BTC in Quarterly Average

**Ethereum Transaction Growth**  
(Average # per day)



**Q4 2017:**  
**BTC: 319,085**

**Ethereum Transaction Growth**  
(Average # per day)

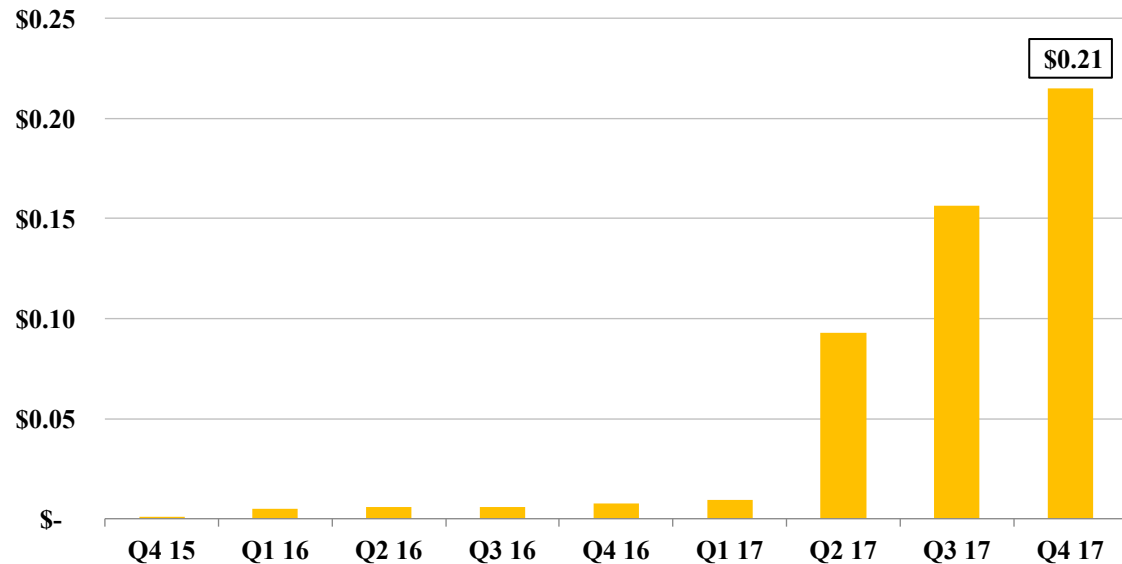




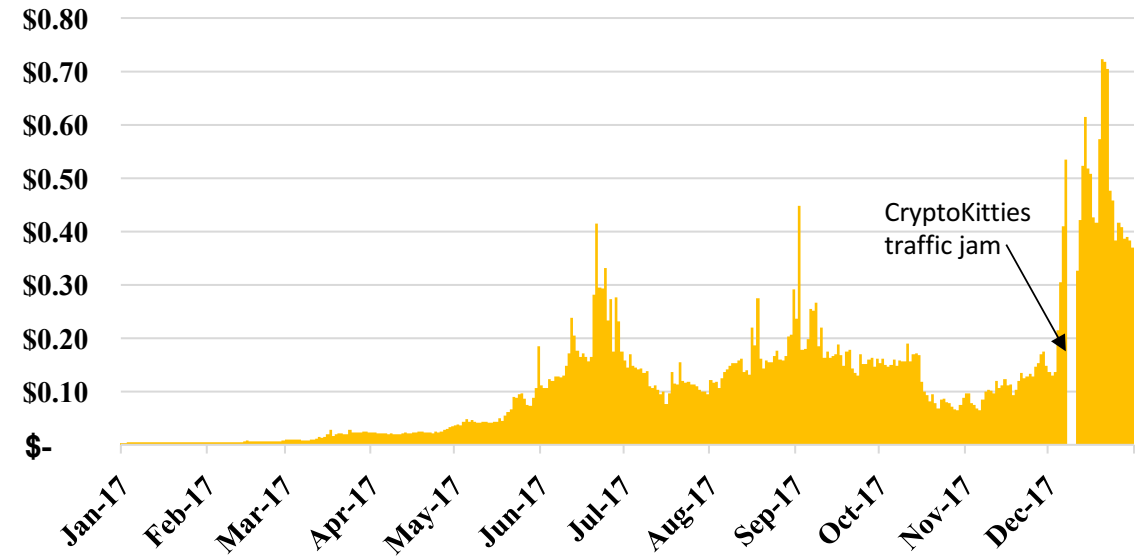
# Fees

## Transaction Fees Continued to Increase Rose from 16¢ in Q3 to 21¢ in Q4 2017

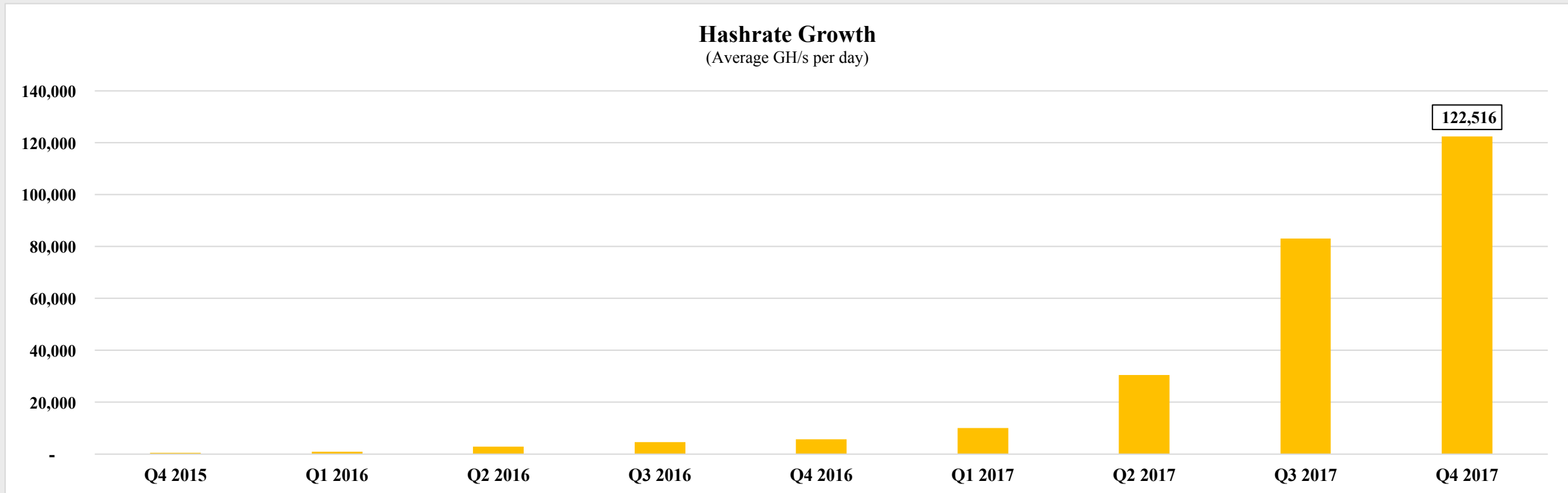
**Ethereum Transaction Fee Growth**  
(Average \$ per transaction)



**Ethereum Transaction Fee Growth**  
(Average \$ per transaction)



Upward demand on price as well as ICO demand caused a few spikes in transaction fees



Hashing power on the ethereum network  
grew 47.3% from Q3 to Q4 2017

Data Source: [Etherscan](#)

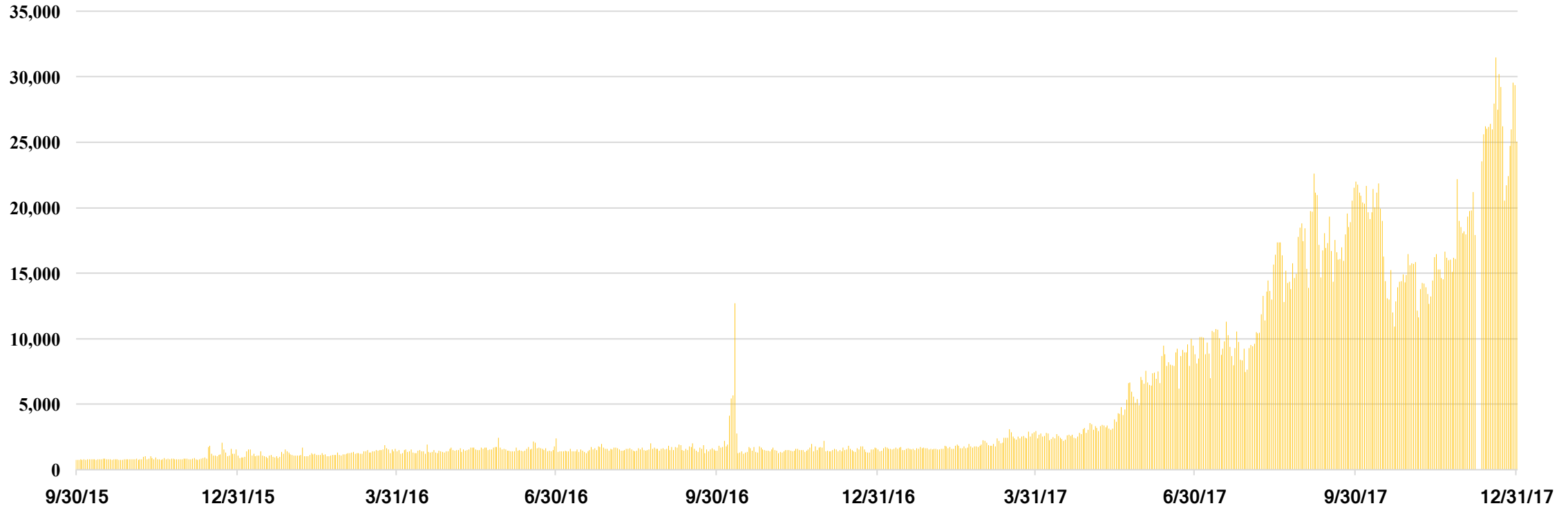
Notes: 'GH/s' is the estimated number of gigahashes (billions of hashes) per second



# Blocks

## Block Size Increased to New All-Time Highs As Transactions Increased

**Ethereum Block Size Growth**  
(Average bytes per block)

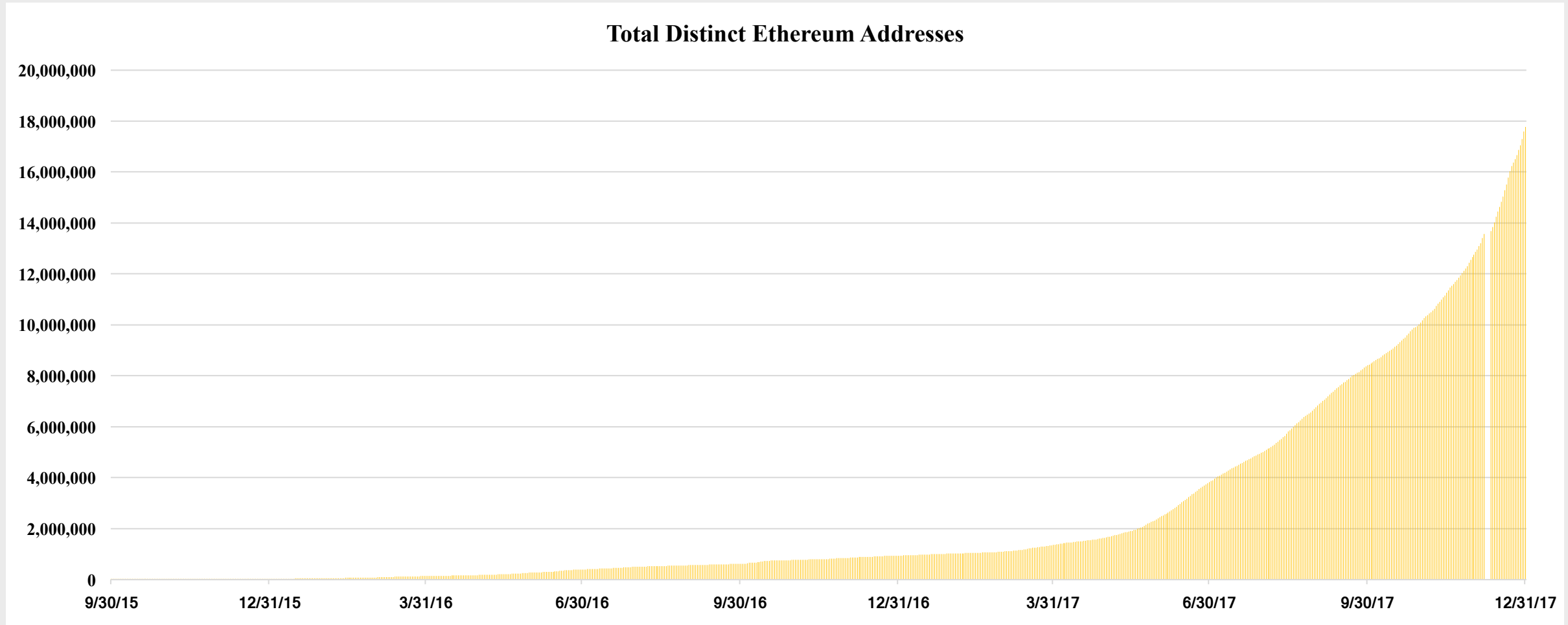


Data Source: [Etherscan](#)



# Addresses

**Over 8 Million Ethereum Blockchain  
Addresses, Doubled Quarter-Over-Quarter**



Data Source: [Etherscan](#)

Notes: Distinct addresses do not directly correlate to unique users, individuals frequently control the private keys to multiple addresses and exchanges frequently control the private keys to addresses that store multiple users' funds



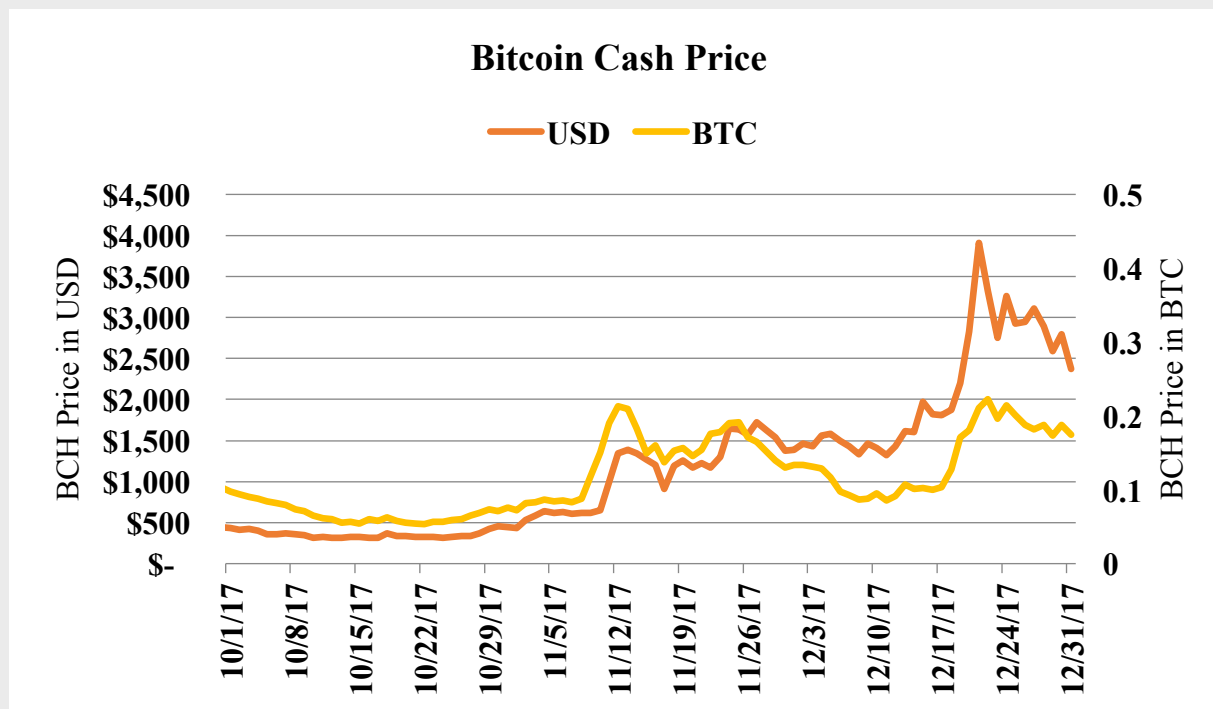
# 2C

## Bitcoin Cash



# Bitcoin Cash Forked Off of Bitcoin on August 1<sup>st</sup>

## Bitcoin Cash Difficulty Adjustment Led to Hash Power > Bitcoin for 2 Days

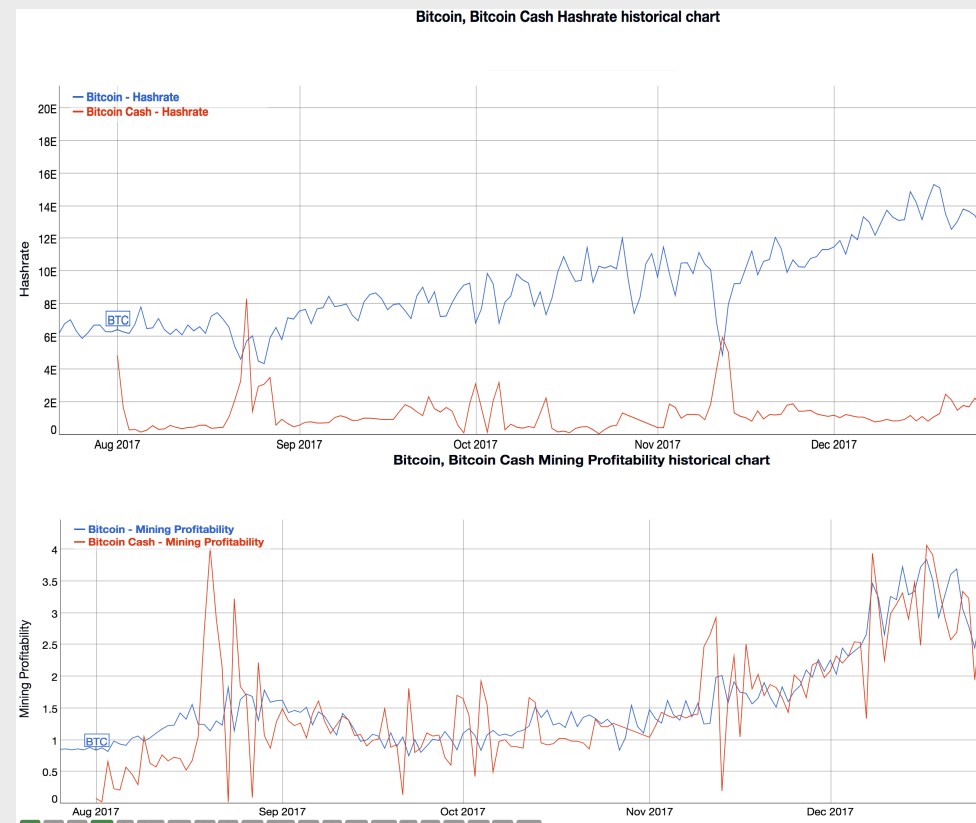


Herfindahl-Hirschman index (HHI)

Bitcoin: 2080

Bitcoin Cash: 2640

While the BCH hashrate started off near BTC, it generally stayed below except in November during Postponement of Segwit2x.





# Bitcoin Cash Increased 457% Over Q4 Reached All-Time High of \$65.9bn in Market Cap



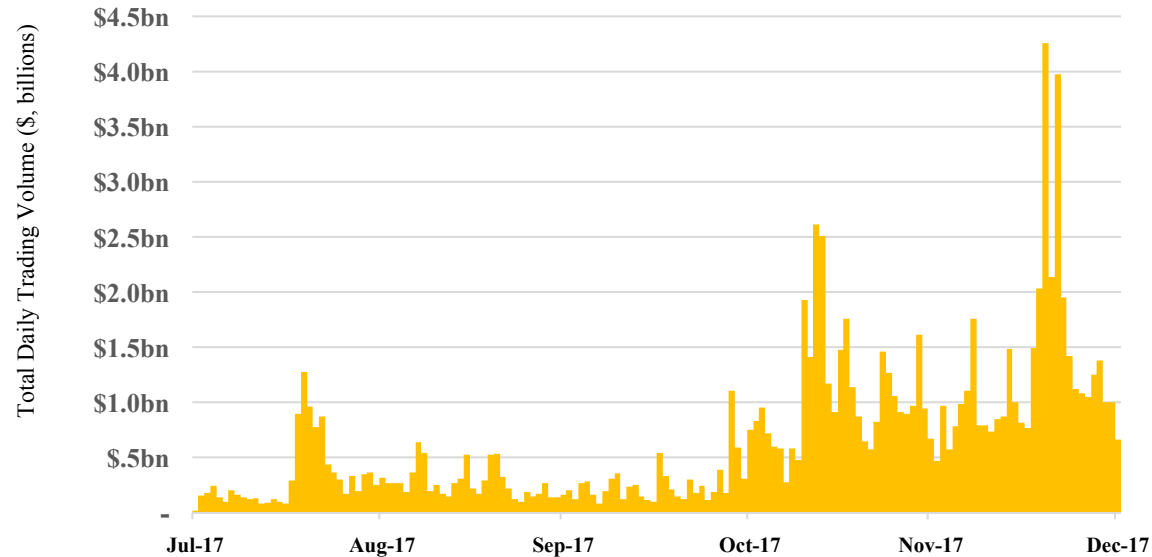
Data Source: [Coincap](#), [Coinmetrics](#)



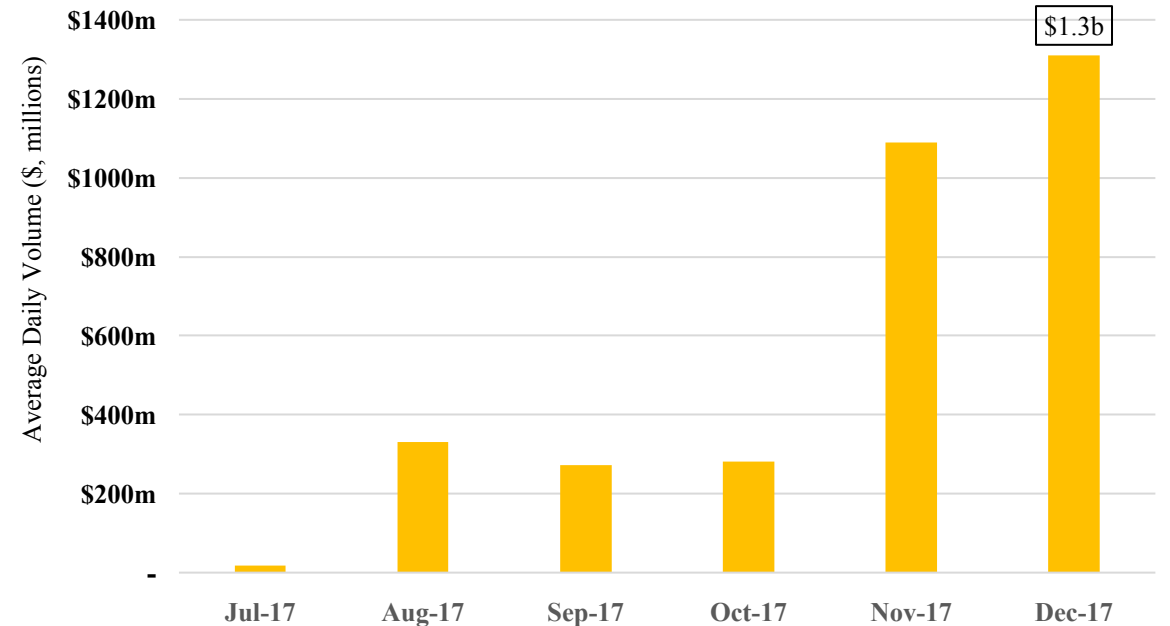


# Bitcoin Cash Exchange Trading Volume Increased Over Final Two Months of 2017

## Global Daily Bitcoin Cash Exchange Trading Volume



## Average Daily Bitcoin Cash Exchange Trading Volume



Data Sources: [Cryptocompare](#), [Coinmetrics](#)

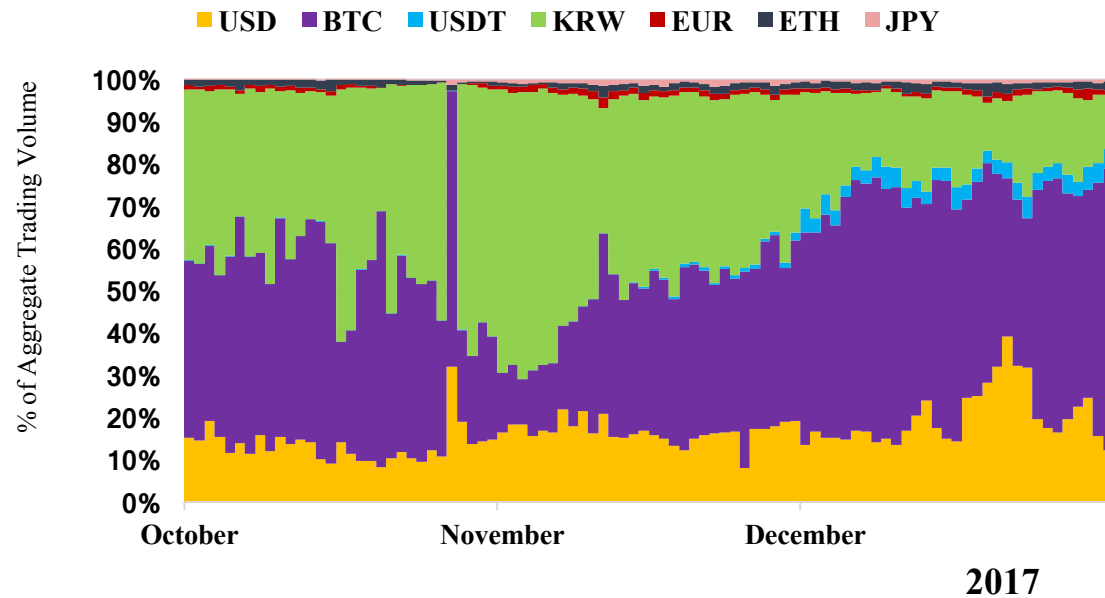
Notes: \$ value at the time across all listed currencies and exchanges



# BCH Most Heavily Traded with BTC

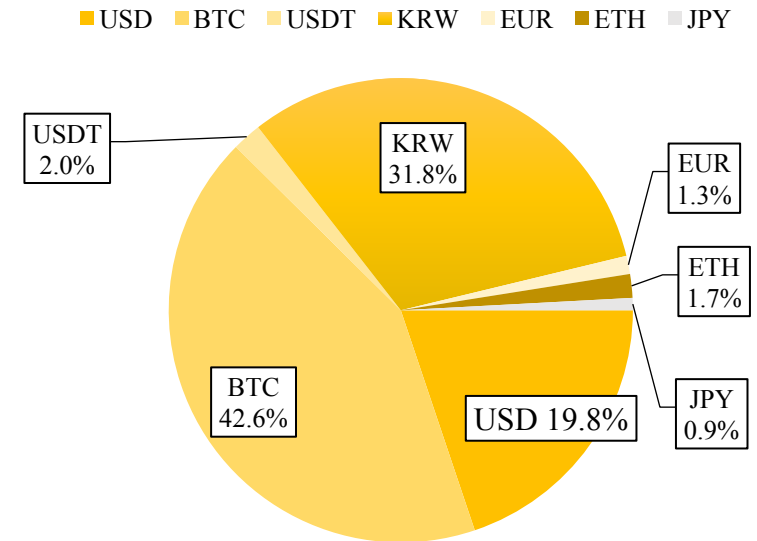
## BCH Gained Market Share from KRW

### Global Daily Ether Exchange Trading Volume



### Q4 2017 Bitcoin Cash Exchange Trading Volume

Share of Volume Across Currencies



**Q3 2017:**  
**KRW 44.3%**  
**BTC 36.4%**  
**USD 15.6%**

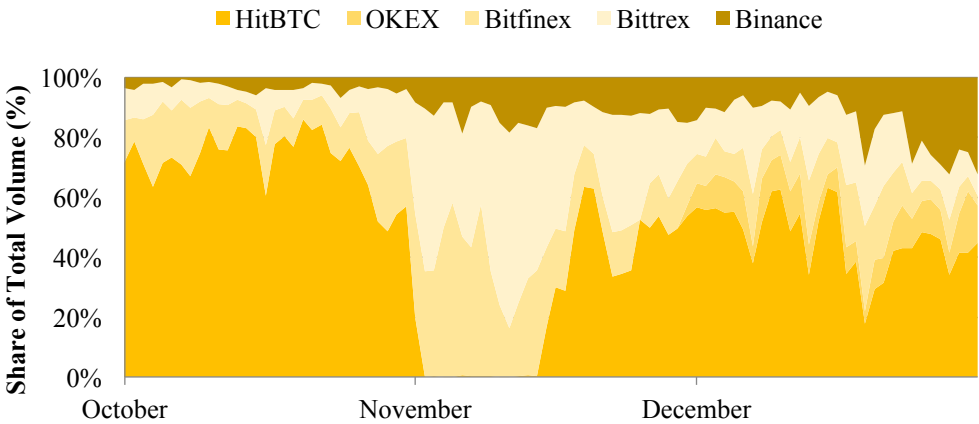
Data Source: [CryptoCompare](#)



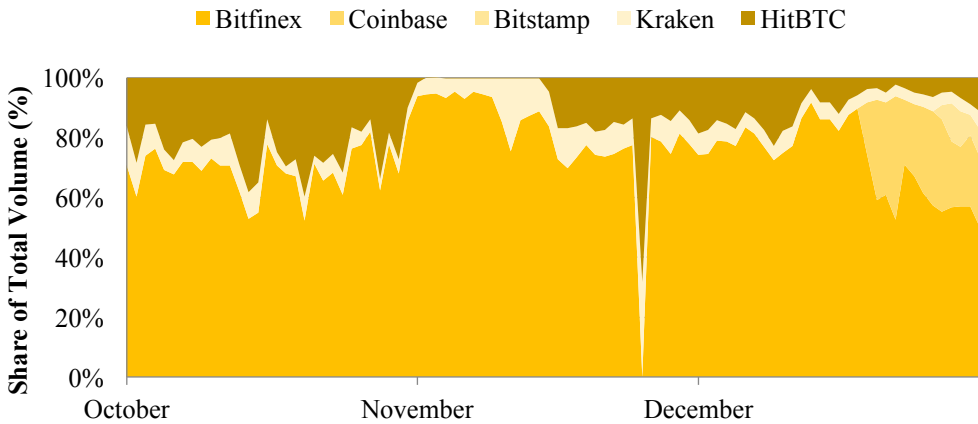
# HitBTC Led Volume in BTC Markets

## Bitfinex Dominates in USD

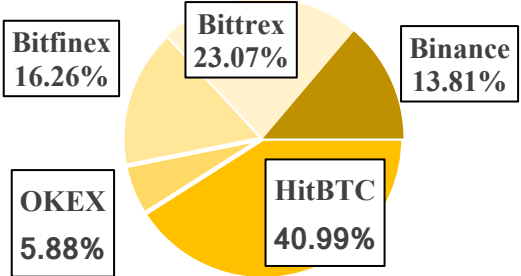
**Bitcoin Cash Exchange Trading Volume (BTC)**  
Share of Total Volume Across Exchanges



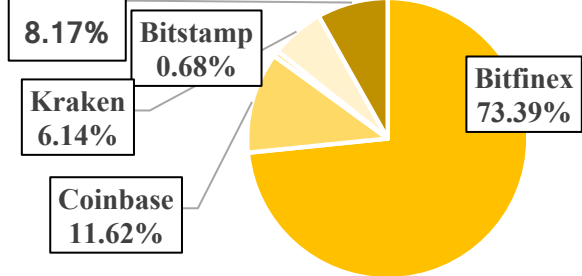
**Bitcoin Cash Exchange Trading Volume (USD)**  
Share of Total Volume Across Exchanges



**Bitcoin Cash Exchange Trading Volume (BTC)**  
Share of Total Across Exchanges



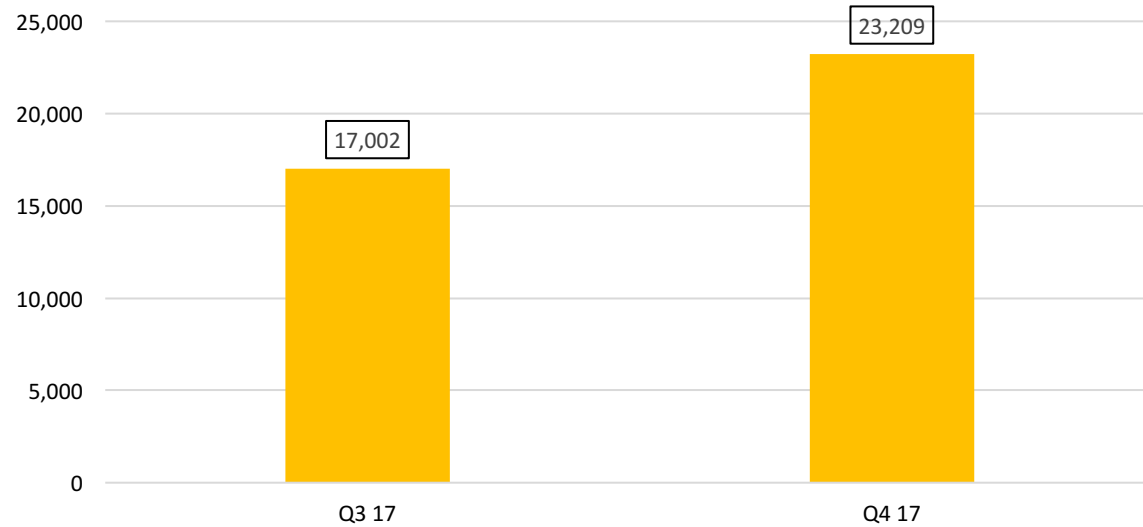
**Bitcoin Cash Exchange Trading Volume (USD)**  
Share of Total Across Exchanges



# ≡ Transactions

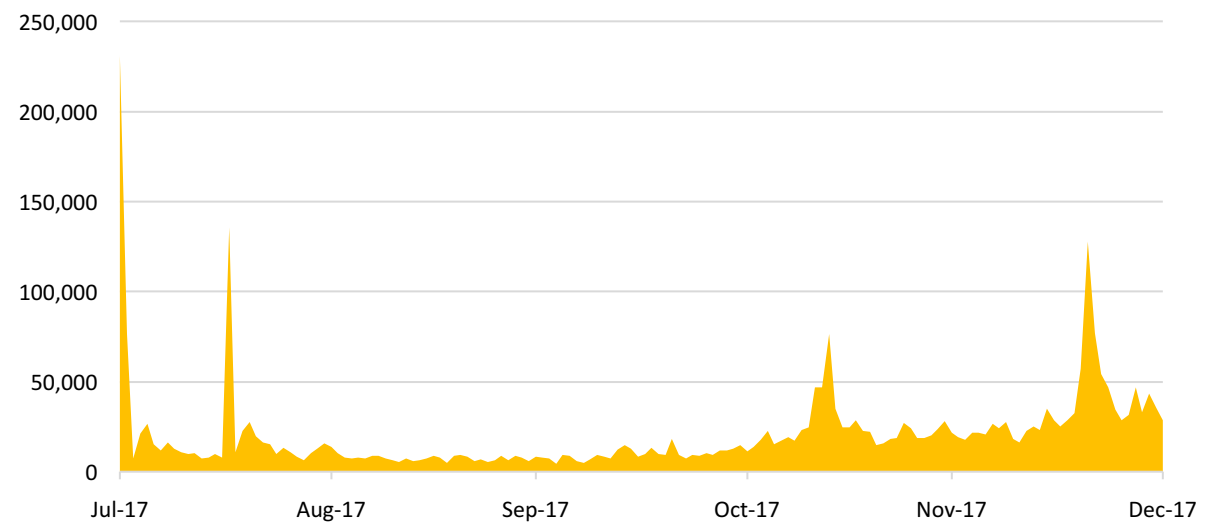
## BCH Transaction Numbers Rise Again

**Bitcoin Cash Transaction Growth**  
(Average # per day)



**Q4 2017:**  
**BTC: 319,085**

**Bitcoin Cash Transaction Growth**  
(Average # per day)

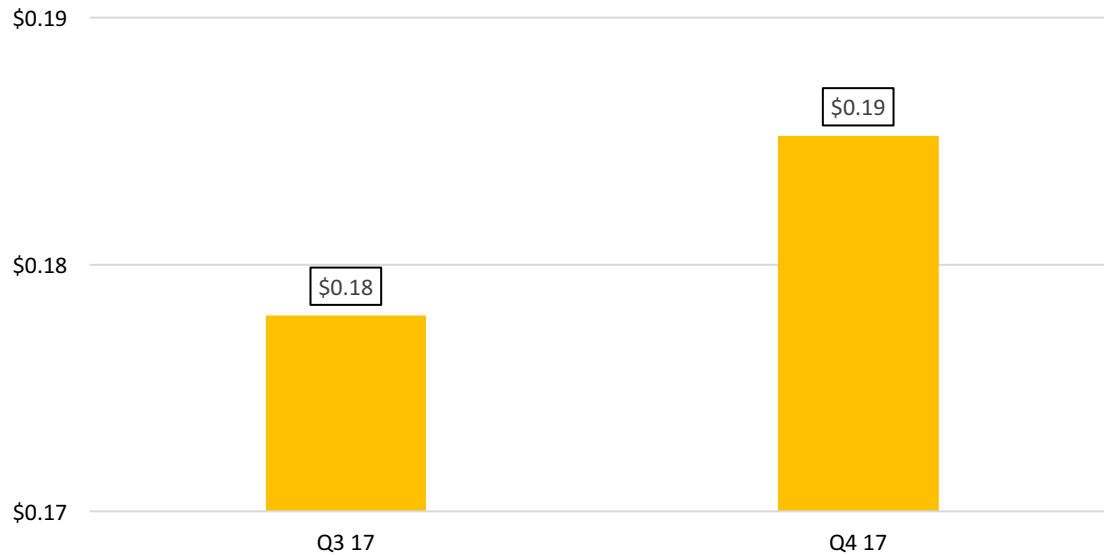




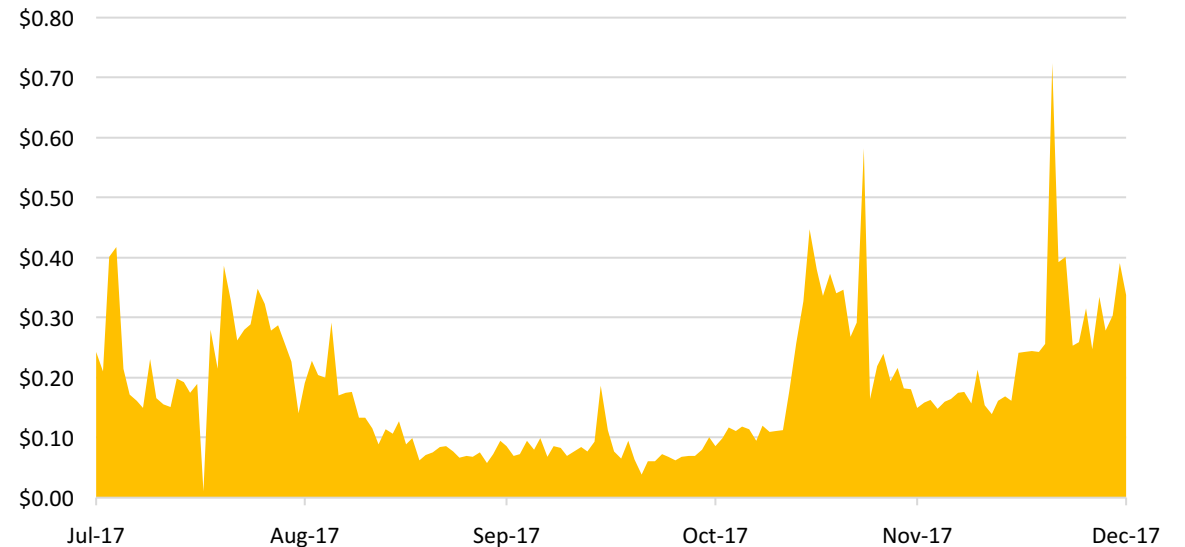
# Fees

## Transaction Fees Increase Barely Rose from 1¢ in Q3 to 19¢ in Q4 2017

**Bitcoin Cash Transaction Fee Growth**  
(Average \$ per transaction)



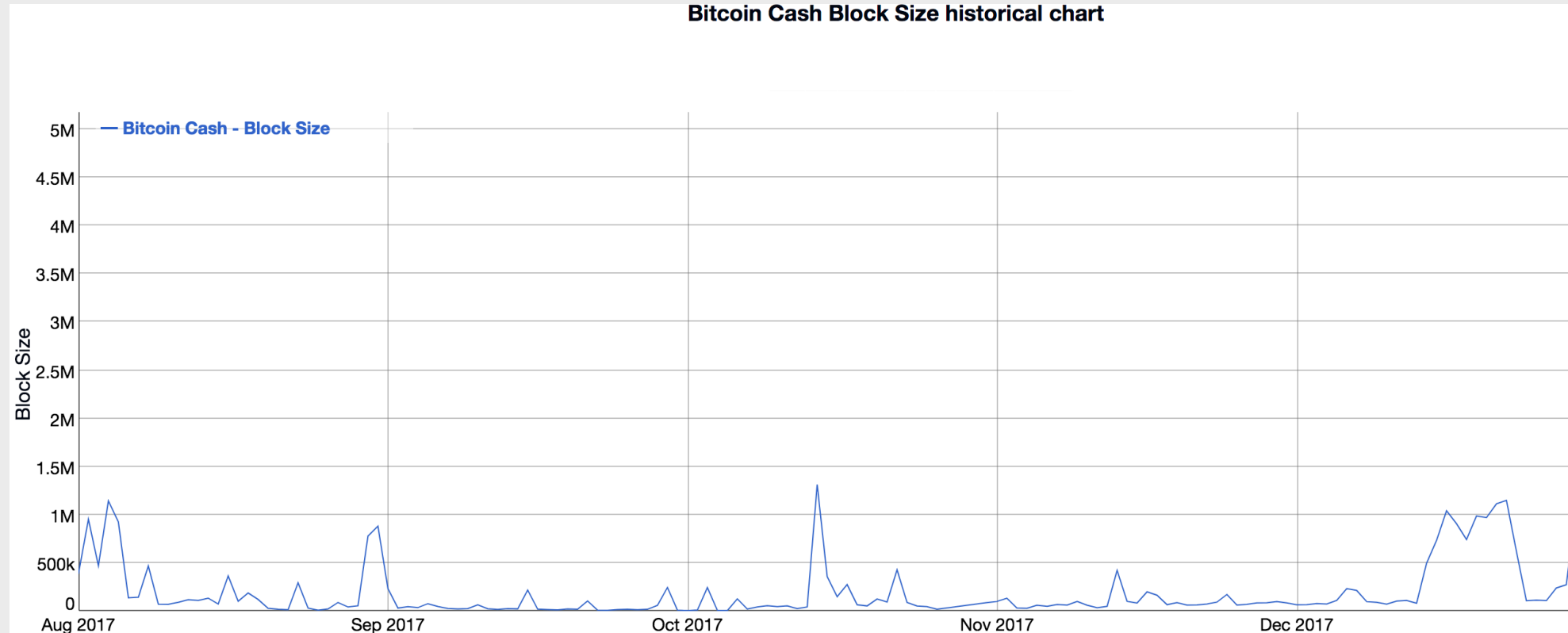
**Bitcoin Cash Transaction Fee Growth**  
(Average \$ per transaction)





# Blocks

**Despite Large Blocks**  
**Most Blocks Remained Unfilled**

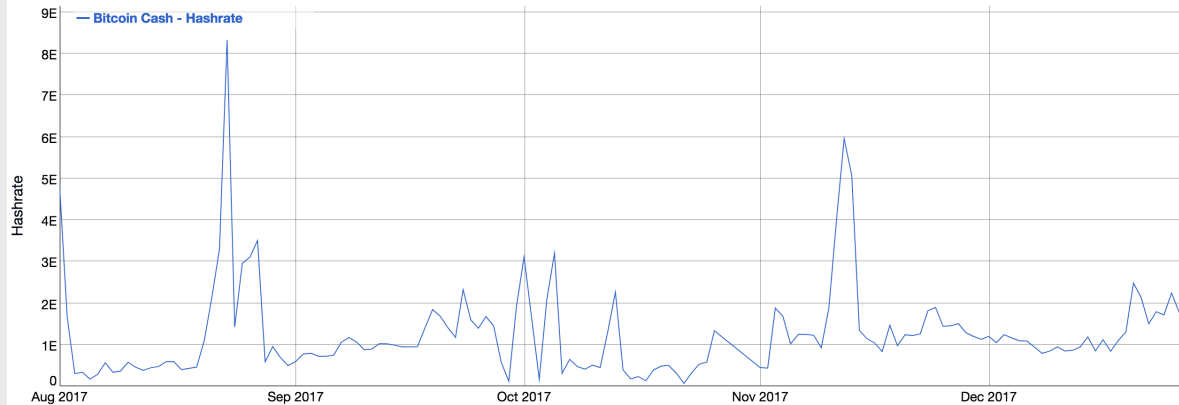




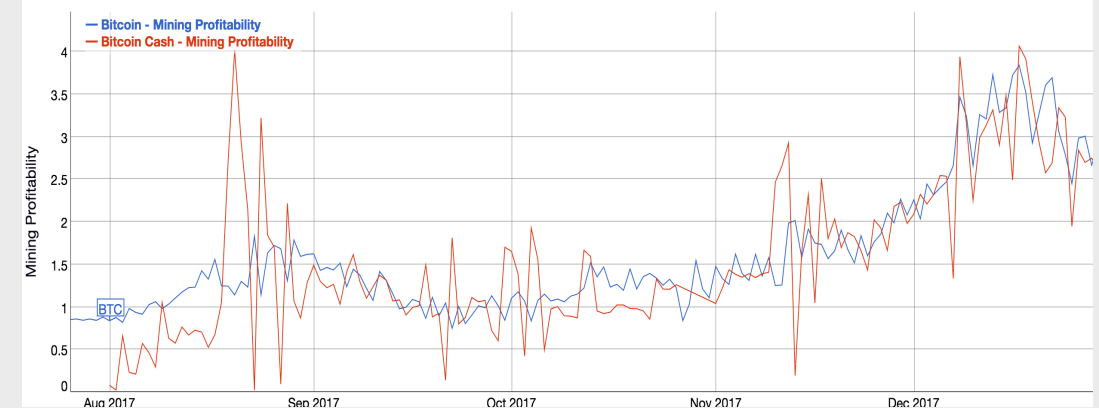
# Hashrate

## Hashrate Securing Network Grows Steadily Blips Related to Bitcoin Fork Uncertainty

Bitcoin Cash Hashrate historical chart



Bitcoin, Bitcoin Cash Mining Profitability historical chart





2D

LTC





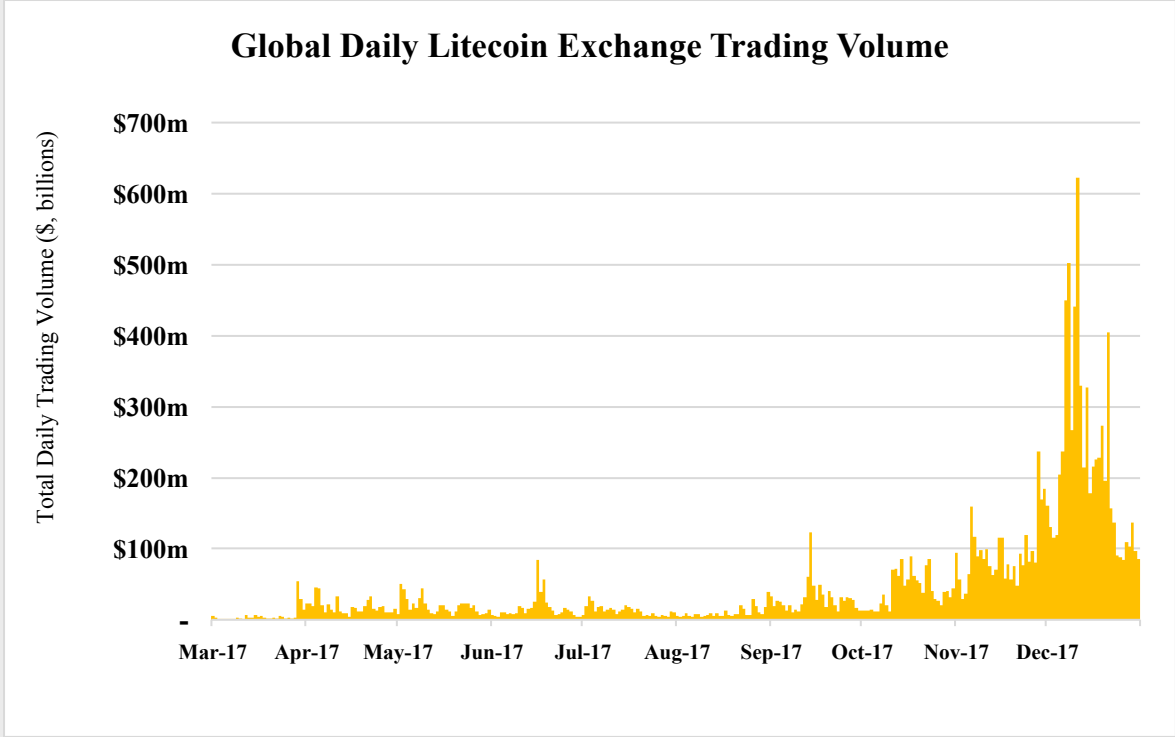
## Litecoin Increased 304% Over Q4 Reached All-Time High of \$8.9bn in Market Cap



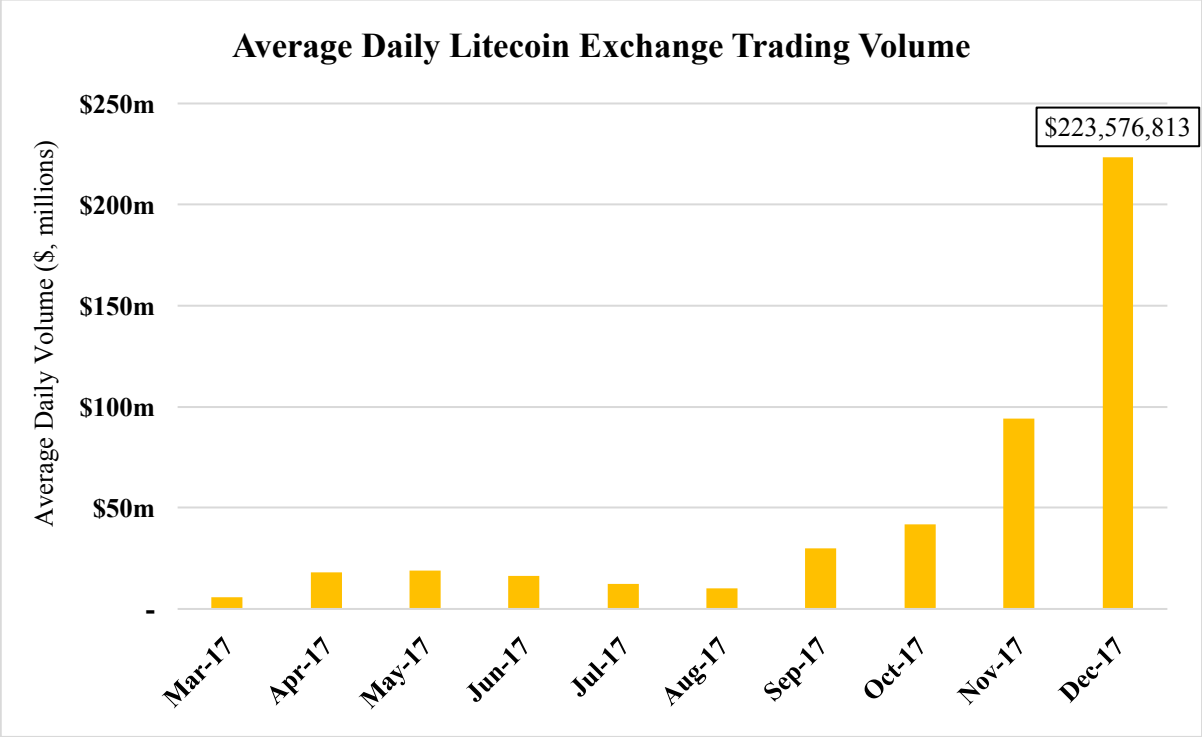


# Litecoin Exchange Trading Volume Rose and Crashed

Global Daily Litecoin Exchange Trading Volume



Average Daily Litecoin Exchange Trading Volume



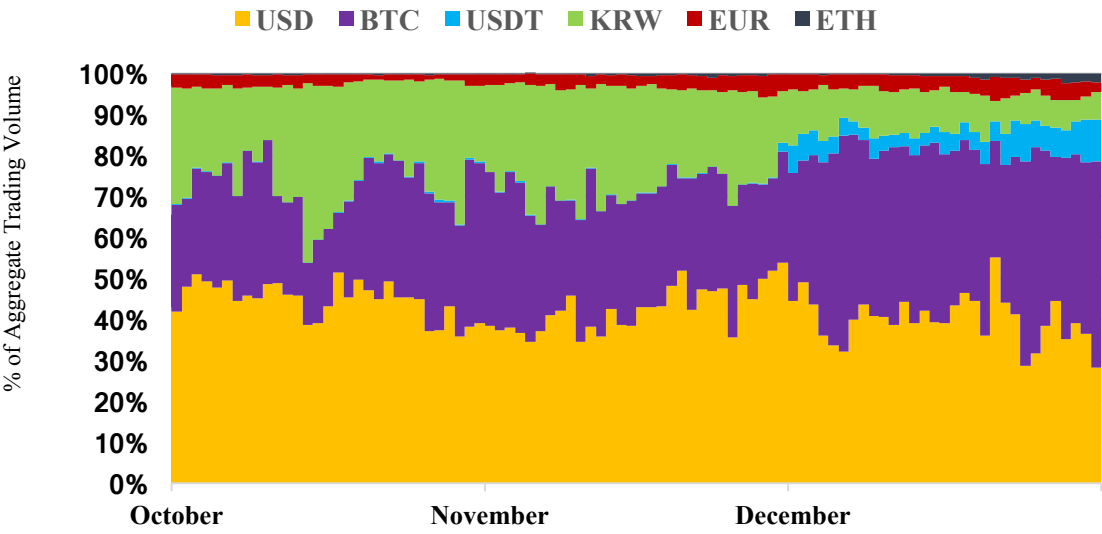
Data Sources: [CryptoCompare](#), [CoinDesk](#), [Coinmetrics](#)  
Notes: \$ value at the time across all listed currencies and exchanges



# LTC Most Heavily Traded with USD

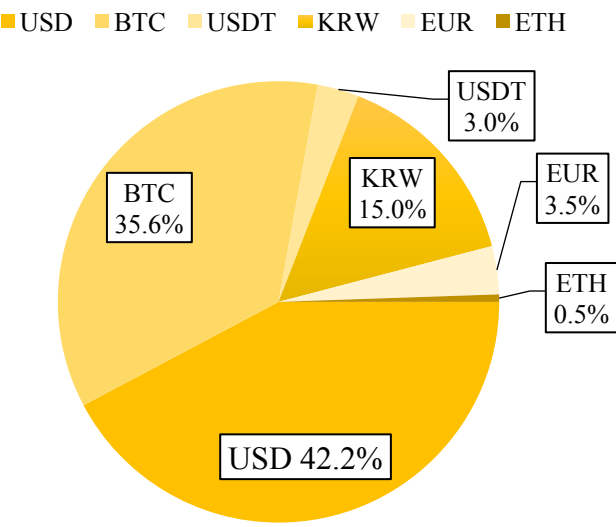
## KRW Lost Market Share to BTC & USDT

Global Daily Litecoin Exchange Trading Volume



Q4 2017 Litecoin Exchange Trading Volume

Share of Volume Across Currencies



**Q3 2017:**  
**USD 39%**  
**KRW 34%**  
**BTC 23%**

Data Source: [CryptoCompare](#)

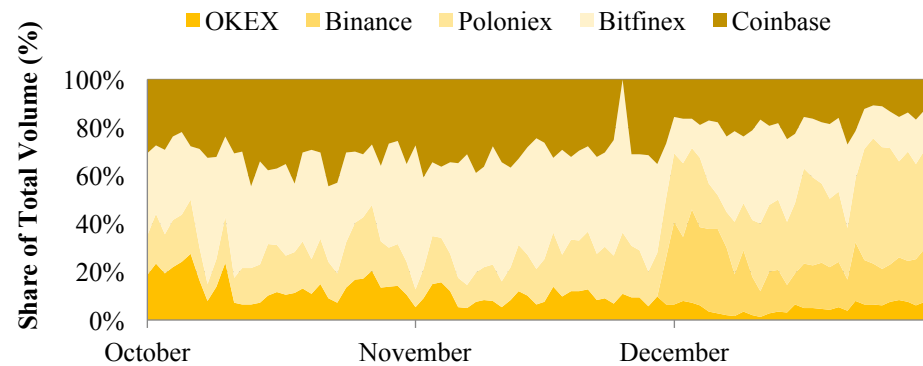


# Bitfinex, Coinbase, and Poloniex Split BTC Markets

## Coinbase Dominates in USD

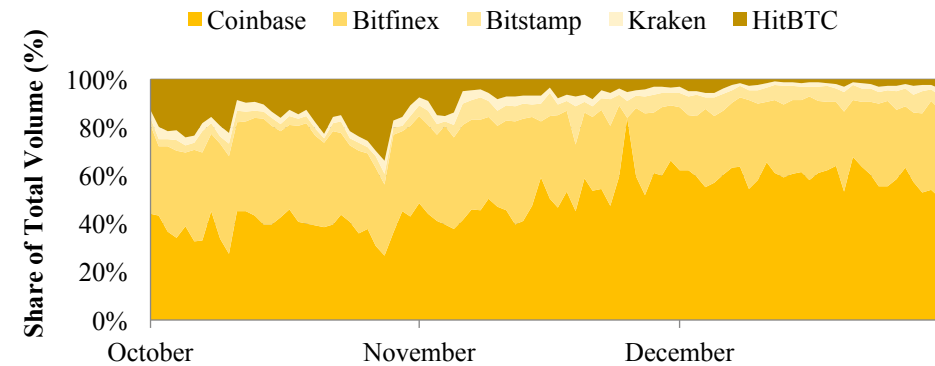
### Litecoin Exchange Trading Volume (BTC)

Share of Total Volume Across Exchanges



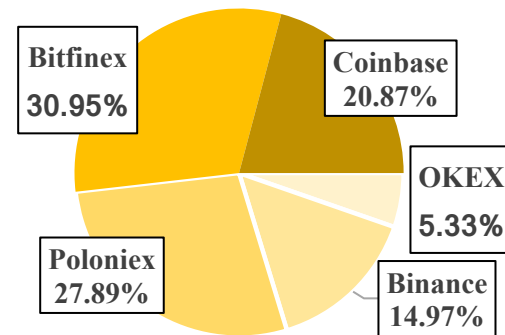
### Litecoin Exchange Trading Volume (USD)

Share of Total Volume Across Exchanges



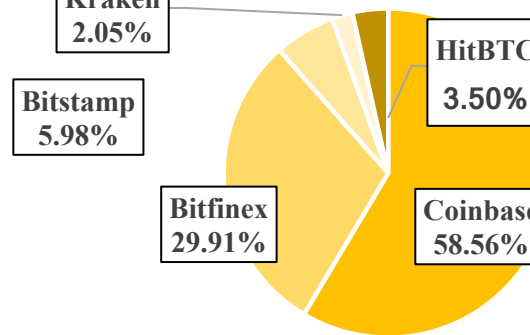
### Litecoin Exchange Trading Volume (BTC)

Share of Total Across Exchanges



### Litecoin Exchange Trading Volume (USD)

Share of Total Across Exchanges

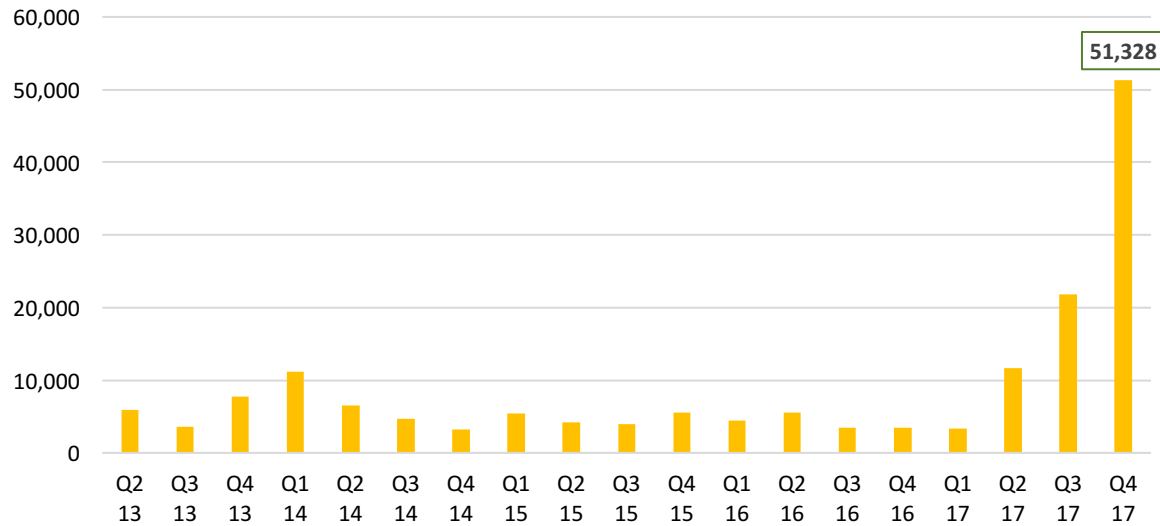




# Transactions

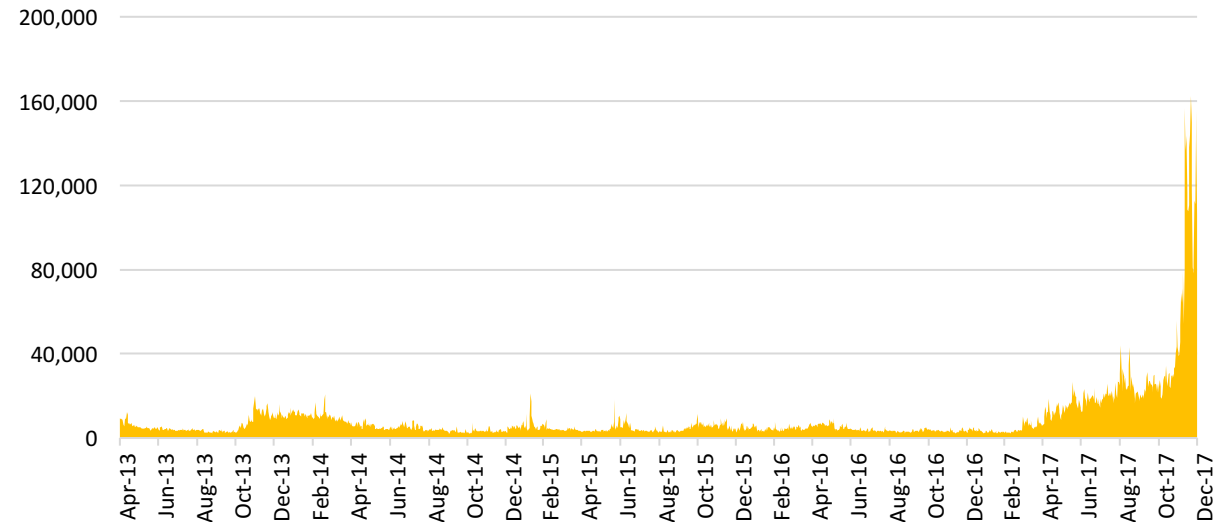
## LTC Transaction Numbers Rise Drastically

Litecoin Transaction Growth  
(Average # per day)



**Q4 2017:**  
**BTC: 319,085**

Litecoin Transaction Growth  
(Average # per day)

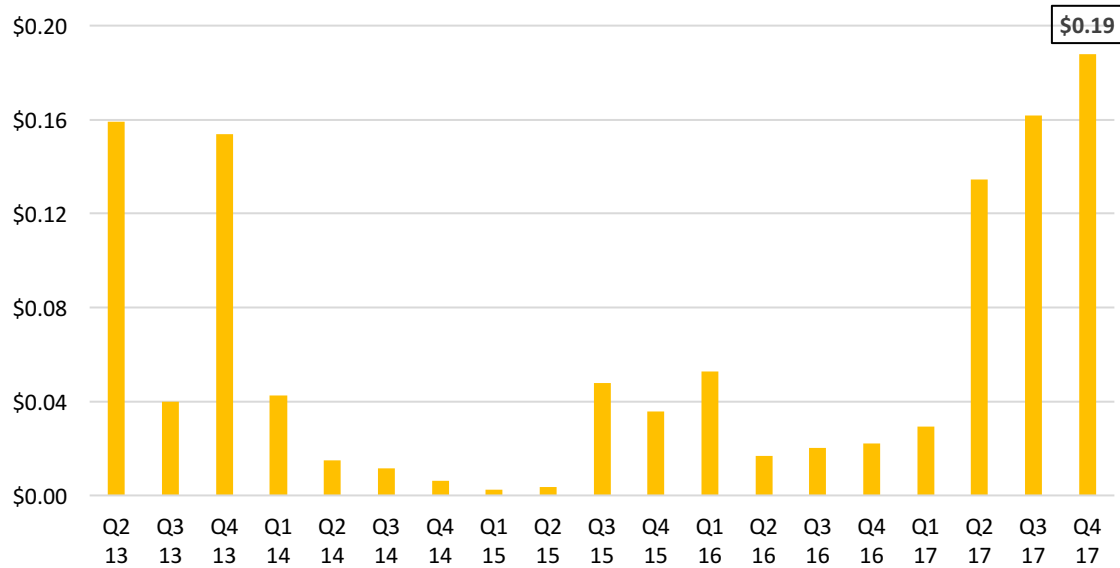




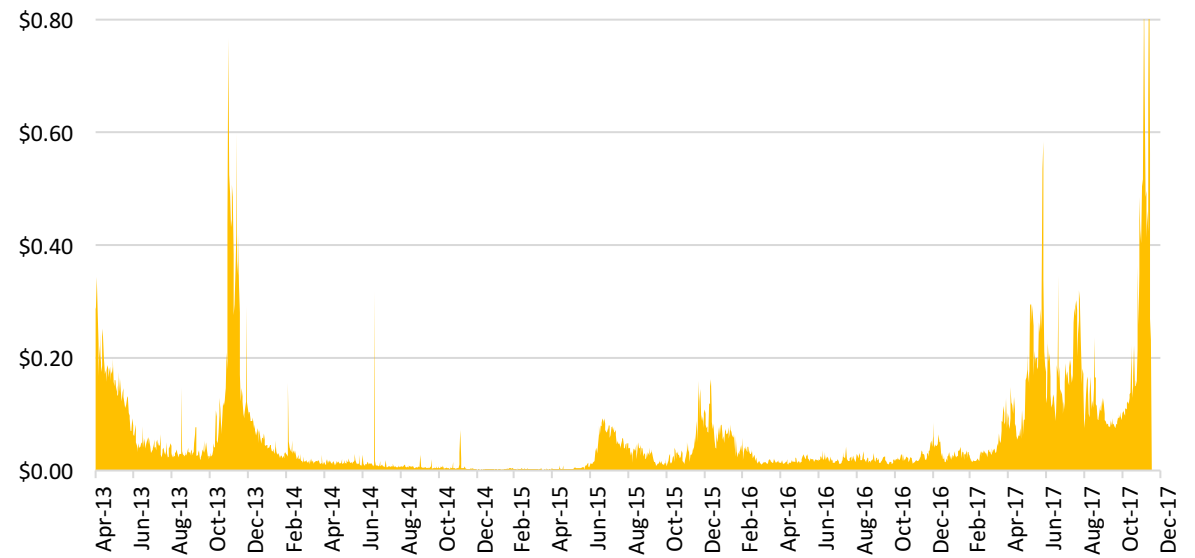
# Fees

## Transaction Fees Return to Past Levels Rose from 16¢ in Q3 to 19¢ in Q4 2017

**Litecoin Transaction Fee Growth**  
(Average \$ per transaction)



**Litecoin Transaction Fee Growth**  
(Average \$ per transaction)





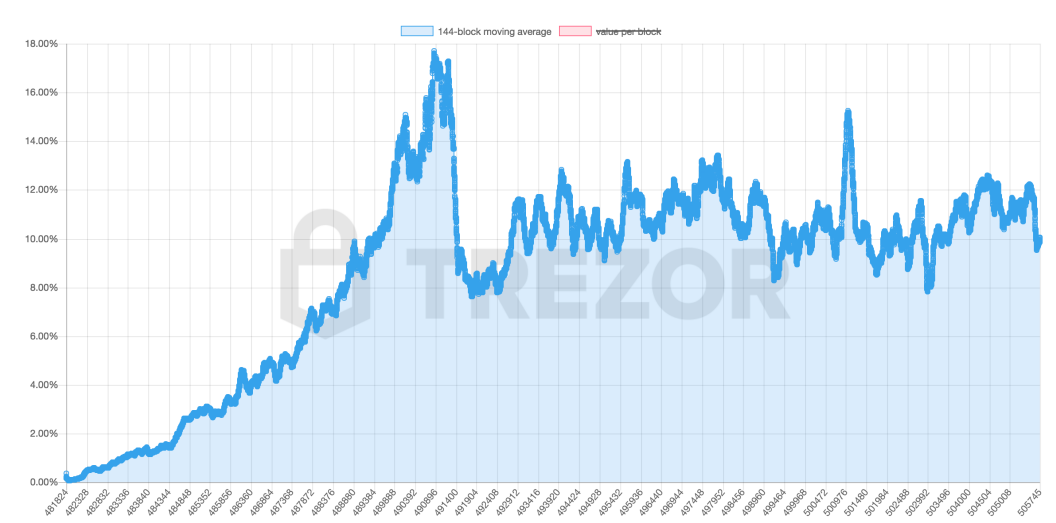
# Blocks

## Small Block Size Hit All Time High of 200k

Litecoin Block Size historical chart



Transaction percentage





# Hashrate

## Hashrate Spiked with Value





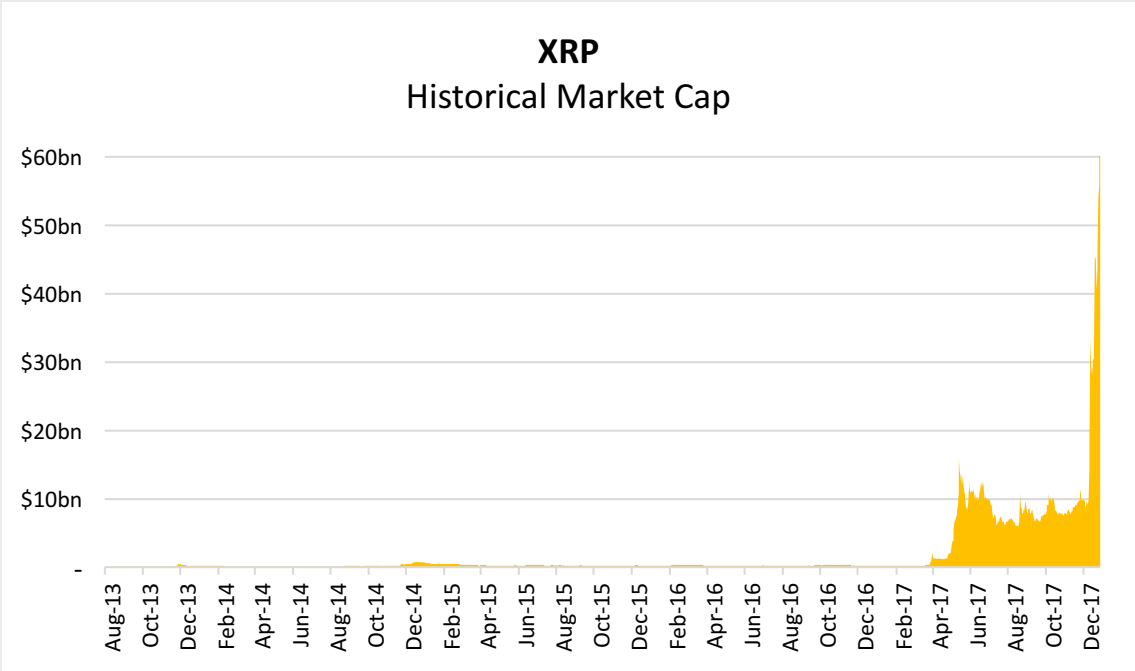


2E

XRP



# XRP Increased 971% Over Q4 Reached All-Time High of \$85.2bn in Market Cap

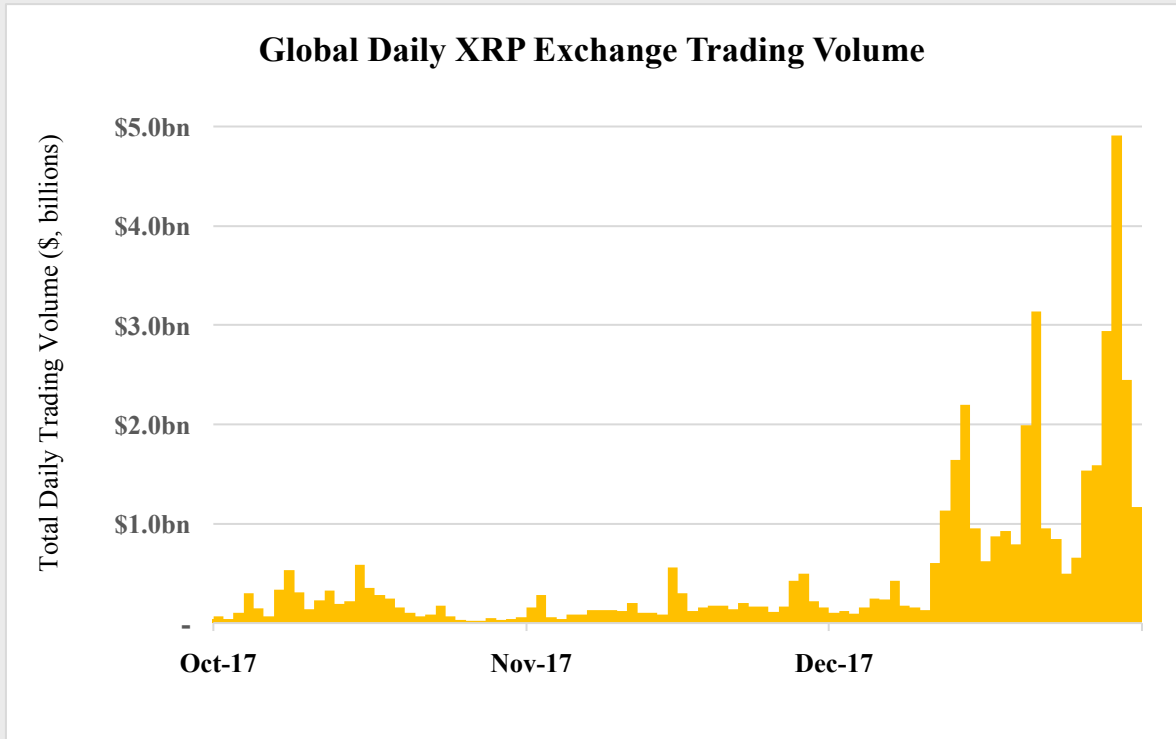


Data Source: [Coincap](#), [Coinmetrics](#)

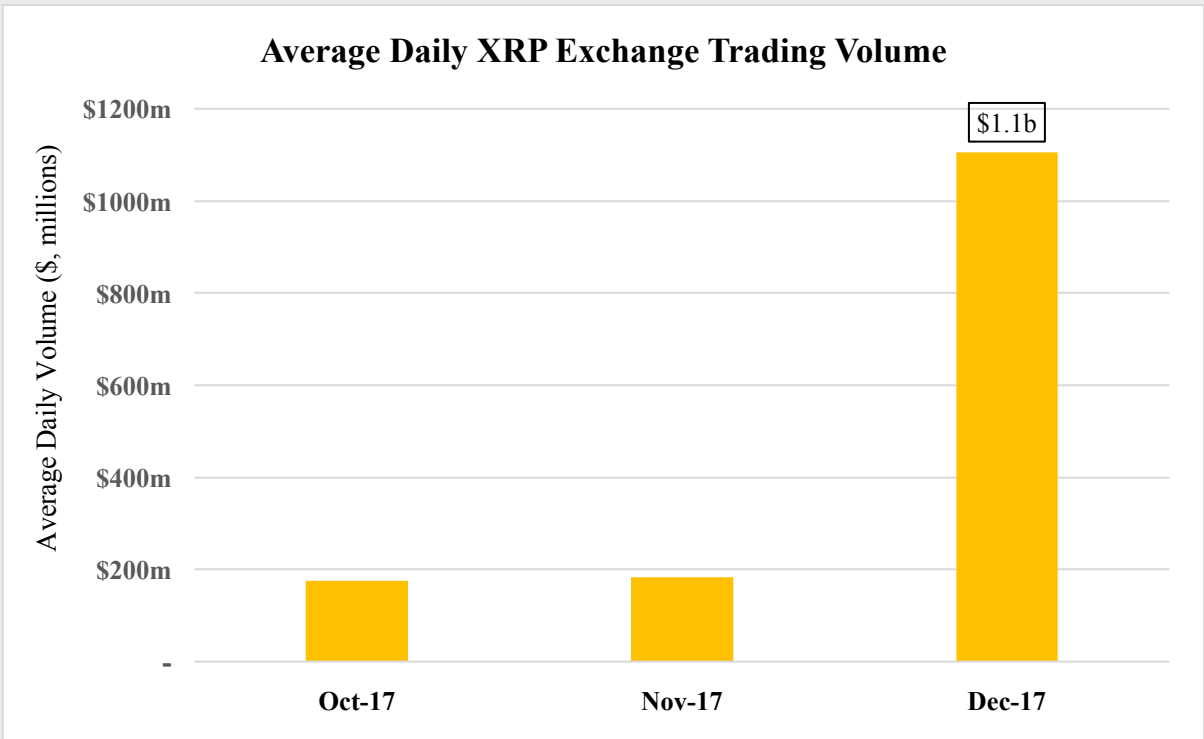


# XRP Exchange Trading Volume Increased

Global Daily XRP Exchange Trading Volume



Average Daily XRP Exchange Trading Volume



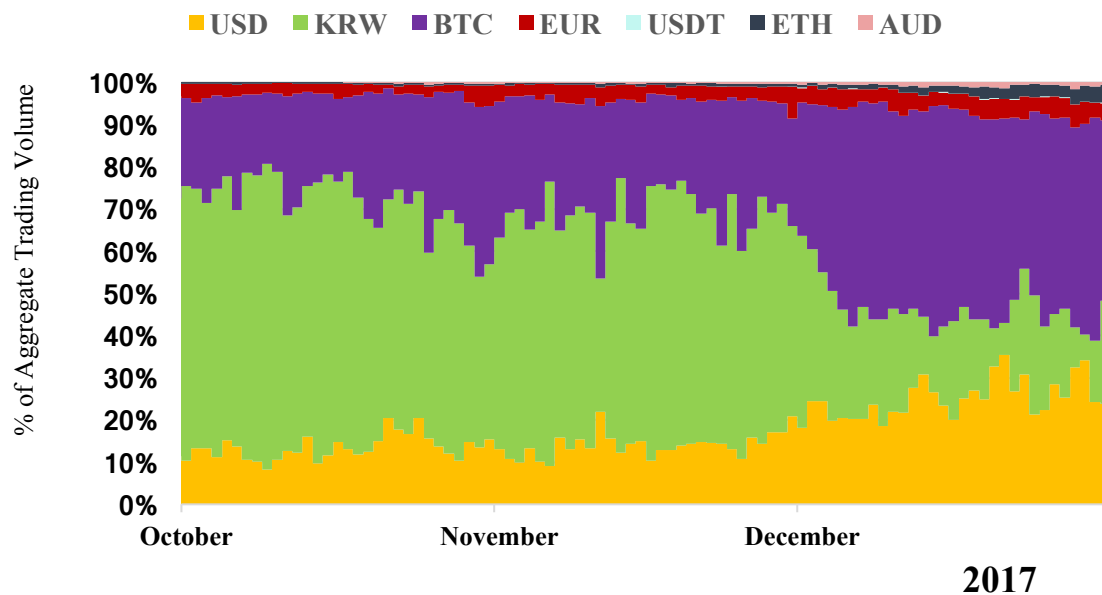
Data Sources: [Cryptocompare](#), [Coinmetrics](#)  
Notes: \$ value at the time across all listed currencies and exchanges



# XRP Most Heavily Traded with BTC

## USD & BTC Gained Market Share from KRW

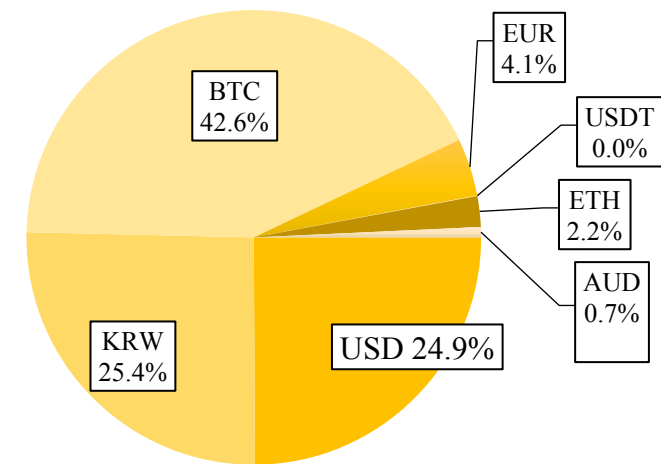
Global Daily XRP Exchange Trading Volume



Q4 2017 XRP Exchange Trading Volume

Share of Volume Across Currencies

Legend: USD, KRW, BTC, EUR, USDT, ETH, AUD



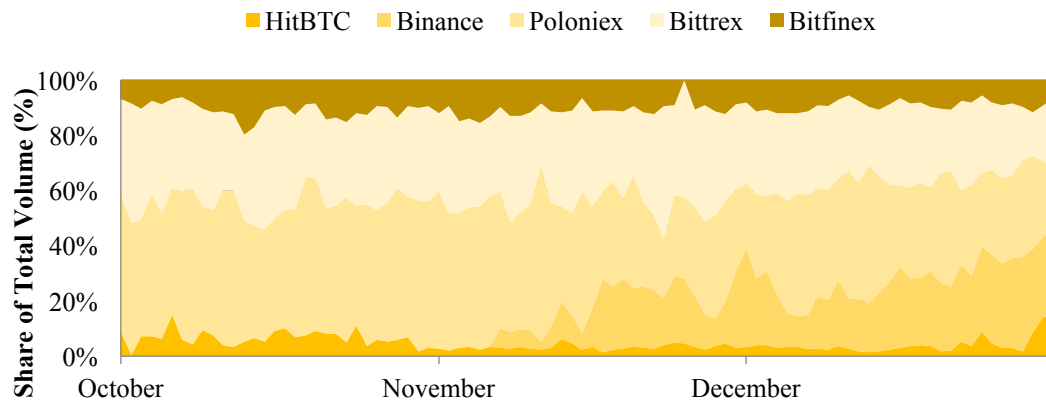
**Q3 2017:**  
**BTC: 41.7%**  
**KRW 36.8%**  
**USD 15.9%**



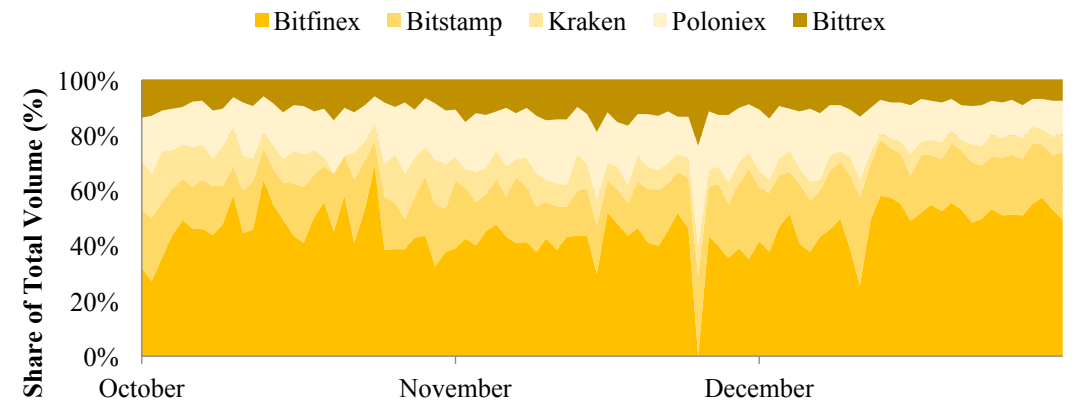
# Poloniex Led Volume in BTC Markets

## Bitfinex Led in USD

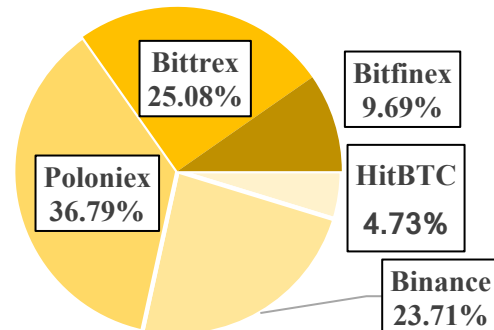
**XRP Exchange Trading Volume (BTC)**  
Share of Total Volume Across Exchanges



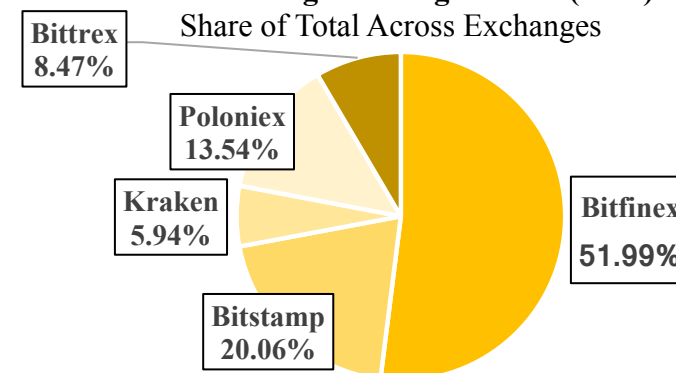
**XRP Exchange Trading Volume (USD)**  
Share of Total Volume Across Exchanges



**XRP Exchange Trading Volume (BTC)**  
Share of Total Across Exchanges



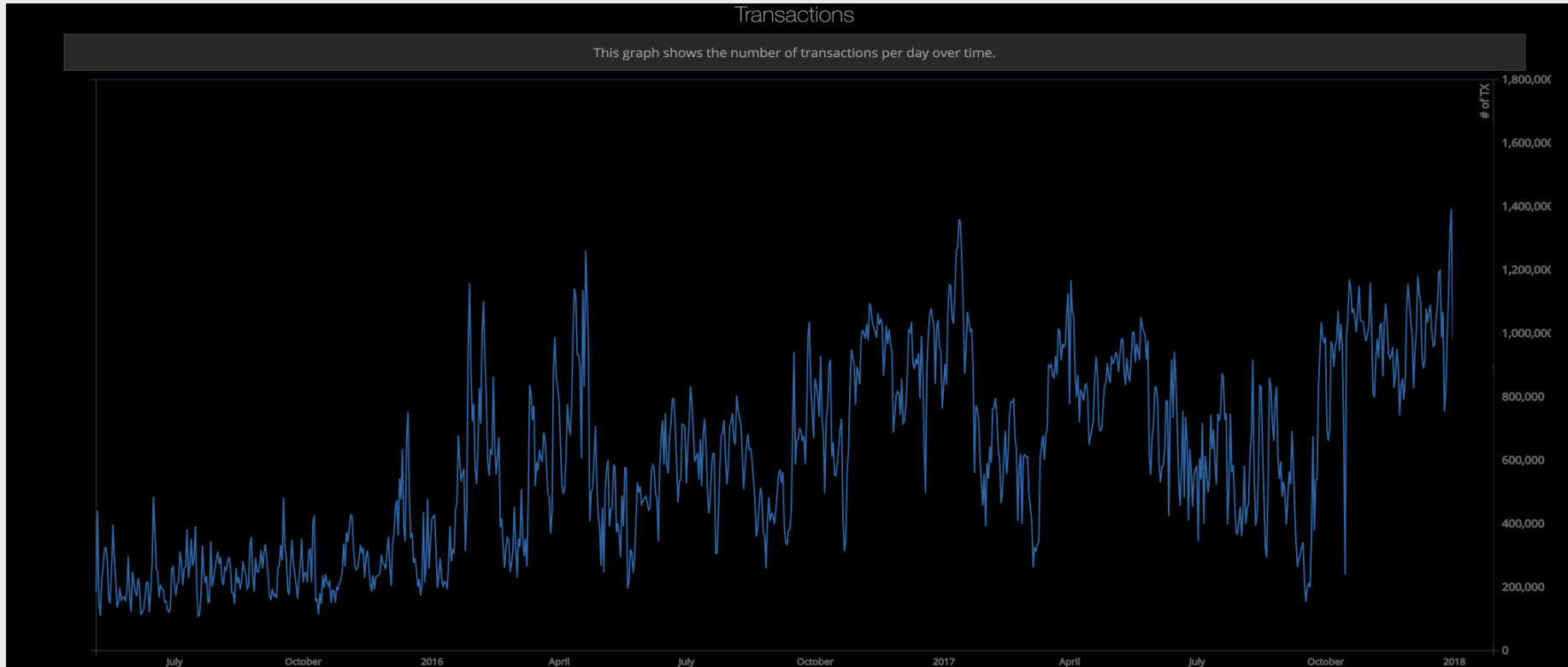
**XRP Exchange Trading Volume (USD)**  
Share of Total Across Exchanges





# Transactions

## XRP Transaction Numbers Rise Again

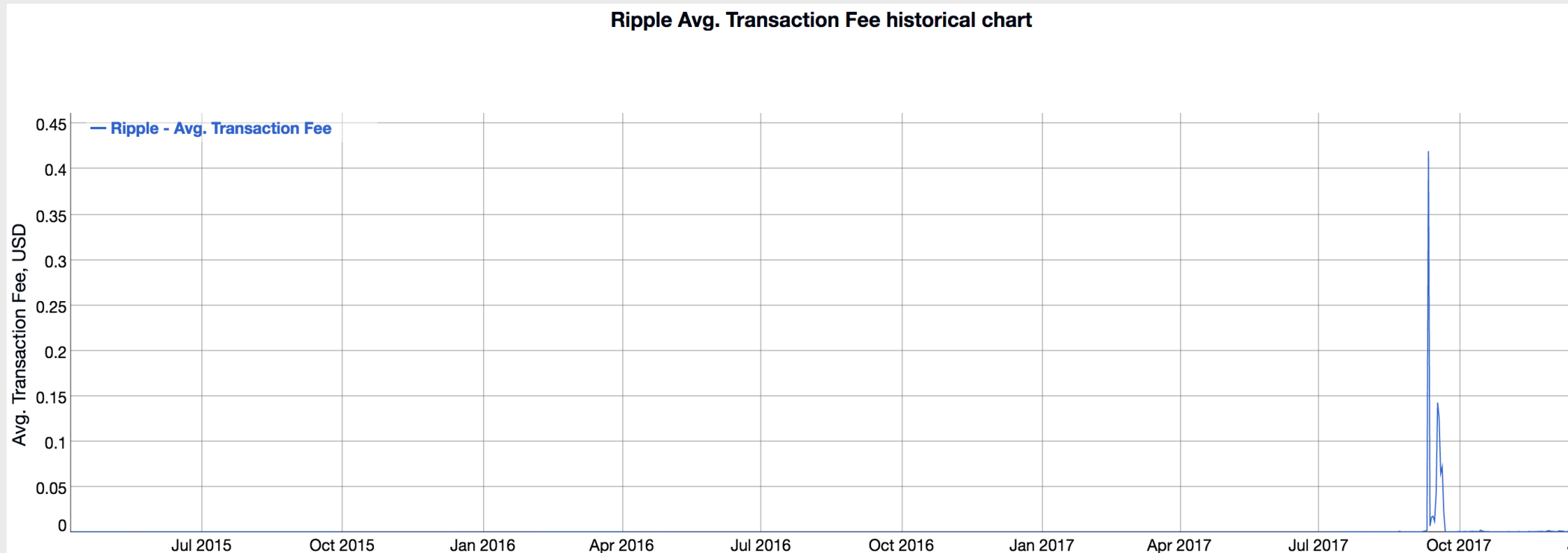


**Q4 2017:**  
**BTC: 319,085**



# Fees

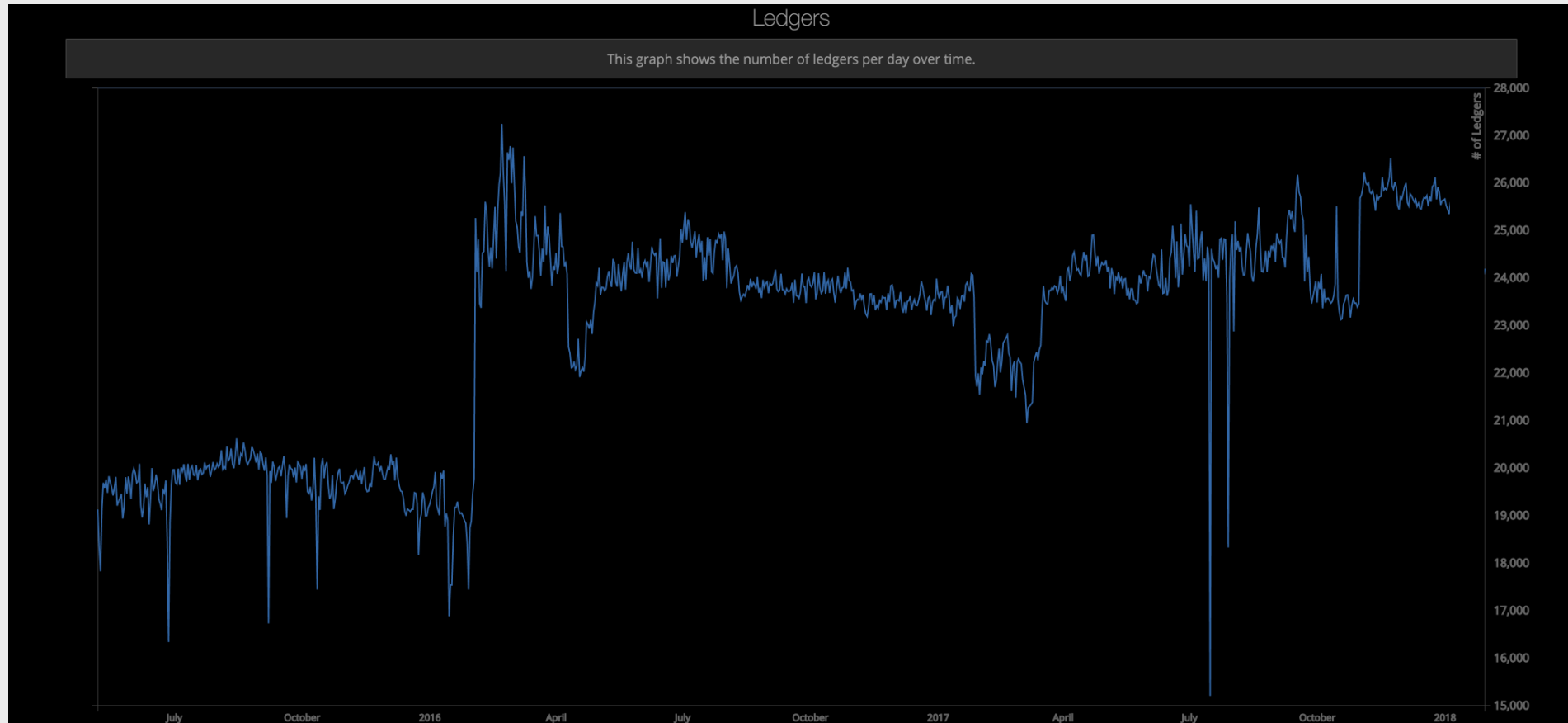
## Transaction Fees Barely Increase Rose from 1¢ in Q3 to 19¢ in Q4 2017





# Ledgers

## XRP Ledgers Increase







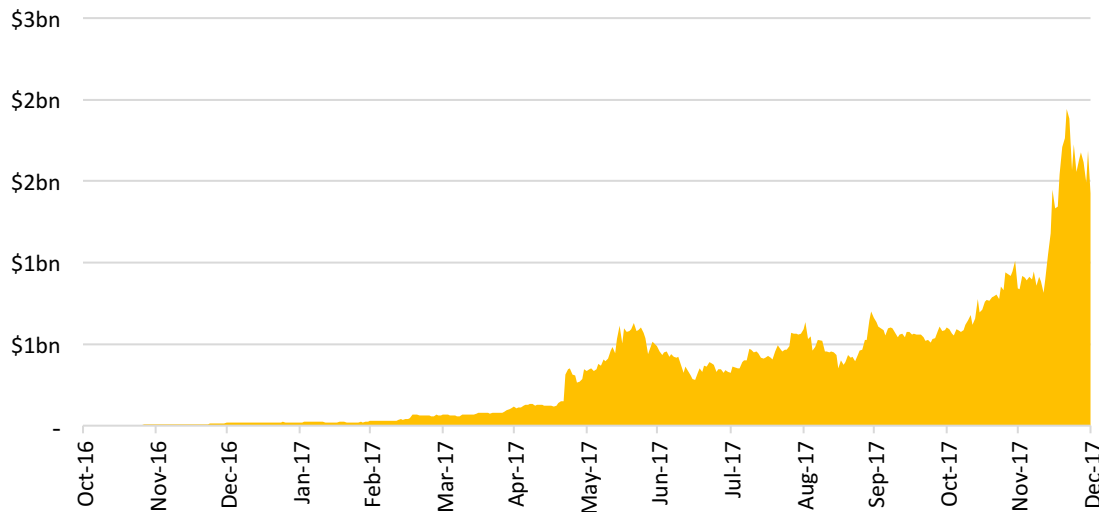
2F

ZEC

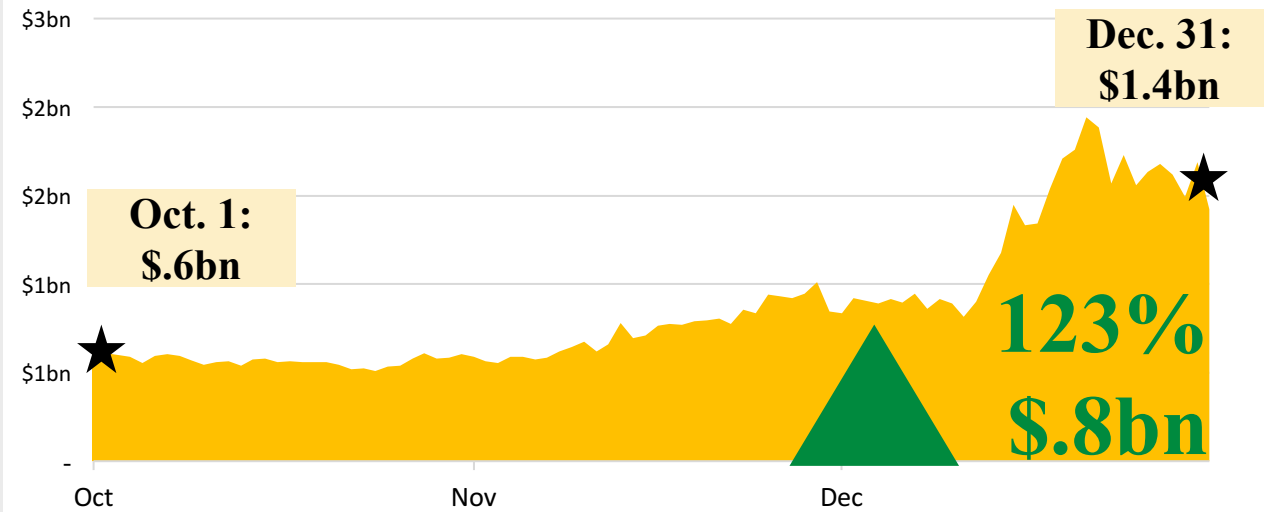


## ZCash Increased 123% Over Q4 Reached All-Time High of \$1.9bn in Market Cap

**ZCash**  
Historical Market Cap



**ZCash**  
Q4 2017 Market Cap

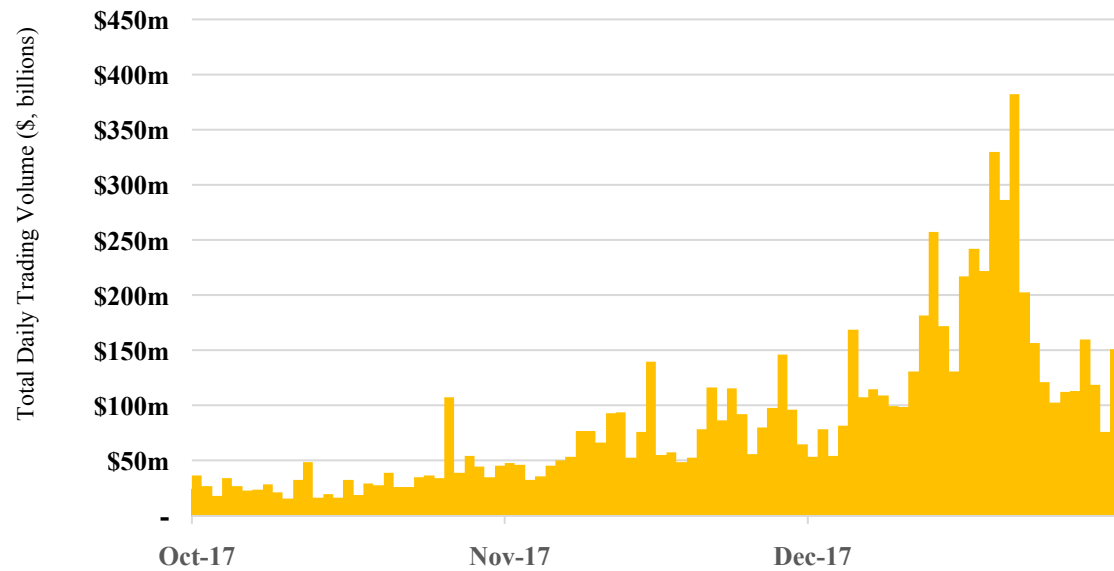


Data Source: [Coincap](#), [Coinmetrics](#)

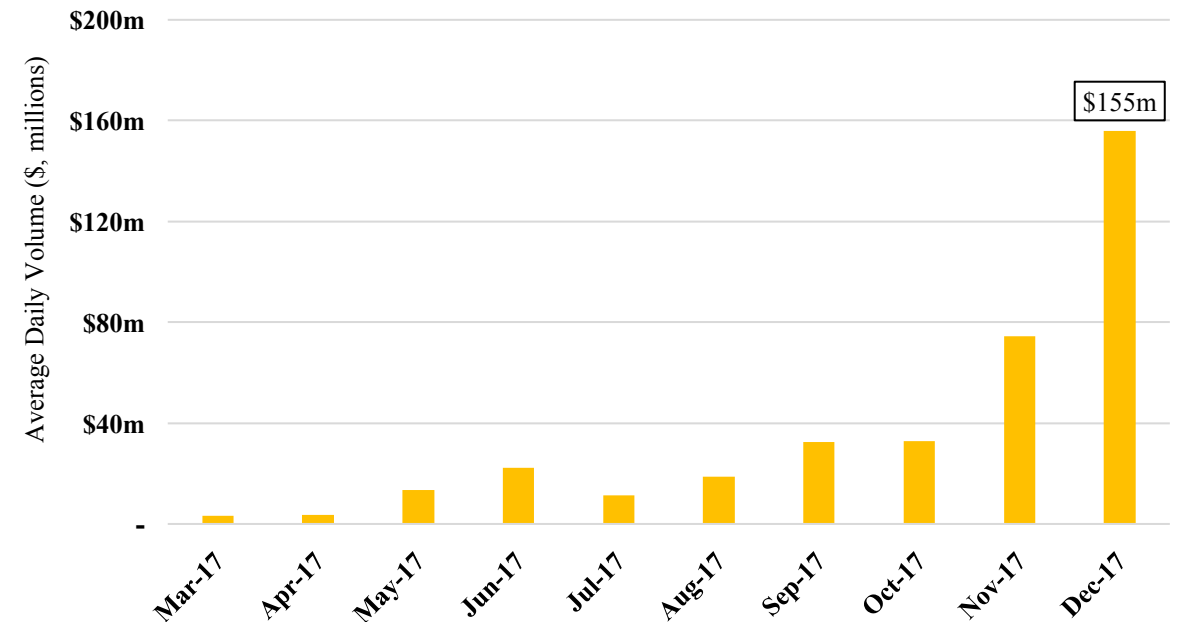


# ZCash Exchange Trading Volume Increased

## Global Daily ZCash Exchange Trading Volume



## Average Daily ZCash Exchange Trading Volume



Data Sources: [Cryptocompare](#), [Coinmetrics](#)

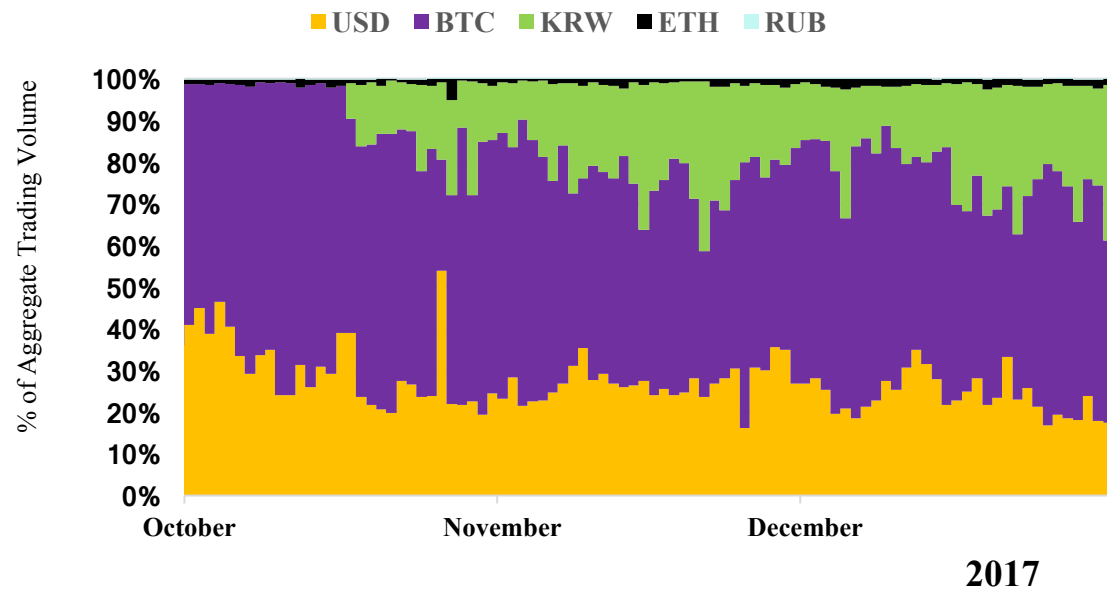
Notes: \$ value at the time across all listed currencies and exchanges



## ZEC Most Heavily Traded with BTC

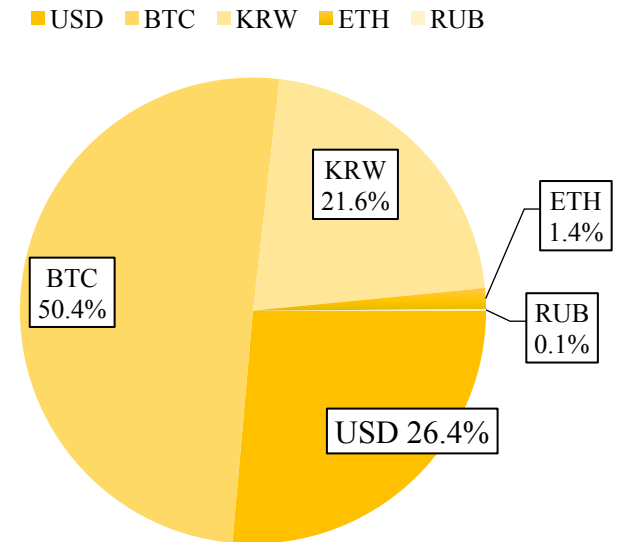
### KRW Started Its Markets in Late October

Global Daily ZCash Exchange Trading Volume



Q4 2017 ZCash Exchange Trading Volume

Share of Volume Across Currencies



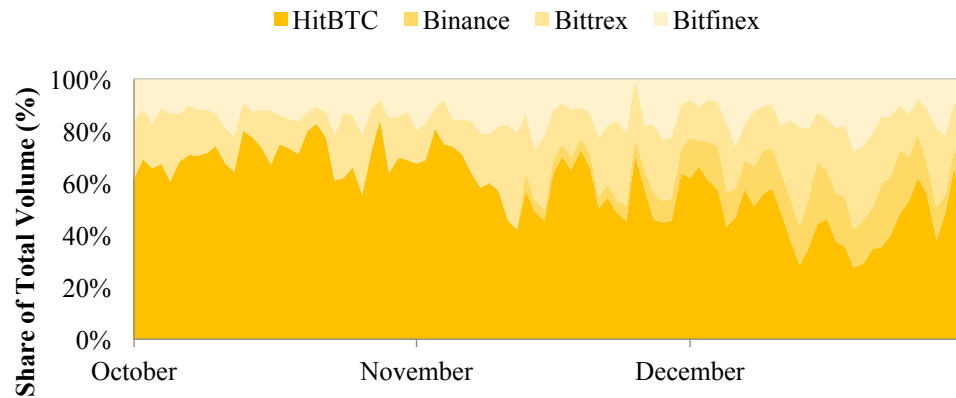
**Q3 2017:**  
BTC 55.7%  
USD 40.8%  
ETH 3.3%



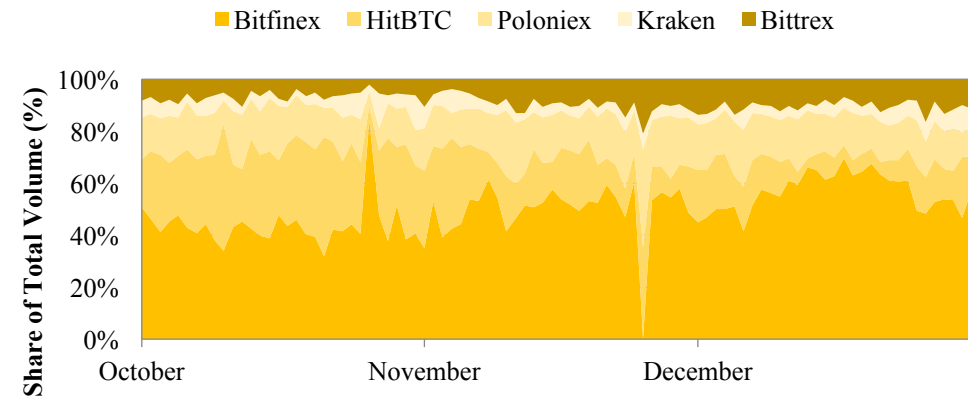
# HitBTC Lost Share In BTC Markets

## Bitfinex with Most Volume In USD

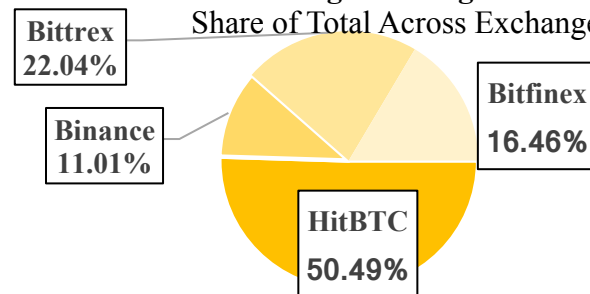
**ZCash Exchange Trading Volume (BTC)**  
Share of Total Volume Across Exchanges



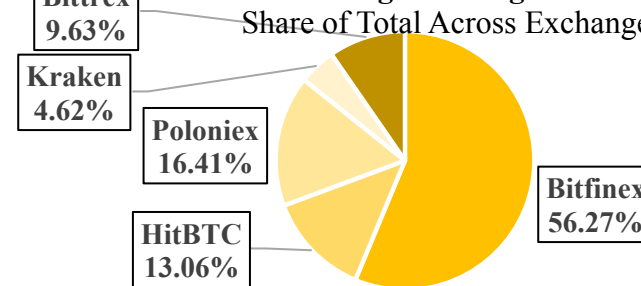
**ZCash Exchange Trading Volume (USD)**  
Share of Total Volume Across Exchanges



**ZCash Exchange Trading Volume (BTC)**  
Share of Total Across Exchanges



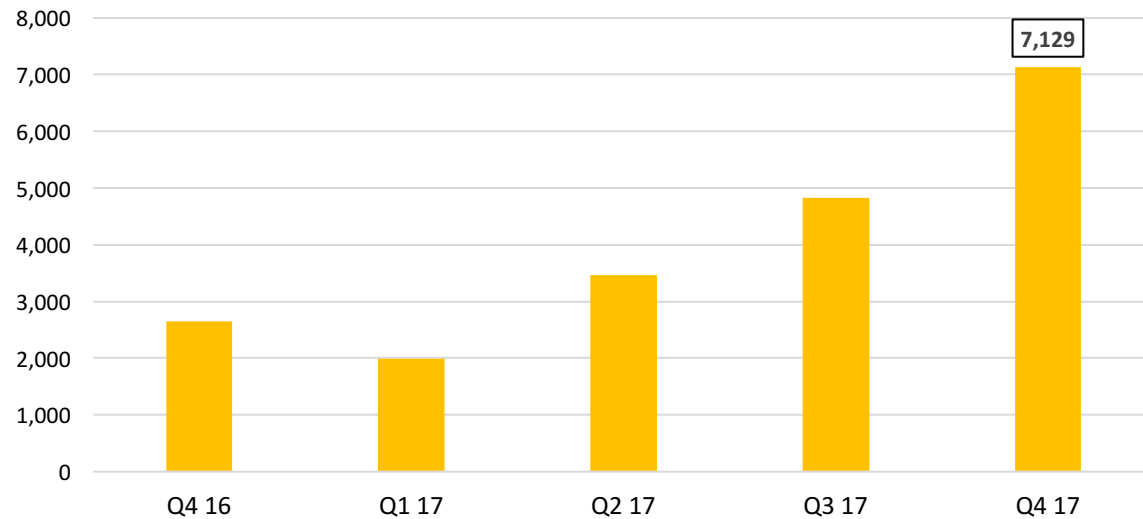
**ZCash Exchange Trading Volume (USD)**  
Share of Total Across Exchanges



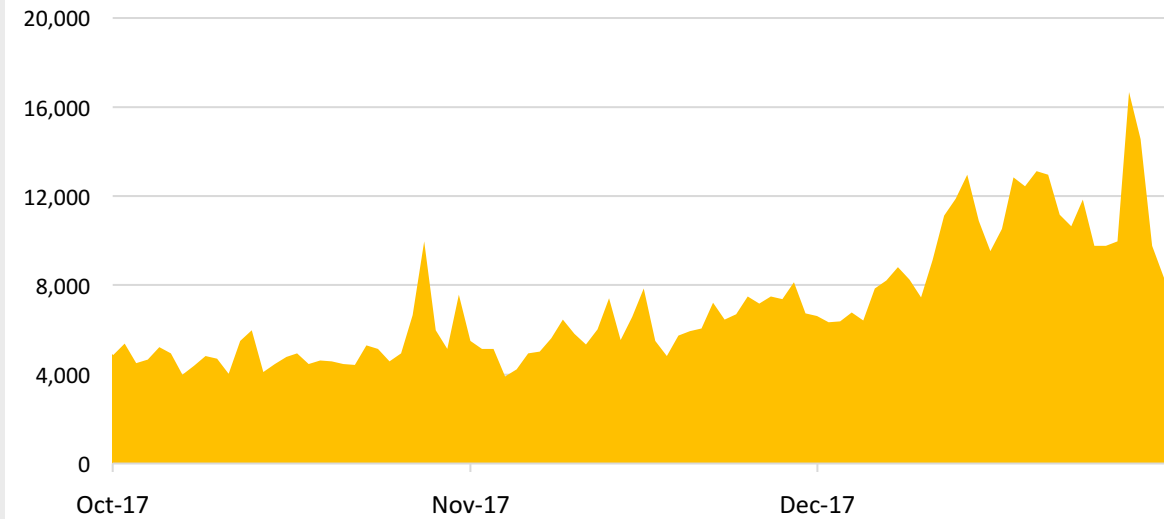
# ≡ Transactions

## ZEC Transaction Numbers Rise Again

**ZCash Transaction Growth**  
(Average # per day)



**ZCash Transaction Growth**  
(Average # per day)



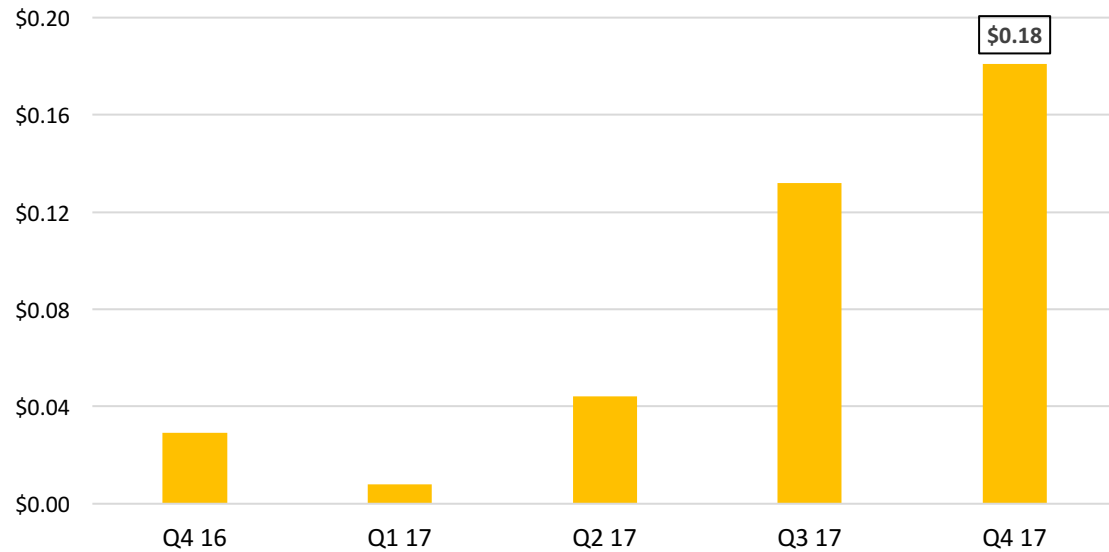
**Q4 2017:**  
**BTC: 319,085**



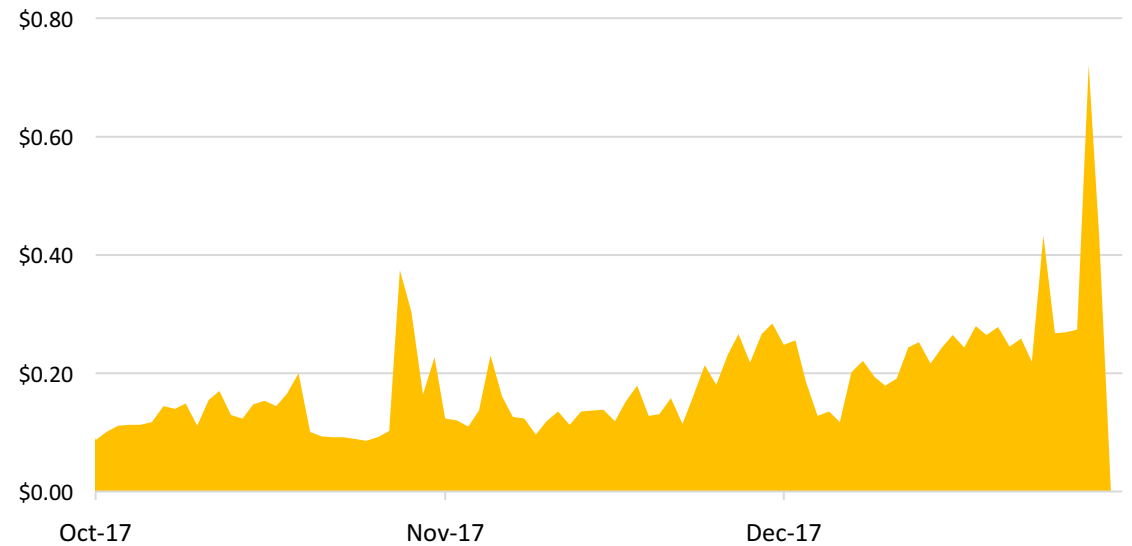
# Fees

## ZCash Transaction Fees Remain Inexpensive Despite Price Increase

**ZCash Transaction Fee Growth**  
(Average \$ per transaction)



**ZCash Transaction Fee Growth**  
(Average \$ per transaction)





# Hashrate

## Hashrate Continues to Grow







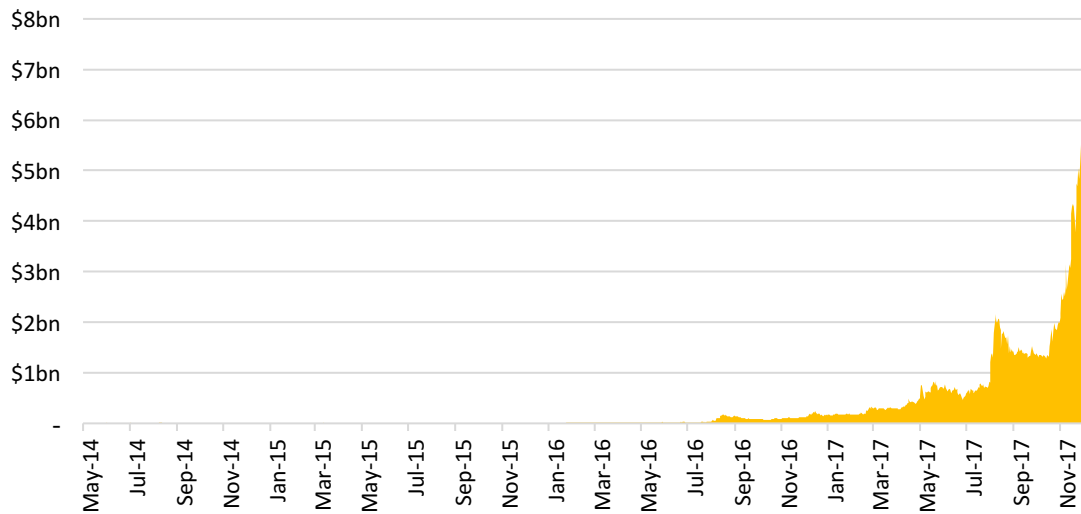
2G

XMR



# Monero Increased 253% Over Q4 Reached All-Time High of \$7.3bn in Market Cap

**Monero**  
Historical Market Cap

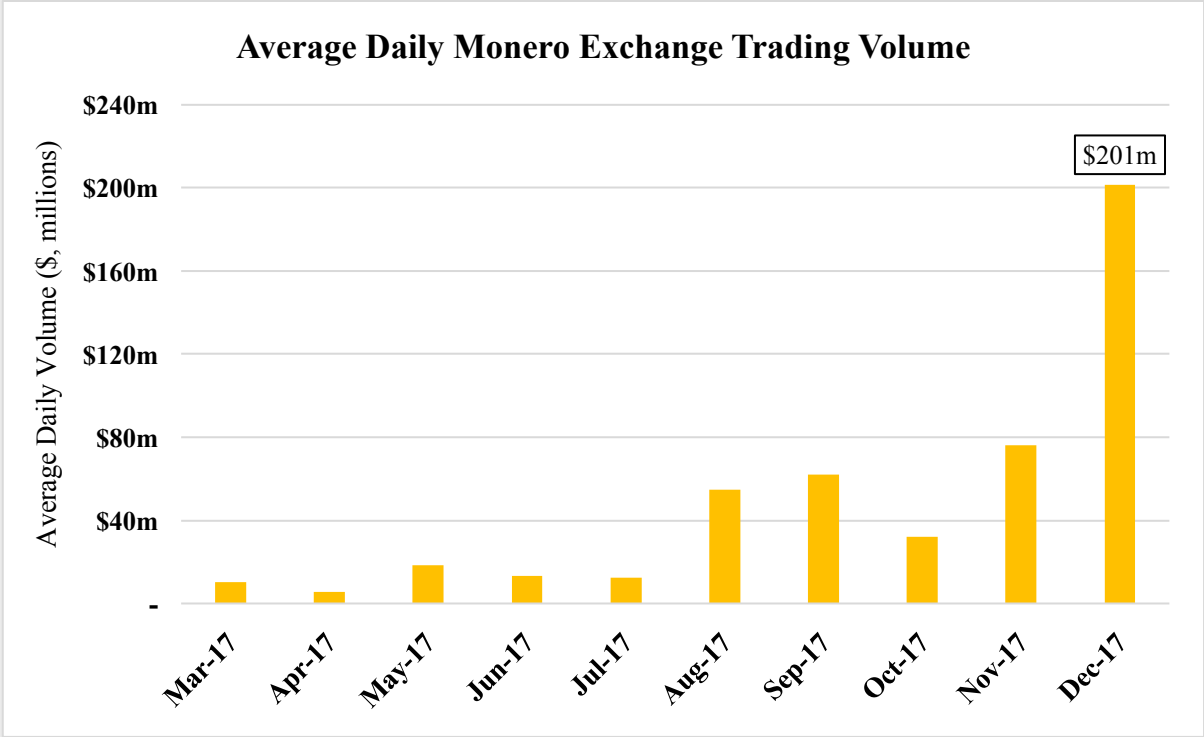
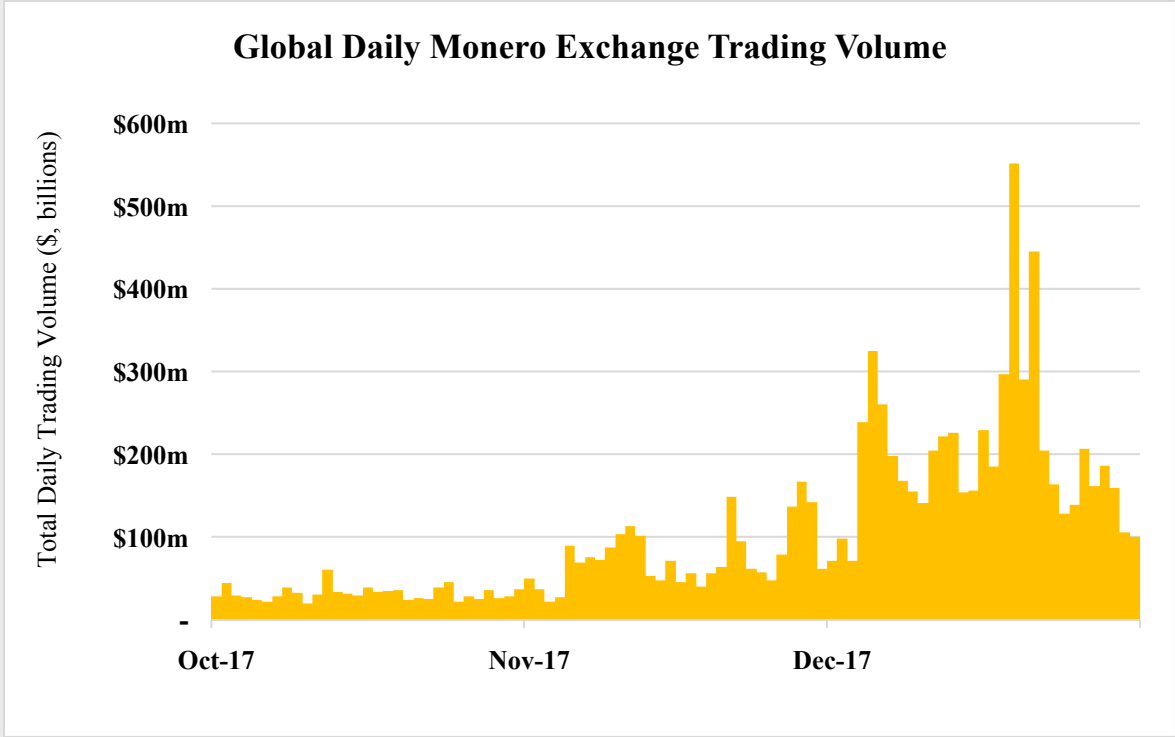


**Monero**  
Q4 2017 Market Cap





# Monero Exchange Trading Volume Increased



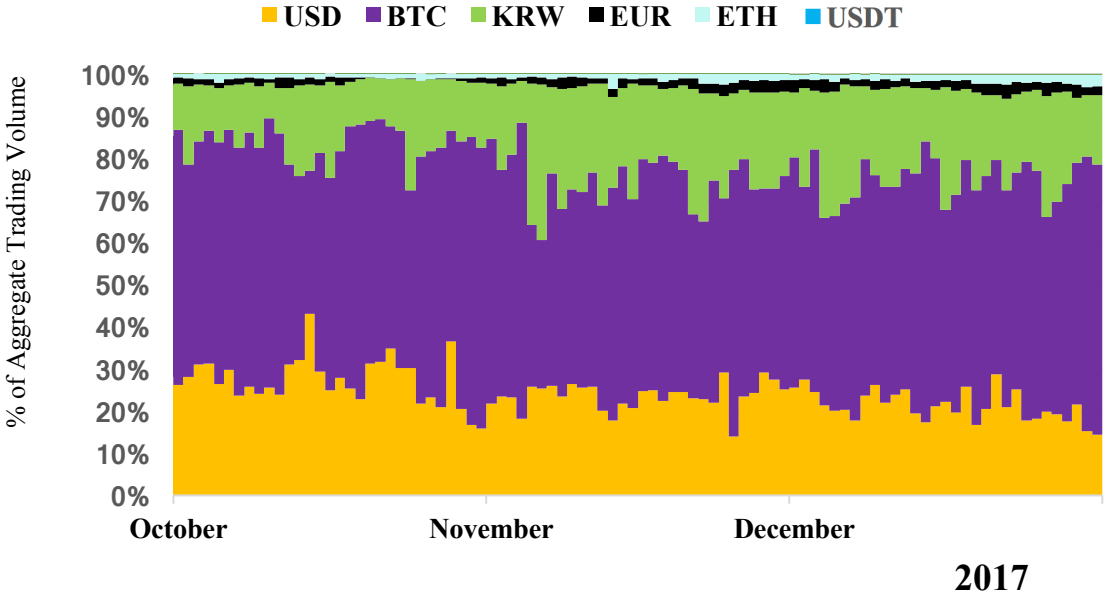
Data Sources: [Cryptocompare](#), [Coinmetrics](#)  
Notes: \$ value at the time across all listed currencies and exchanges



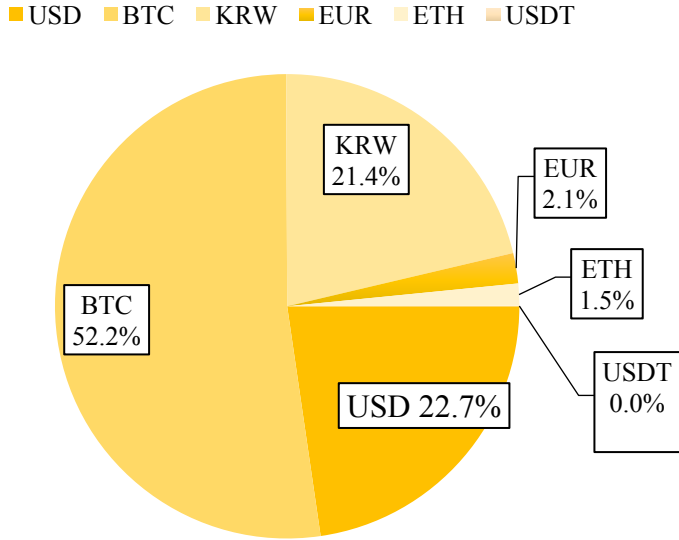
# XMR Most Heavily Traded with BTC

## Trading Remained Stable

Global Daily Monero Exchange Trading Volume



Q4 2017 Monero Exchange Trading Volume  
Share of Volume Across Currencies



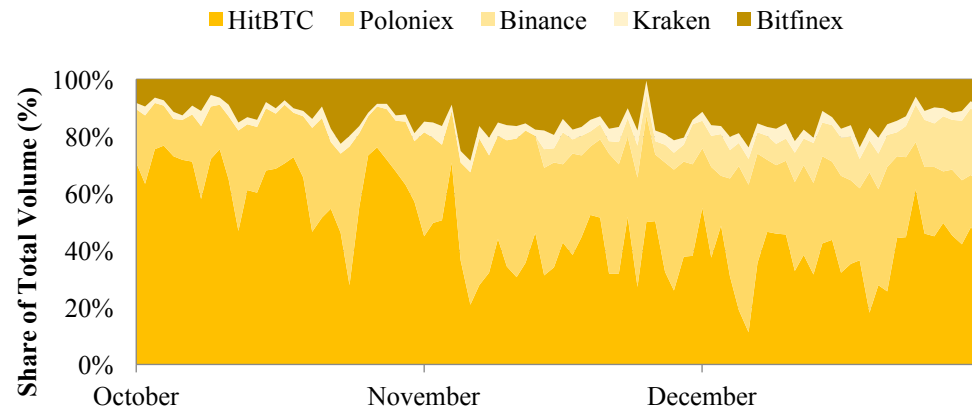
**Q3 2017:**  
**BTC 49.1%**  
**KRW 25.7%**  
**USD 21.8%**



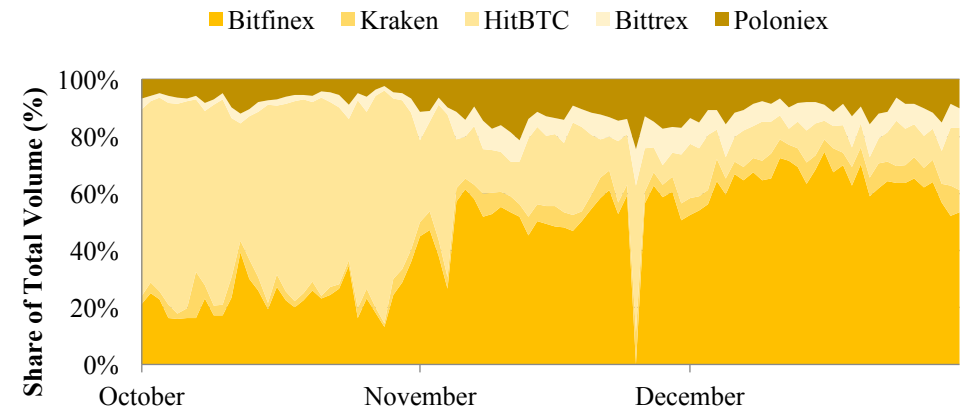
# HitBTC Led in BTC Markets

## Bitfinex Gained Big in USD

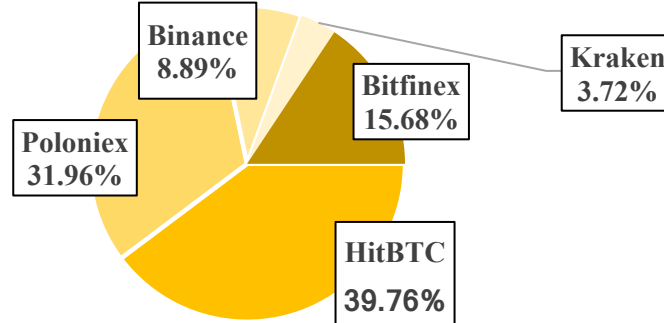
**Monero Exchange Trading Volume (BTC)**  
Share of Total Volume Across Exchanges



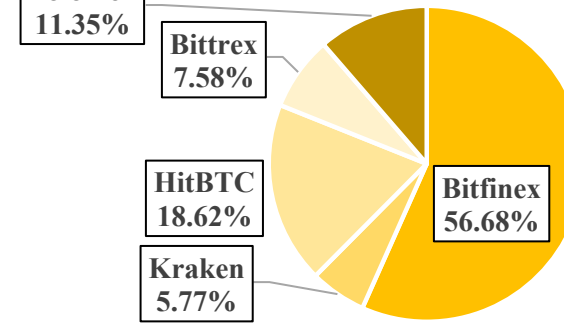
**Monero Exchange Trading Volume (USD)**  
Share of Total Volume Across Exchanges



**Monero Exchange Trading Volume (BTC)**  
Share of Total Across Exchanges



**Monero Exchange Trading Volume (USD)**  
Share of Total Across Exchanges

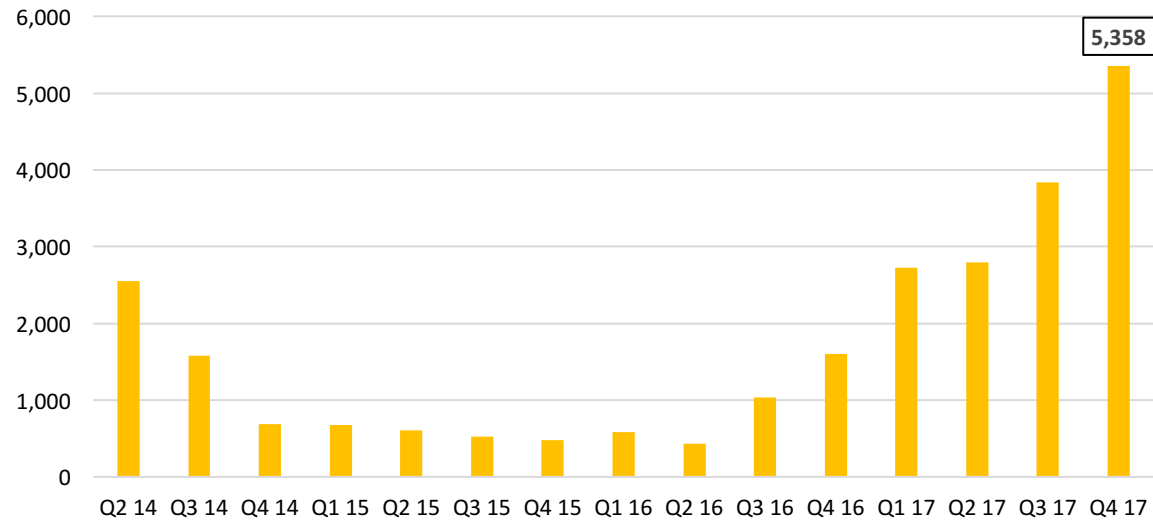




# Transactions

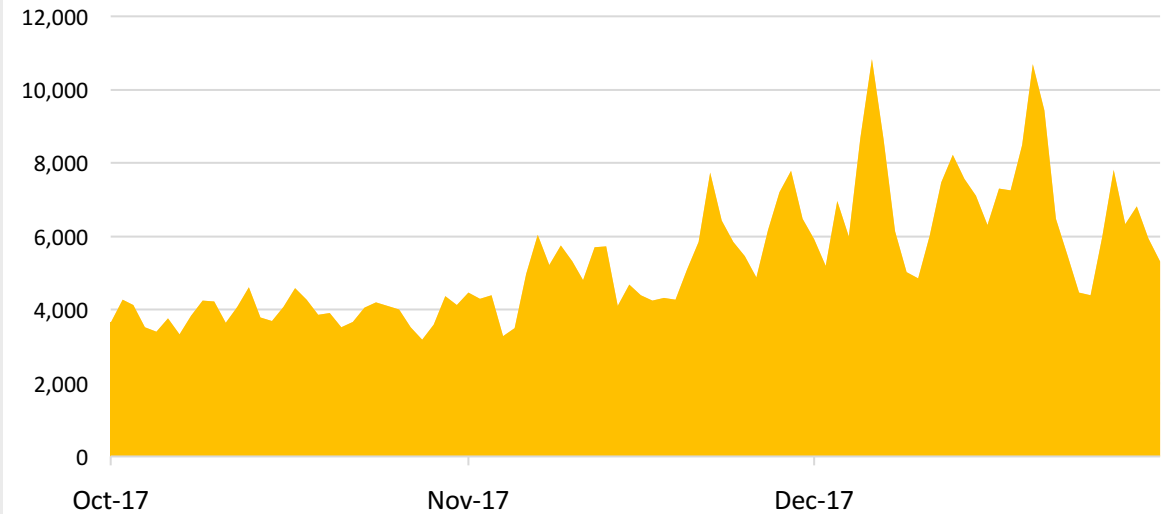
## XMR Transaction Numbers Rise

**Monero Transaction Growth**  
(Average # per day)



**Q4 2017:**  
**BTC: 319,085**

**Monero Transaction Growth**  
(Average # per day)

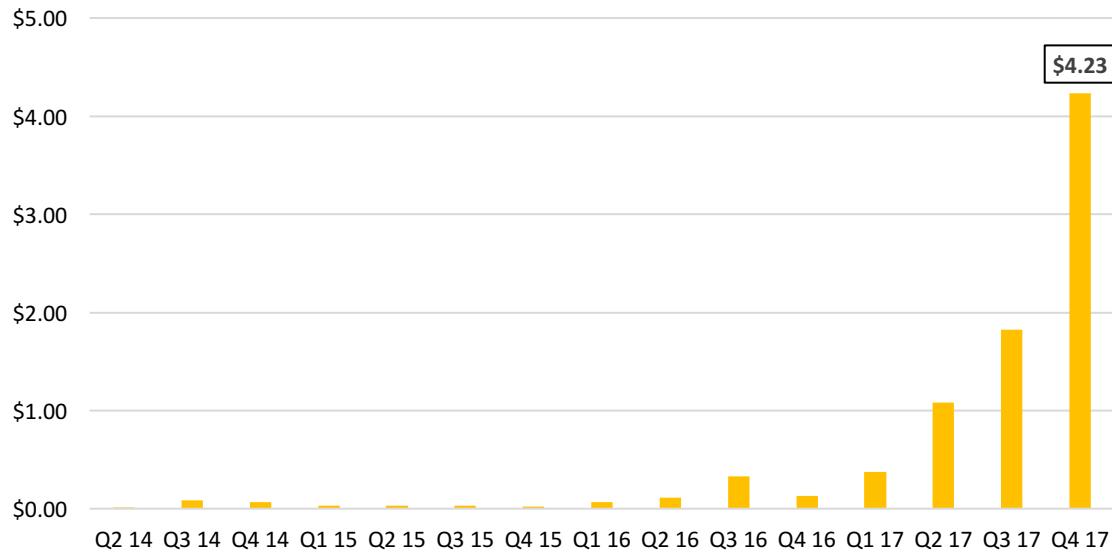




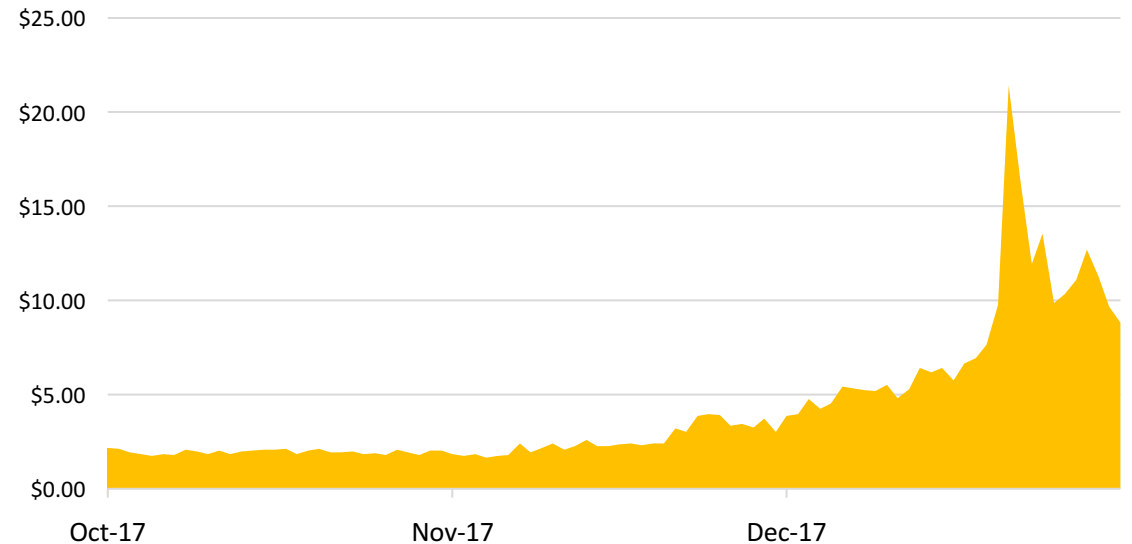
# Fees

**Transaction Fees More Than Double**  
Rose from \$1.82 in Q3 to \$4.23 in Q4 2017

**Monero Transaction Fee Growth**  
(Average \$ per transaction)



**Monero Transaction Fee Growth**  
(Average \$ per transaction)





# Hashrate

**Transaction Fees More Than Double**  
Rose from \$1.82 in Q3 to \$4.23 in Q4 2017

Monero Hashrate historical chart







# 3

## ENTERPRISE BLOCKCHAINS



## Q4 2017 Enterprise Blockchain Summary

### **Blockchain for Enterprise Market Expected to Grow:**

- Annual revenue for the enterprise blockchain will increase from approximately \$2.5bn worldwide in 2016 to \$19.9bn by 2025, with a CAGR of 26.2%.

### **Enterprise Ethereum Alliance sees more interest:**

- Enterprise Ethereum Alliance adds members and 3 new organizational structures.

### **R3 takes its next step:**

- R3 adds members, launches Corda version 2.0. Corda becomes the first DLT to be accessible on Amazon Web Services (AWS).

### **We.Trade joins the ecosystem:**

- 9 banks set up joint venture aiming to ease European domestic and cross-border trade with DLT built by IBM.

### **Microsoft's enterprise blockchain solutions:**

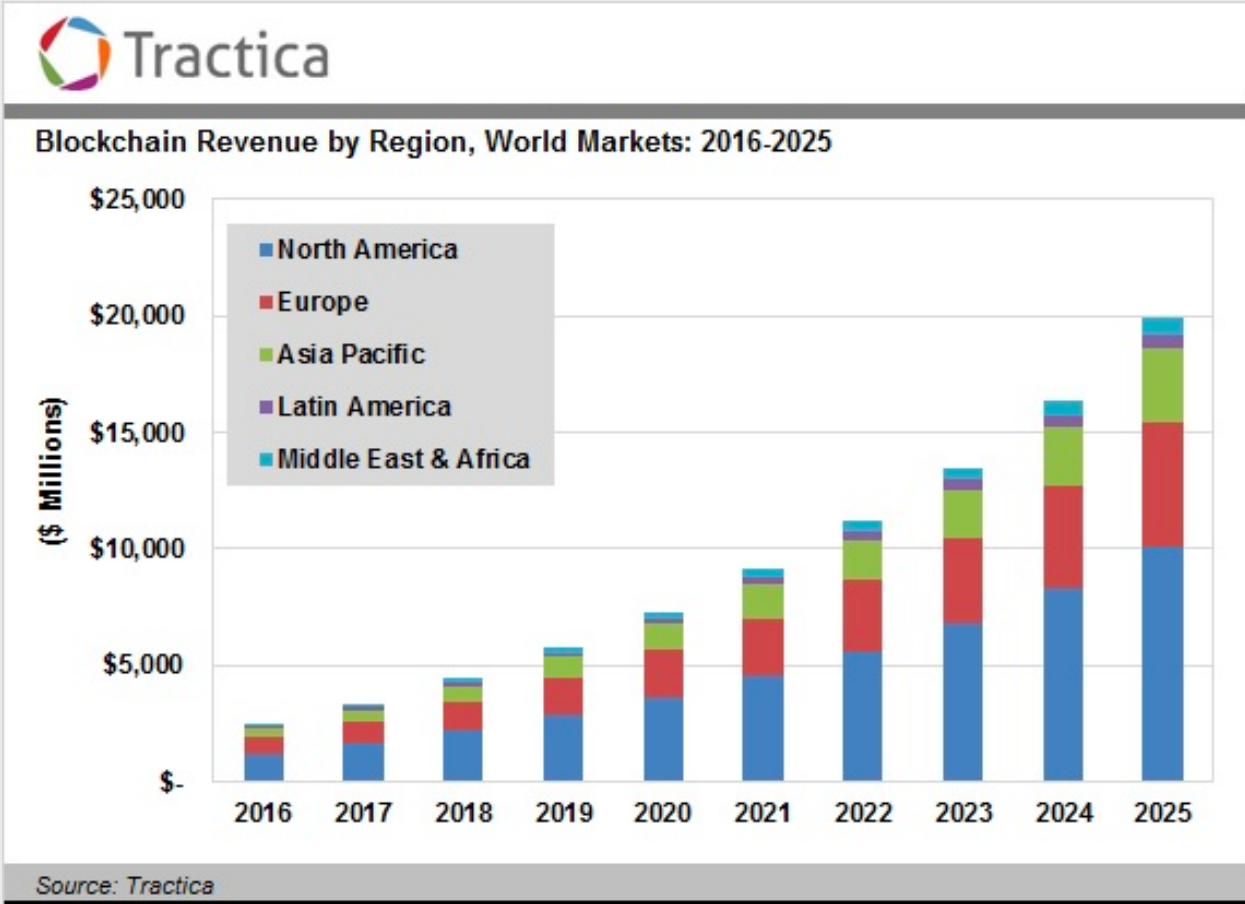
- Microsoft launches of blockchain for Azure Government.

### **Hyperledger loses members:**

- Hyperledger lost CME Group, Deutsche Borse Group, R3, and about 15 others.



# Blockchain for Enterprise Market Growth



Annual revenue for enterprise applications of blockchain will increase from approximately \$2.5 billion worldwide in 2016 to \$19.9 billion by 2025, representing a compound annual growth rate (CAGR) of 26.2%.

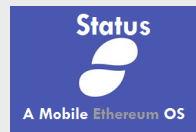
# Permissioned Blockchains: Enterprise Ethereum Alliance Update

## Membership

Now 250+ members, recent additions include:



**Hewlett Pack  
Enterprise**



**Member  
Fees: \$25k**

## New Organizational Structures

### Digital Identity Working Group:

The goal of the Digital Identity Working Group is to establish a general understanding about the role of ethereum in the digital identity space and to develop a taxonomy that is widely accepted and practiced in the technology industry.

### Energy Working Group:

The Energy Working Group is defining standards around ethereum blockchain implementations for oil and gas, mining, refining, trading, utilities, grids and other verticals within the energy industry. The group will work toward building the industry infrastructure needed for widespread adoption within these energy-related areas.

### Multiplatform Working Group:

The MultiPlatform Working Group will work to make the ethereum platform available on multiple operating systems and physical hardware. The current version works well on certain operating systems, but the group will work toward advances which will make the platform universally adoptable.

### Membership Gains

Now 100+ members, recent additions include:



**Member Fees:**  
Premier: \$250k a year.  
General memberships: \$5,000 to \$50,000

### Membership Losses

About 15 members left, will leave, or downgrade their membership. They include:



### Projects

- The National Settlement Depository (NSD), the central depository for Russia's largest securities exchange group, has announced it is testing a new commercial bond trading platform built on top of the Hyperledger blockchain consortium's Fabric software.
- Oracle Corporation opened its annual conference announcing building their Blockchain cloud service on top of the Hyperledger Fabric project.
- Quilt, Interledger protocol, joins Hyperledger



## Permissioned Blockchains: R3 Update

### Membership

Now 100+ members, recent additions include:



Data Sources: [R3](#), [CoinDesk](#)



### Corda v2.0

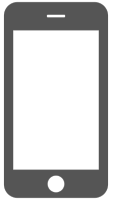
- Corda v2.0 released
- Corda 2.0 delivers the addition of Observer Node functionality. This feature allows transactions to be forwarded to third parties such as relevant regulators for addition to their vaults
- Corda is a platform for smart contracts focused on privacy and security
- Codebase developed with 50 financial services and tech firms
- Open-source release of platform occurred in 2016



R3 Loses  
Ripple  
Lawsuit

### Projects

- Finastra, R3, and 7 leading banks are creating an online marketplace to drive transparency and efficiency in the syndicated loan market
- R3 and 22 of its member banks have developed a solution that leverages distributed ledger technology (DLT) to enable fast, efficient and cost-effective cross-border payments
- Emali launches training course for R3's Corda DLT Platform in Hong Kong and Southern China
- R3's Corda has become one of the first DLT solutions available to users of Amazon Web Services (AWS)



# Major Cellular Carriers Around the World Launch Study Group, CBSG

## Members

**Sprint** 

 **SoftBank**

**F A R E A S T O N E**  




## Projects

- SoftBank Group, in partnership with blockchain startup Sivira, has created a blockchain-based system for managing personal financial information
- The company aims to launch the system in the market in 2019

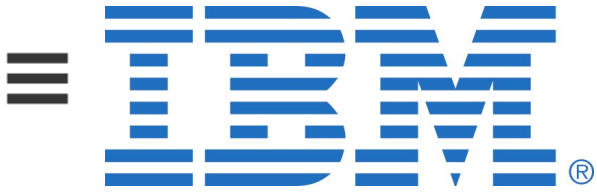
### Projects

- Microsoft's Coco platform aims to speed up transactions and simplify governance decisions for enterprise DLT
- It will work with popular open-source blockchains and distributed ledgers, including ethereum, R3, Corda, Hyperledger Sawtooth, and JP Morgan's Quorum
- Aims for compatibility with Intel's SGX chip, other hardware that protects private cryptographic keys.
- Intel SGX is CPU-related thus Microsoft's Coco Framework will not depend on GPU accelerators from Nvidia (NVDA) or AMD
- Launch of blockchain for Azure Government

### Interoperability







## Permissioned Blockchains: IBM Update

### Accelerator Partnership



- MState (formerly HyperFab) is a growth lab for enterprise blockchain focused on Hyperledger Fabric
- In partnership with IBM, Comcast Ventures, Galvanize and Boldstart Ventures
- IBM will provide training and support to participants

### Education

- The IBM Academic Initiative provides open resources to over 1,000 universities worldwide
- Recently added blockchain resources to the initiative, including access to the IBM Blockchain Platform, six months of access to IBM Cloud, and use of the IBM Blockchain cloud sandbox
- In addition, there are resources and guides for educators

### Projects

- ZF Friedrichshafen and UBS on mobile payments system: Car eWallet
- PSA International working on a blockchain trial for supply chain document flow
- Food safety consortium based on initial Walmart pilot now includes Dole, Unilever, Kroger, Nestle, and others
- BM is using the blockchain to speed up and simplify cross-border payments
- IBM to track pot supplies as they move up the supply chain from farm to distributor to retailer to consumers in conjunction with British Columbia government

## Permissioned Blockchains: We.Trade Update

### Members

Now 10+ members, including:



Joint venture rather than consortium. Founding members get equity.

### Projects

- Aiming to ease European domestic and cross-border trade we.trade is building a distributed ledger framework that connects a buyer, sellers, banks and intermediaries to simplify transaction management and tracking
- The consortium will create a new business entity in the Republic of Ireland, jointly owned by the eight founding banks, that will manage and distribute the offering
- Banco Santander, Deutsche Bank, HSBC, KBC, Natixis, Rabobank, Societe Generale and UniCredit are the 8 founding members banks
- The commercialization of the platform is expected in Q2 2018. From February 2018, test clients of the founding banks will be able to use the platform. Onboarding team has been formed to welcome new banks to the platform
- IBM provides the cloud-based system powered by Hyperledger Fabric 1.0
- Nordea becomes the ninth banking member in December



# 4

## TRADING & INVESTMENT



## Q4 2017 Trading & Investment Summary

### **Token sales raise 16x over VC:**

- Total raised by ICOs hits \$3.23bn in Q4, with VC amounting to \$200mn.

### **ICO deal breaks records:**

- Sirin Labs raised its way into 3rd all-time highest ICO (\$158mn).

### **Two important VC deals :**

- BitGo raised \$43mn and Bitpay raised \$30mn.

### **ICOs less spectacular in ETH:**

- Less spectacular when denominating in ETH with +56% vs. +146% for USD (Q3 to Q4).

### **Futures show promise:**

- CME & Cboe futures launched with regulatory approval and market interest.

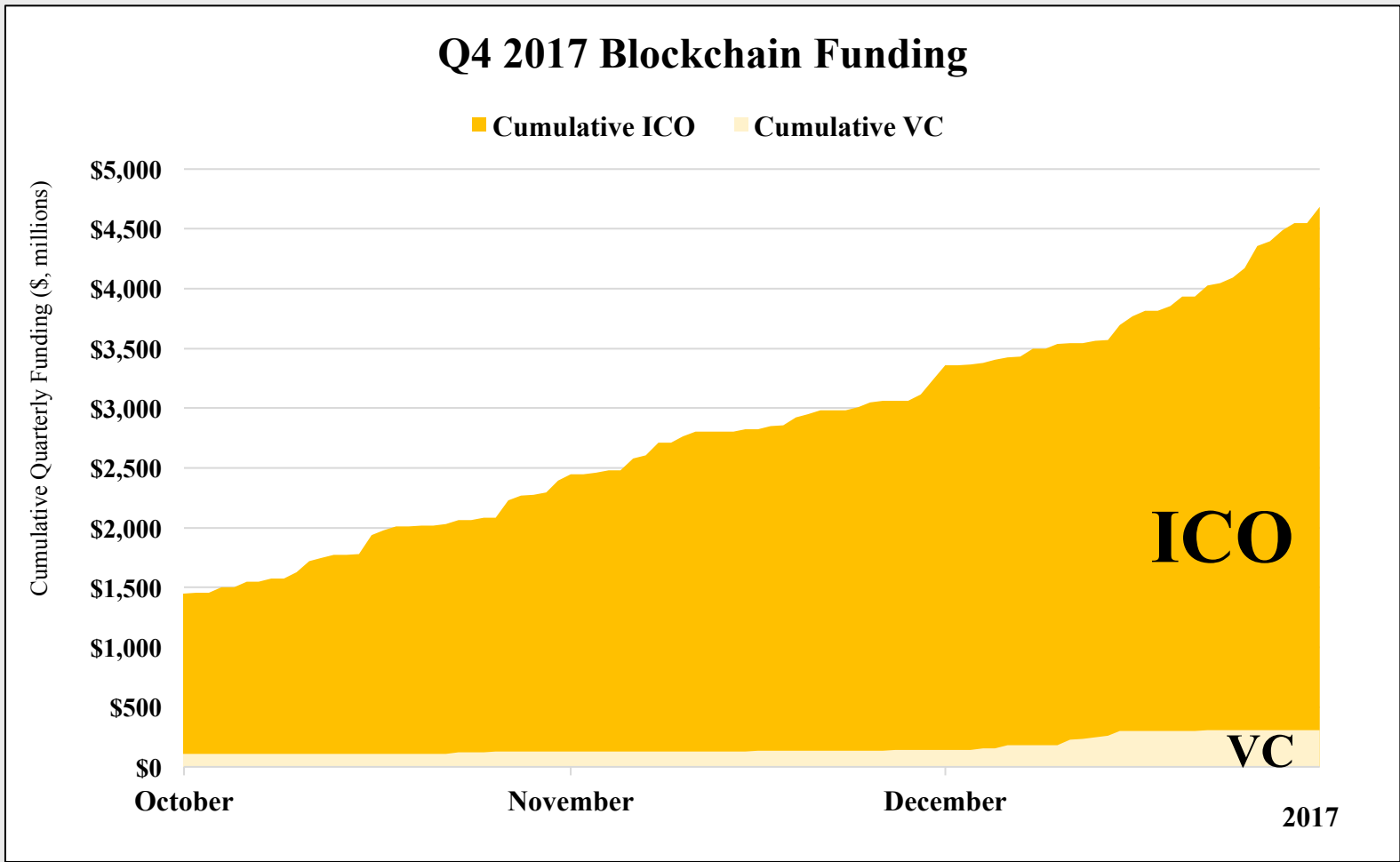
### **Forks have raised 8x more than ICOs:**

- Token generating events (TGE) are split between \$44bn in forks vs. \$5bn in ICOs cumulatively.



# ICO Funding Raised \$3.2bn in Q4

## ICOs Exceeded VC by Over 16x



**ICO**  
**\$3,231mn**

**VC**  
**\$200mn**

**Top ICO Deals:**  
Sirin Labs - \$157.9mn  
Polkadot - \$144.6mn  
Qash - \$107.3mn  
COMSA - \$95.4mn

**Top VC Deals:**  
BitGo - \$42.5mn  
BitPay - \$30mn  
OKCoin - \$27.2mn  
Abra - \$16mn

**Q2**

<b>ICO</b> <b>\$797mn</b>	<b>VC</b> <b>\$235mn</b>
------------------------------	-----------------------------

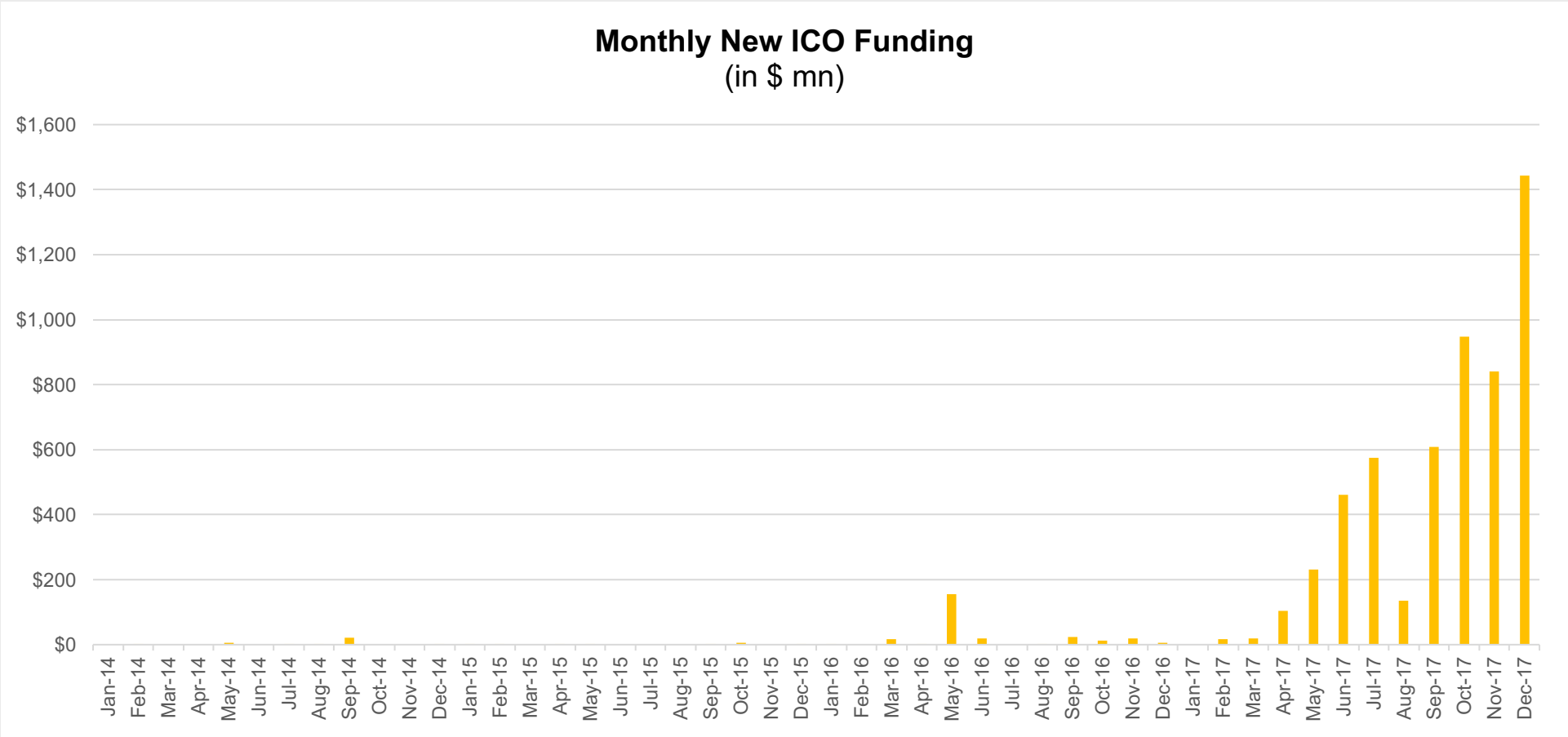
**Q3**

<b>ICO</b> <b>\$1,316mn</b>	<b>VC</b> <b>\$156mn</b>
--------------------------------	-----------------------------

Data Sources: [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)  
Notes: Deals under \$100,000 excluded, \$ amount at time raised, including only fundraisers ending in 'Q4 2017' (10/1/17 – 12/31/17)



# December Saw the Most ICO Funding Ever

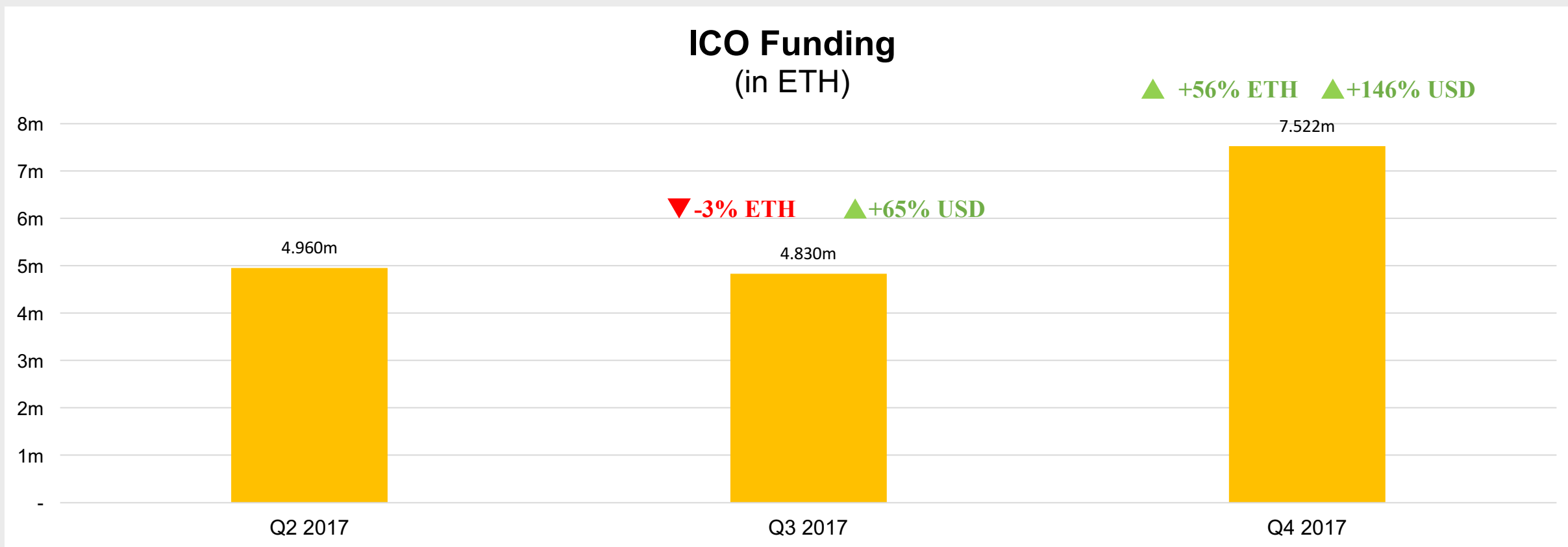


Data Sources: [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)  
Notes: Deals under \$100,000 excluded, \$ amount at time raised, \$ amount at time raised, including only fundraisers ending in 'Q4 2017' (10/1/17 – 12/31/17)



## When Priced in ETH, ICO Funding Less Spectacular

### Rise in Price of ETH Led to Rise in ICO Raises



Data Sources: [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)  
Notes: including only fundraisers ending in 'Q4 2017' (10/1/17 – 12/31/17)



# ICO

# ICO Deal Count Exploded in Q4 Dwarfs VC Investments in Blockchain

Q4 2017 ICOs		
Date	Project	ICO Round (\$m)
9/25/17	Centra (CTR)	30.00
9/26/17	Kin Kik	97.04
9/28/17	Cindicator (CND)	15.00
9/29/17	GameCoin	8.86
9/29/17	KICKICO (KCK)	24.97
9/30/17	Monetha (MTH)	29.95
9/30/17	Musiconomi (MCI)	6.77
9/30/17	REAL (REAL)	10.79
9/30/17	uooMAG (UMC)	20.00
10/1/17	Oxycoin (OXY)	6.25
10/2/17	HelloGold (HGT)	5.14
10/4/17	Viberate (VIB)	12.00
10/4/17	Wanchain	35.99
10/6/17	FinShi Capital (FINS)	21.41
10/6/17	Power Ledger (POWR)	23.23
10/8/17	PayPie	26.00
10/10/17	Aion Pre-sale	8.08
10/10/17	Airtoken (AIR)	15.00
10/10/17	Maecenas (ART)	15.40
10/10/17	Wolk Pre Sale	11.77
10/11/17	Airswap (AIG)	24.55
10/11/17	DomRaider	49.09
10/11/17	LAToken (LAT)	19.36
10/12/17	doc.ai (NRN)	13.75
10/12/17	Ties.Network (TIE)	8.29
10/13/17	Streamr	27.00
10/16/17	Change Bank (CAG)	15.83
10/16/17	Credit Protocol	15.30
10/16/17	Eidoo	27.22
10/16/17	HEROcoin	8.17
10/16/17	Paragon	94.58
10/17/17	Dovu	9.09
10/17/17	Request Network (REQ)	33.17
10/18/17	Ambrosus (AMB)	32.51
10/22/17	COBINHOOD (COB)	13.38
10/23/17	UnikoinGold (UKG)	31.59
10/25/17	BLOCKv (VEE)	21.07
10/27/17	Polkadot (DOT)	144.59
10/28/17	Etherparty (FUEL)	31.87
10/28/17	Swarm Fund	5.37
10/30/17	Aeron	5.35
10/30/17	Cryptopay (CPAY)	18.03
10/31/17	ATLANT (ATL)	6.63
...	...	...

Q4 2017 ICOs		
Date	Project	ICO Round (\$m)
10/31/17	CarTaxi (CTX)	8.71
10/31/17	Electroneum (ETN)	40.95
10/31/17	REALT (RLT)	11.15
10/31/17	Red Pulse (RPX)	13.32
10/31/17	Seratio Project (SER)	8.16
11/1/17	Enjin	22.93
11/1/17	Raiden Network (RDN)	33.13
11/3/17	Dragonchain	13.19
11/4/17	Ignis (IGNIS)	18.30
11/6/17	COMSA	95.37
11/7/17	Tokenbox (TBX)	8.32
11/7/17	UQUID Eco System (UQC)	17.80
11/8/17	Qash (QASH)	107.29
11/10/17	Ripio Credit Network (RCN)	37.43
11/10/17	Uptoken (UP)	18.93
11/11/17	Grid+ (GRID)	38.95
11/15/17	Crederoom (CDRT)	5.13
11/15/17	Soma	6.05
11/17/17	B2BX	8.81
11/17/17	Oracles Network (POA)	13.37
11/18/17	MicroMoney	10.54
11/19/17	Qbao (QTUM)	9.80
11/19/17	Quantstamp	53.64
11/20/17	UTRUST	21.00
11/21/17	Science Blockchain (SCI)	12.27
11/21/17	Time New Bank	14.38
11/24/17	Flixo (FLIX)	5.10
11/24/17	Mercury Protocol (GMT)	7.62
11/24/17	Starbase (STAR)	8.92
11/25/17	CyberMiles (CMT)	34.37
11/26/17	trade.io Pre-sale	11.29
11/29/17	Datum (DAT)	7.42
11/29/17	WAX (WAX)	45.36
11/30/17	Crypto 20 (C20)	34.93
11/30/17	Esports	5.84
11/30/17	EthLend (LEND)	16.74
11/30/17	Genaro Network (GNX)	11.61
11/30/17	Paycent	15.53
11/30/17	Presearch	20.50
11/30/17	WaBi	11.50
12/1/17	Betmaster (BETM)	5.24
12/1/17	Blockstack (STX)	50.00
12/1/17	DMarket (DMT)	16.18
...	...	...

Q4 2017 ICOs		
Date	Project	ICO Round (\$m)
12/1/17	Playkey (PKT)	10.45
12/1/17	Sense	15.00
12/1/17	Simple Token (ST)	21.40
12/4/17	SmartMesh	15.69
12/5/17	Cashaa (CAS)	11.15
12/5/17	Leverj (LEV)	13.84
12/6/17	Tokens.net (DTR)	15.00
12/8/17	SportyFi (SPF)	5.09
12/8/17	Storm	30.72
12/8/17	Universa (UTN)	28.68
12/10/17	aelf	24.75
12/10/17	Spectre (SPEC)	15.39
12/11/17	CrowdWiz (WIZ) Pre-Sale	5.39
12/13/17	GUTS Tickets	7.52
12/14/17	GIFTO	10.00
12/15/17	DeepBrain Chain	11.76
12/15/17	DreamTeam	5.52
12/15/17	Gatcoin (presale) (GAT)	9.00
12/15/17	MediBloc (MED)	25.64
12/15/17	Naga (NGC)	62.66
12/15/17	Protos (PRTS)	5.72
12/16/17	Coinlancer	11.86
12/16/17	Nebulas (NAS)	60.00
12/17/17	Neufund (NEU)	14.90
12/17/17	SophiaTX	23.47
12/19/17	Bread	20.02
12/19/17	CommerceBlock	8.82
12/19/17	MiniApps	5.30
12/20/17	Aditus	7.10
12/20/17	AppCoins	17.10
12/20/17	indaHash	42.72
12/20/17	Selfkey Pre-sale	15.84
12/22/17	PROPS	25.00
12/22/17	Qlink	32.17
12/22/17	SingularityNET	32.85
12/23/17	Hdac	20.00
12/24/17	Zen Protocol	46.37
12/25/17	INS Ecosystem	45.76
12/25/17	Uttoken	30.85
12/26/17	Sirin Labs	157.89
12/26/17	TokenPay	28.68
12/27/17	CanYa	8.34
12/27/17	Jibrel Network	30.00
...	...	...

Q4 2017 ICOs		
Date	Project	ICO Round (\$m)
12/28/17	Bankex (BKX)	70.30
12/28/17	BitDegree	22.13
12/29/17	BitClave (CAT)	25.55
12/29/17	Gladius	14.68
12/29/17	STK Token	17.00
12/31/17	ChainTrade (CTC)	30.00
12/31/17	Covesting	18.75
12/31/17	Finom	41.29
12/31/17	LinkerCoin	10.13
12/31/17	Loci	7.38
12/31/17	Telcoin	25.00
<b>Total</b>	...	<b>\$3,231m</b>

# VC

Q4 2017 VC		
Date	Project	VC Round (\$m)
10/19/17	The Sun Exchange	\$1.60
10/23/17	Abra	\$16.00
10/26/17	Orchid Labs	\$4.70
11/16/17	PayStand	\$6.00
11/27/17	LibraTax	\$7.80
11/29/17	Digix Global	\$1.25
12/4/17	CoinSquare	\$10.50
12/6/17	BitPay	\$30.00
12/11/17	Origin	\$3.00
12/11/17	Brontech	\$0.93
12/11/17	BitGo	\$42.50
12/12/17	Bitwise	\$4.00
12/13/17	Colu	\$14.50
12/14/17	Coldlar	\$10.00
12/15/17	OKCoin	\$27.20
12/15/17	MakerDAO	\$12.00
12/19/17	Radar Relay	\$3.00
12/19/17	dYdX	\$1.00
12/22/17	Coimify ApS	\$4.80
<b>Total</b>		<b>\$200.78</b>

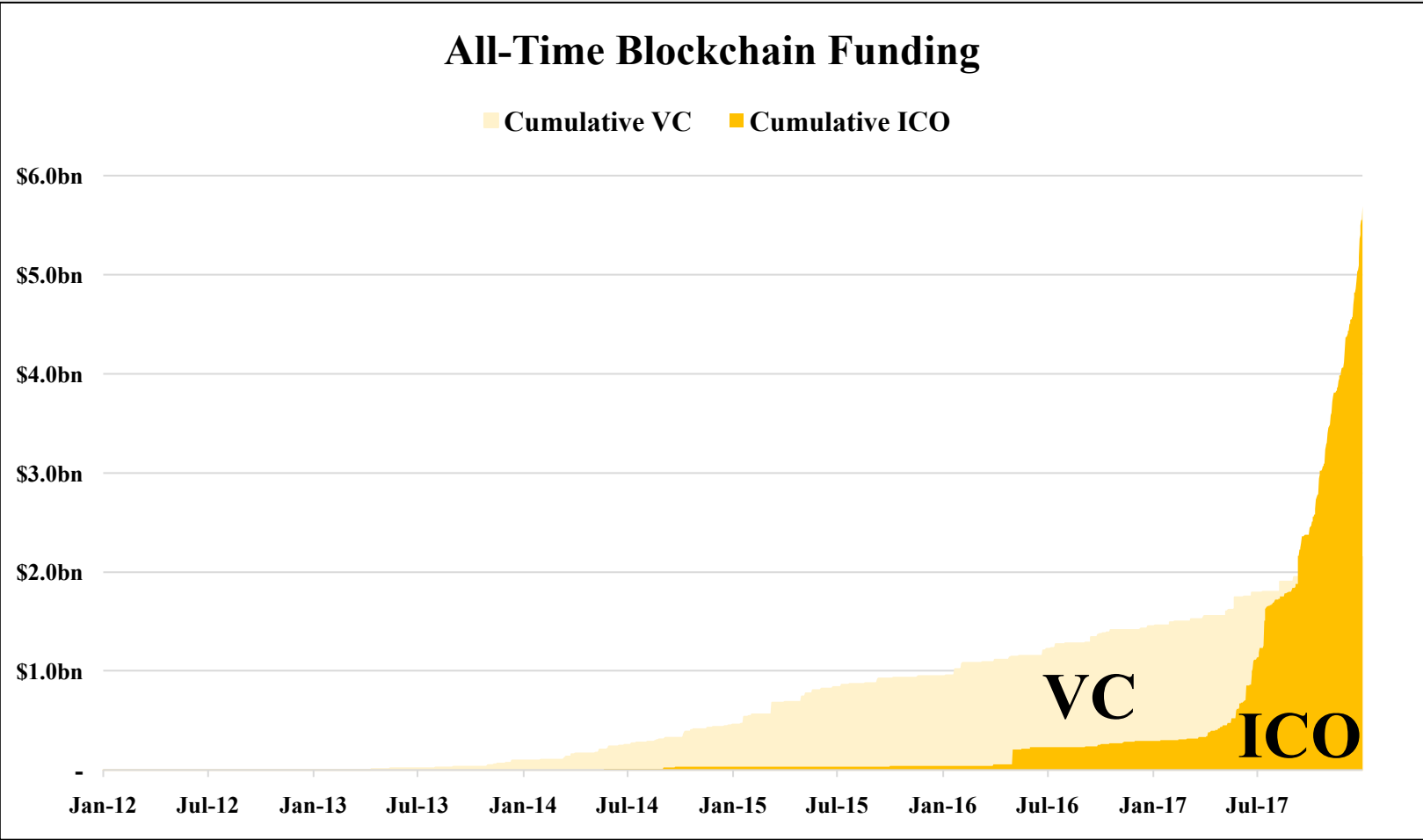
Data Sources: [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)

Notes: Deals under \$5m excluded, \$ amount at time raised, including only fundraisers ending in 'Q4 2017' (10/1/17 – 12/31/17)





# Q4 2017 ICO Total Funding Sky Rockets Further Above Total Venture Capital Blockchain Investment



**ICO**  
**\$5.68bn**

**VC**  
**\$2.15bn**

**Top ICO Deals:**  
Filecoin - \$262m  
Tezos - \$232m  
Sirin Labs - \$157.9m  
Bancor - \$153m

**Top VC Deals:**  
21 - \$116m\*  
R3 - \$107m  
Coinbase - \$100m  
Digital Asset - \$60m

Data Sources: [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)

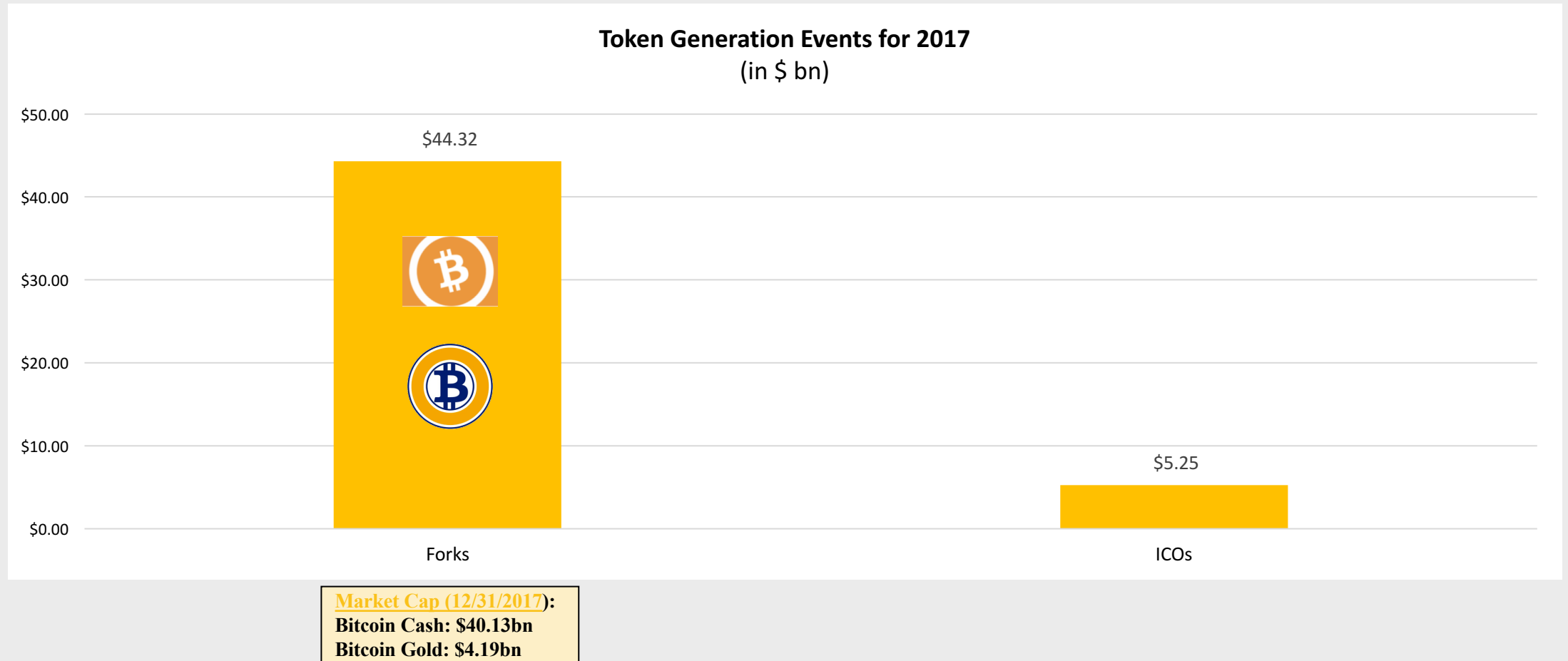
Notes: Deals under \$100,000 excluded, \$ amount at time raised

\*Amount contested and frequently reported between \$75m - \$116m



# TGE Compared

## Token Generating Events Dominated by Forks



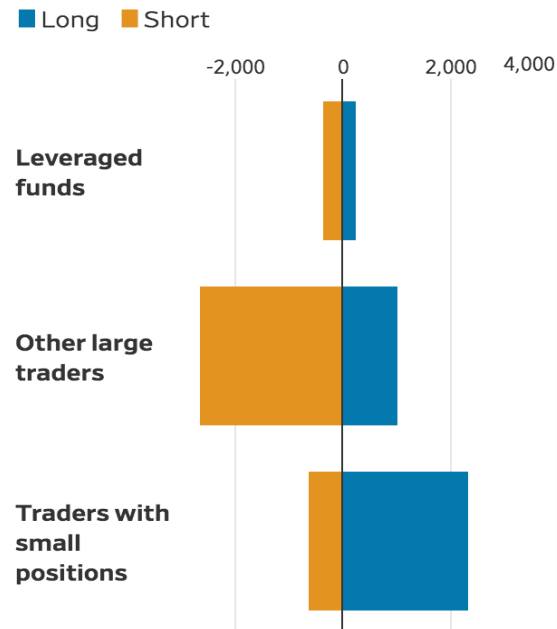
Data sources: [CoinmarketCap](#), [CoinDesk venture capital database](#), [CoinDesk ICO Tracker](#)



# The Future of Bitcoin

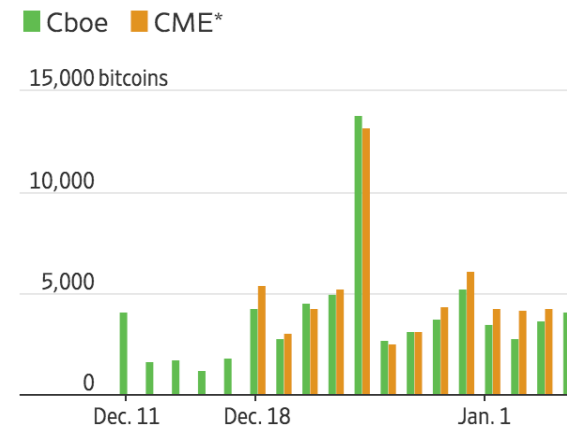
## CME & Cboe Launch Futures Successfully

Cboe bitcoin futures (outstanding contracts)



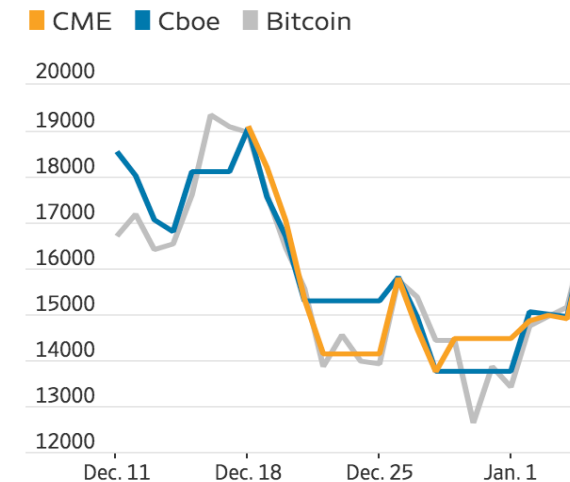
Note: Data as of Jan. 2  
Source: CFTC

Trading volumes at both Cboe and CME have yet to take off. Both exchanges had record activity in bitcoin futures on Dec. 22, the day of a sharp sell-off in bitcoin.



\*CME volumes are adjusted by a factor of five to reflect the larger size of CME's contract.  
Source: the companies

Both Cboe and CME's futures now track the price of bitcoin closely, though Cboe's contract initially traded at a hefty premium.



Note: Futures prices are for January contract. Cboe and CME do not trade on weekends and holidays.  
Sources: the companies (futures prices); CoinDesk (bitcoin price)

### Summary:

- Low Volume
- Institutional shorts
- Retail longs
- First contracts settle without problems



# 5

## GOVERNMENT & REGULATION



## Q4 2017 Government & Regulation Summary

### **CFTC approved bitcoin futures:**

- The US Commodities & Futures Trade Commission gave approval for CME & Cboe to launch bitcoin futures contracts.

### **Bitfinex & Tether became targets of US regulators:**

- US regulators subpoena crypto exchange Bitfinex and Tether.

### **South Korea saw higher levels of regulation:**

- Q4 was filled with consternation that eventually ended in an increase in regulatory measures on trading.

### **Russia moved to define regulatory environment:**

- Russian bill submitted which will determine the procedure for issuing, taxing, buying and circulation of cryptocurrency.



## Americas: CFTC Allows Futures Venezuela Backs Blockchain



**Nov. 28** – New York Department of Financial Services awards 4th ever BitLicense to bitFlyer.

**Dec. 1** – CFTC gave green light to CME and Cboe to list bitcoin futures.

**Dec. 4** – Rumors that Venezuela will issue oil-backed cryptocurrency.

**Dec. 6** – CFTC subpoenas crypto exchange Bitfinex and Tether.

**Dec. 12** – SEC warns 'extreme caution' over cryptocurrency investments.



## Europe: West Recoils Back East Leans Forward



**Dec. 4** – EU treasury requires more due diligence on cryptocurrency customers and reporting of suspicious transactions.

**Dec. 4** – UK treasury plans to regulate cryptocurrency exchanges.

**Dec. 19** – Estonian tech official promotes national cryptocurrency, called ‘estcoin’, in bid to become global ICO hub. The government remains hesitant and the EU central bank warns on national prohibition of currency creation.

**Dec. 22** – Belarus legalizes cryptocurrencies and ICOs – tax-free for five years.

**Dec. 28** – Russian bill submitted which will determine the procedure for issuing, taxing, buying and circulation of cryptocurrency.



## Asia: More Regulation Very Likely

### Japan Allows More Exchanges



**Nov. 15** – Supreme Court of India issues notice to Reserve Bank seeking regulation of bitcoin.

**Nov. 24** – Malaysian central bank to issue cryptocurrency regulation in early 2018.

**Dec. 3** – Japan approves another four new cryptocurrency exchanges.

**Dec. 5** – South Korea launches cryptocurrency task force to spearhead regulations.

**Dec. 7** – Bank Indonesia declares bitcoin payment illegal.

**Dec. 28** – South Korea is imposing new restrictions on cryptocurrency trading to limit speculation.





## Middle East and Australia: Regulations on Horizon Although Ineffective



**Oct. 30** – Australian central bank regulating blockchain protocols 'unlikely to be effective'.

**Nov. 1** – New Zealand regulator: “cryptocurrencies are securities”.

**Dec. 9** – Australian exchanges now required to register with AML regulatory body.

**Dec. 13** – Saudi, UAE central banks team up to test cryptocurrency.

**Dec. 25** – Israel regulator seeks to ban bitcoin firms from stock exchange.



# 6

## Blockchain Sentiment Survey

### SPOTLIGHT STUDY



# Q4 2017 Blockchain Sentiment Survey: Demographics – ~3000 Respondents



**16% Developers**, 16% Executives, 8% Investors  
4% Full-Time Blockchain, 16% Part-Time

2% work at Blockchain Technology Companies,  
5% at Investment Services

11% Accredited, **89% Unaccredited investors**

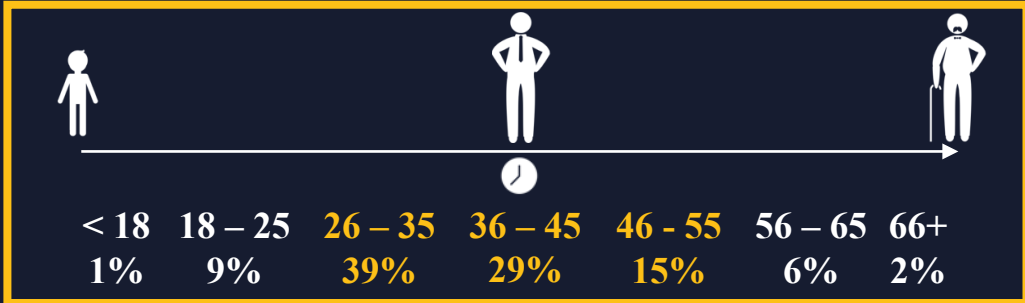


**92% bought cryptocurrency in 2017**,  
68% in Q4, 51% in Q3, 34% in Q2, 24% in Q1

**86% owned over 3 unique digital assets**,  
2% never owned

**27% own \$10k - \$50k worth of cryptocurrency**,  
16% own \$1k - \$5k, 12% own \$100k - \$500k

**94% check prices at least daily**, 56% every day, 37% every hour, 5% a couple times a week



Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



## Q4 2017 Blockchain Sentiment Survey: Key Takeaways

69%

feel positive about the current state of bitcoin, down 18% from last quarter



82%

didn't go into debt to purchase cryptocurrency, and of those that did 52% have already paid it back

94%

checked prices everyday (56%) or compulsively, every hour (37%)

75%

agreed with the postponement of SegWit2x, with 33% citing BCH as an existing market alternative.

70%

believe cryptocurrencies have moved away from cypherpunk roots. About 40% accept that something digitally native can be private property.

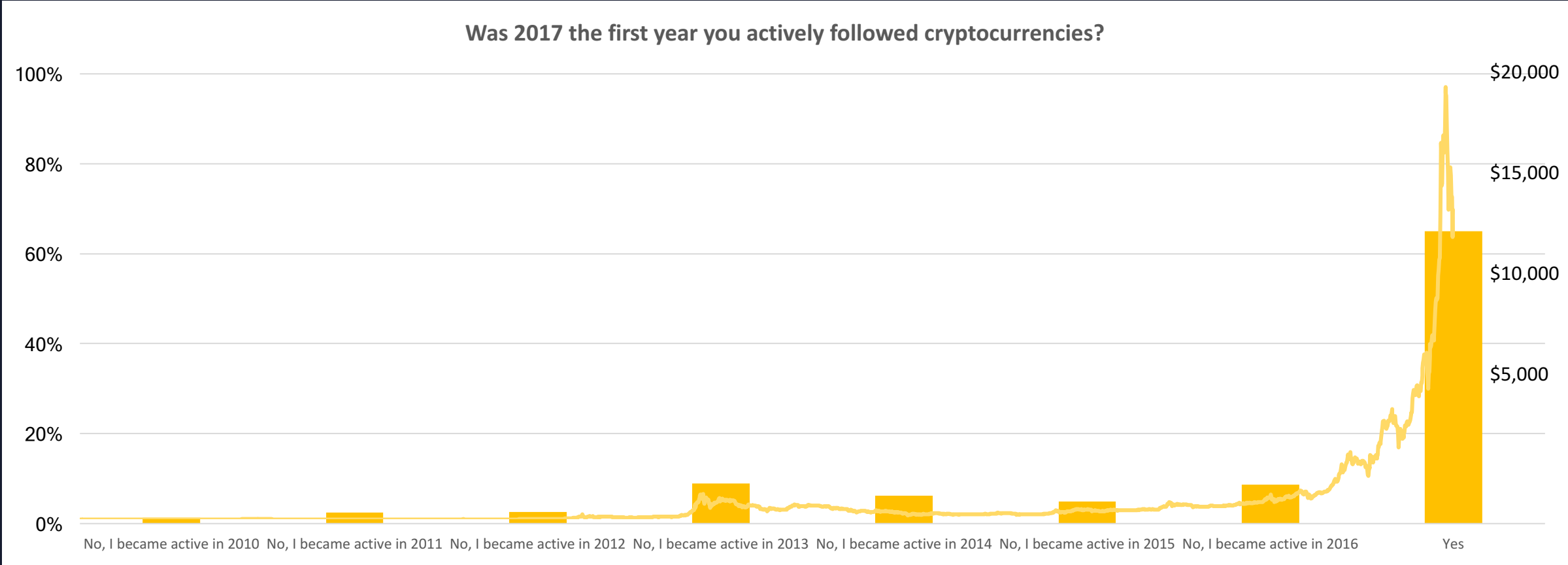
60%

just started following cryptocurrencies in 2017, with less than 2% getting involved in 2010.



# 60% Started to Follow Crypto in 2017

## Increase Tracks Price

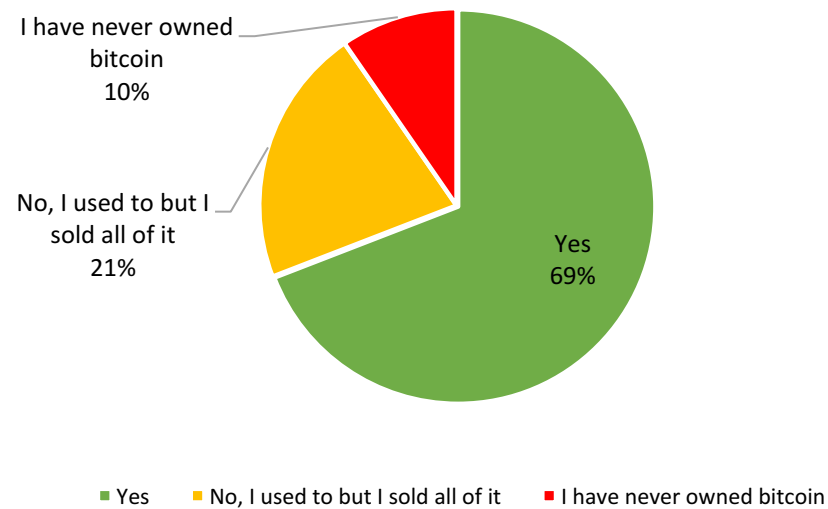


Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey

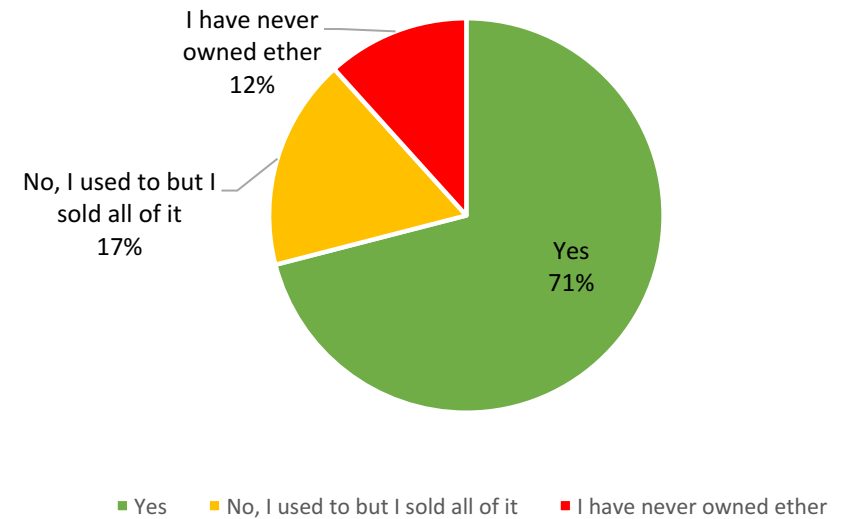


## Most Respondents Own Bitcoin and Ether Slightly More Own ETH Than BTC

Do you own bitcoin?



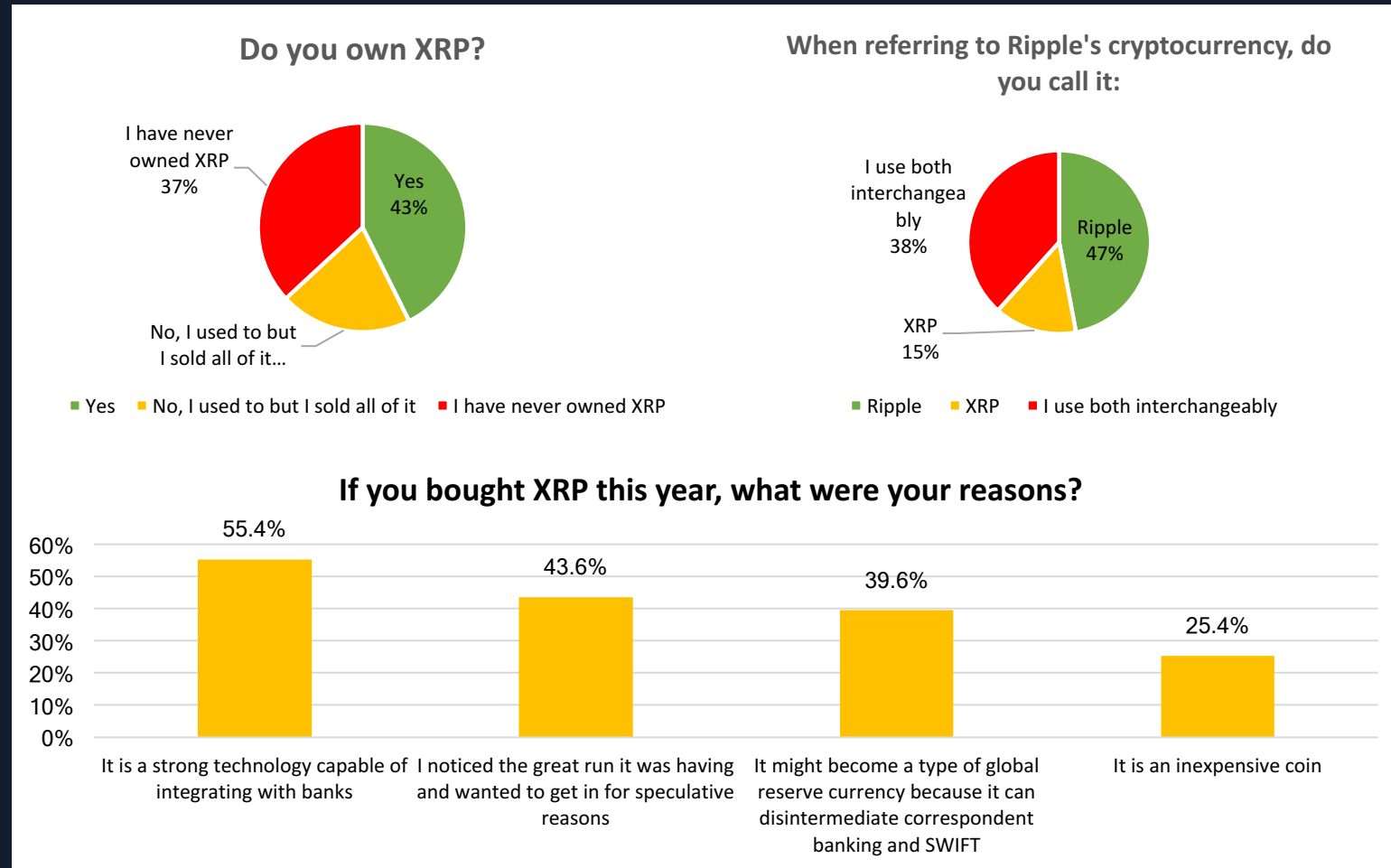
Do you own ether?





# 63% of Respondents Owned XRP

## 38% Refer to it as Ripple or XRP Interchangeably

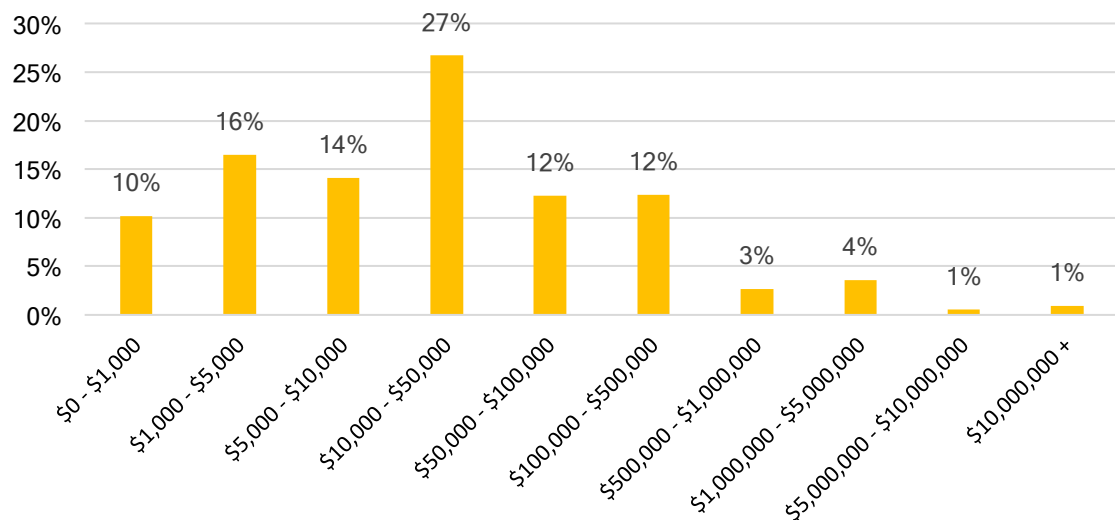




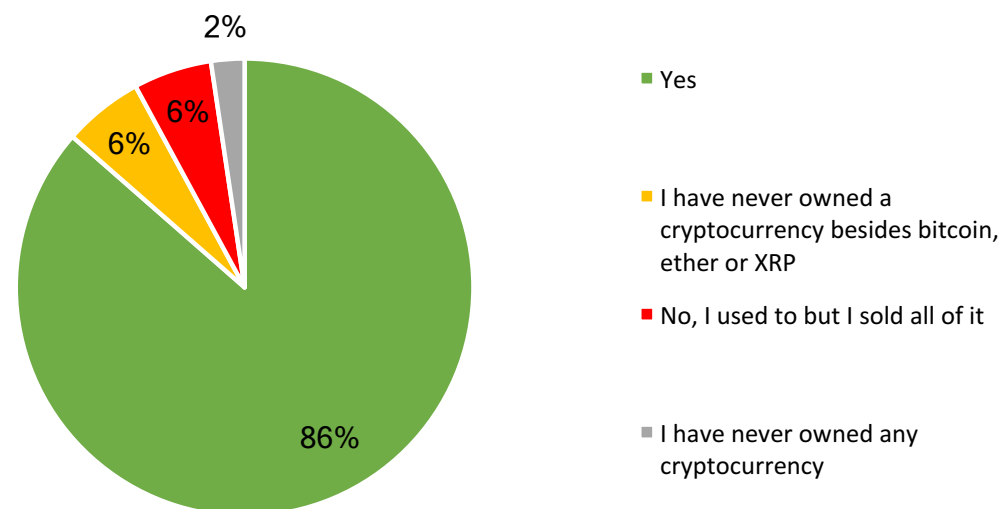
# 27% of Respondents Have \$10k - \$50k in Cryptocurrency Holdings

## 86% of Respondents Owned a Cryptocurrency Other than ETH, BTC, or XRP

How much money do you hold in cryptocurrencies  
(approximate \$ value today)?



Do you own any other cryptocurrency?



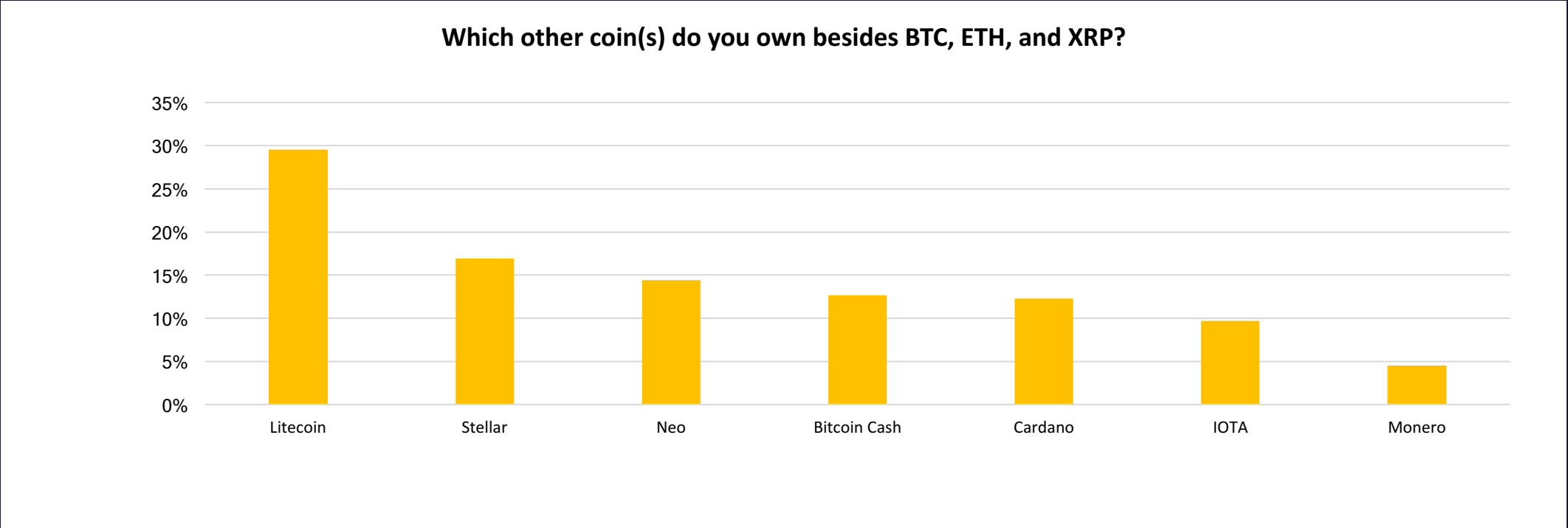
Top 5 other currencies: Litecoin, Stellar, NEO, Bitcoin Cash, Cardano





# The Next Best Coins

## Litecoin & Stellar take #4 & #5 Slot



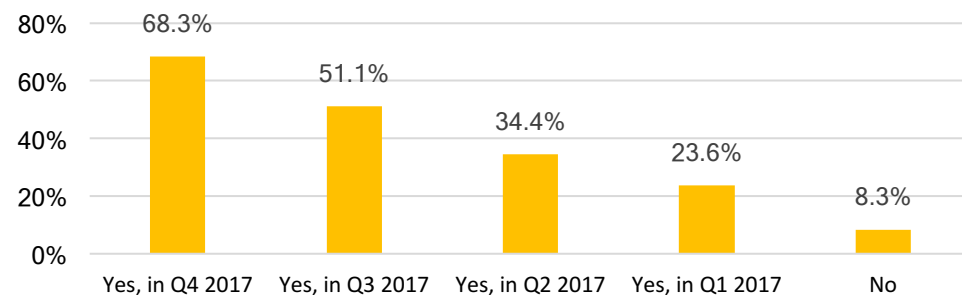
\*percentages are based on these 7 coins, not all coins submitted



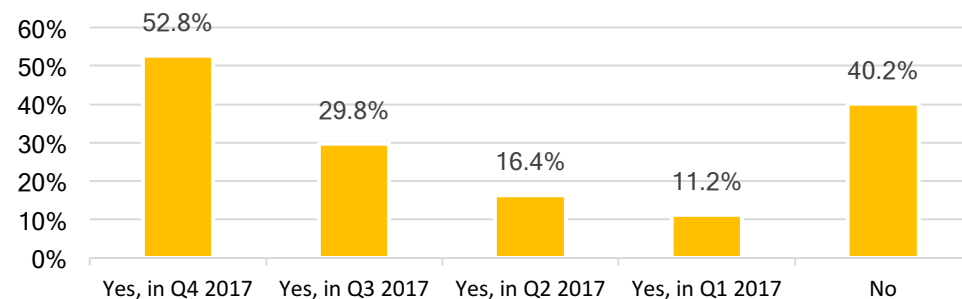
# 92% of Respondents Purchased & 60% Sold Cryptocurrency in 2017

## 94% Checked Prices At Least Daily

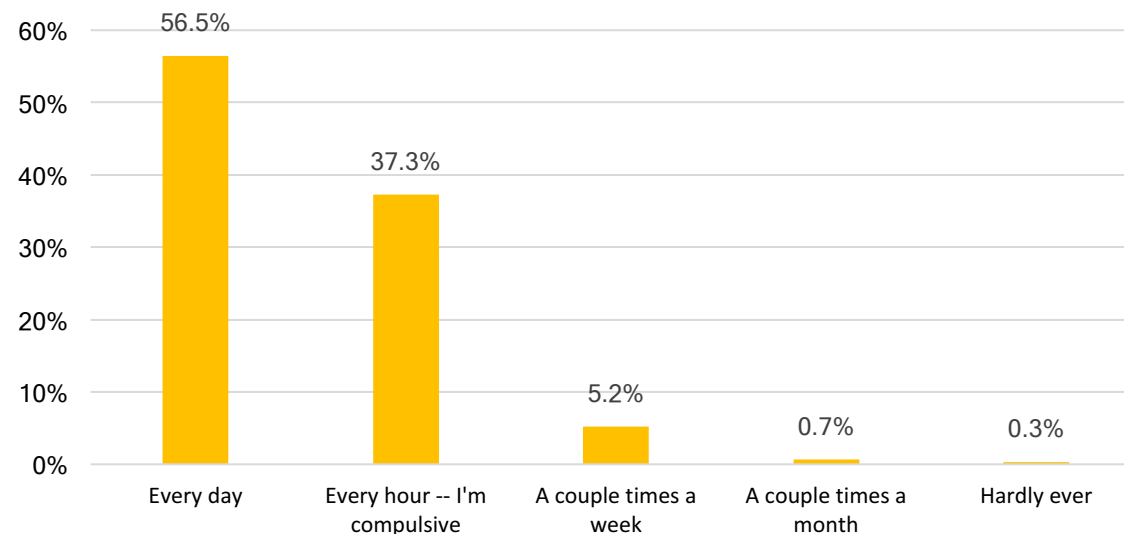
Did you buy any cryptocurrency in 2017?



Did you sell any cryptocurrency in 2017?



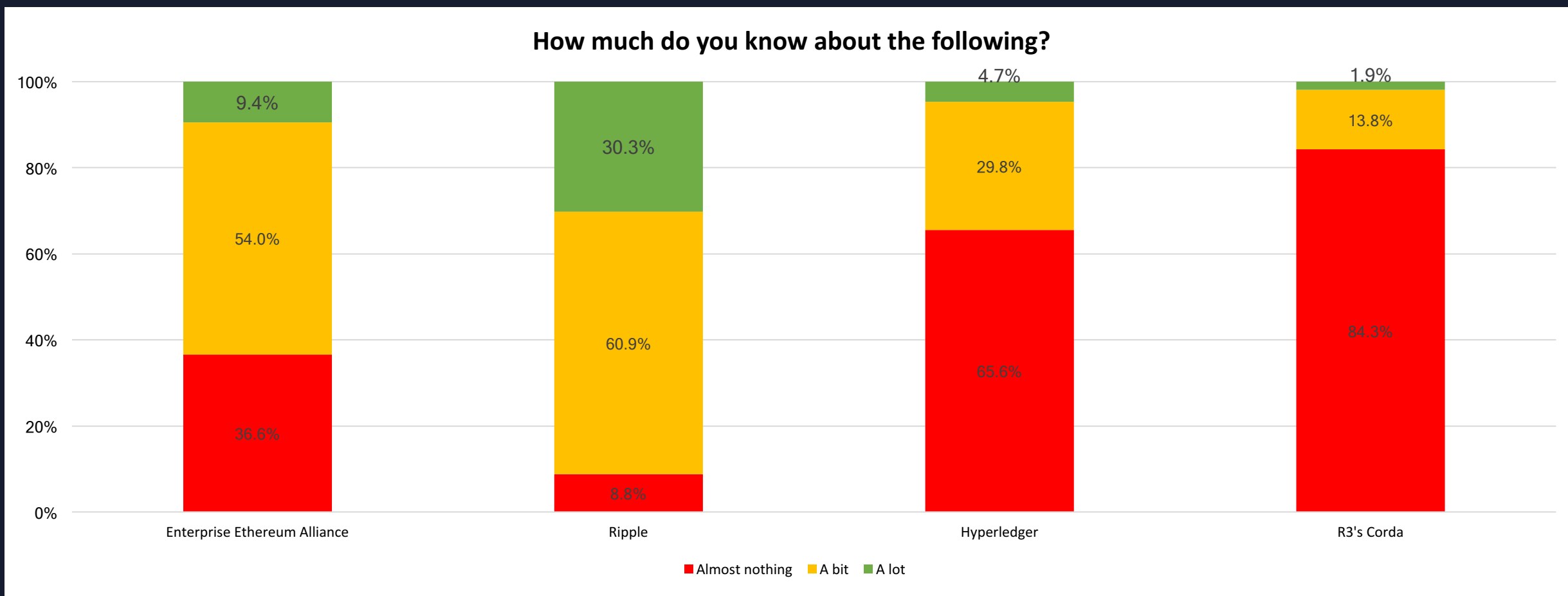
Approximately how frequently do you check cryptocurrency prices?





# Knowledge of Enterprise Projects Increased for EEA & Ripple

## Hyperledger & R3's Corda Least Well Known

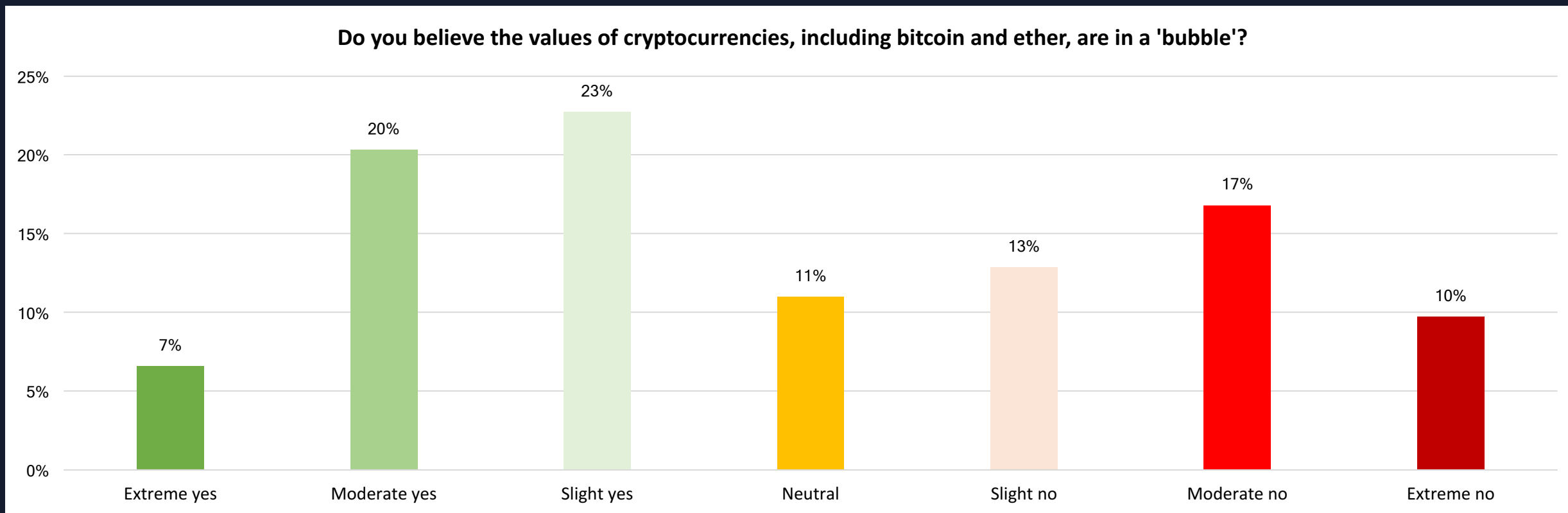


Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



# 10.9% More Respondents Thought Cryptocurrencies Are in a Bubble in Q4

## Most Common Response Was 'Slight Yes'



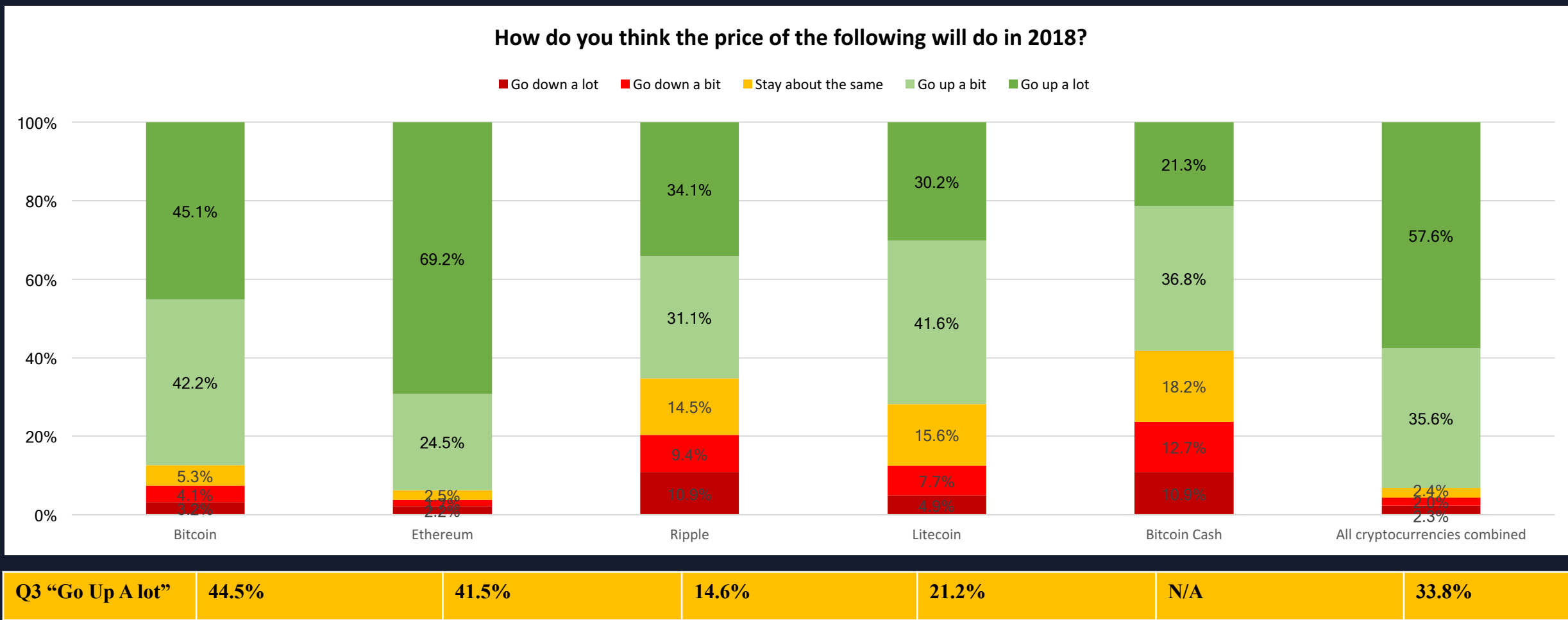
▲	<u>Q3:</u>		▲	<u>Q4:</u>	
▼	38.7%	yes	▼	49.6%	yes
	49.7%	no		39.4%	no

Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



# Community Was More Bullish on ETH Than BTC in Q4

## Alts Shown Positivity with +23.8% Saying They Will “Go Up A lot”

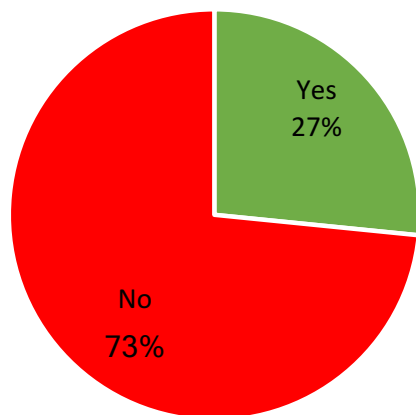


Data Source: CoinDesk’s Q4 2017 Blockchain Sentiment Survey

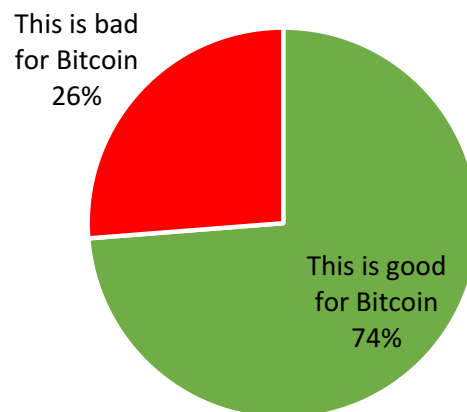


## Most Respondents Believe the CME & Cboe Futures Are Positive Signs

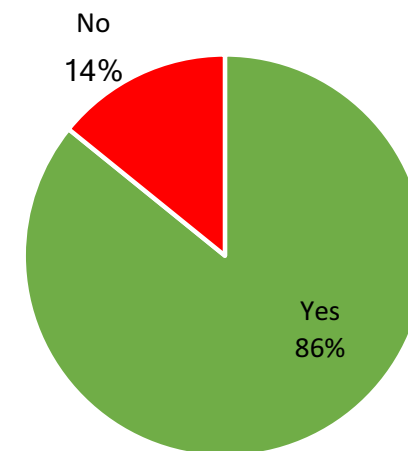
The CME and Cboe derivatives contracts were announced and went live in Q4. Were you surprised by this development?



Institutional capital began to flow into Bitcoin in 2017, and more importantly with the derivatives contracts from CME and Cboe in Q4. Do you believe this is a good thing or a bad thing for Bitcoin?



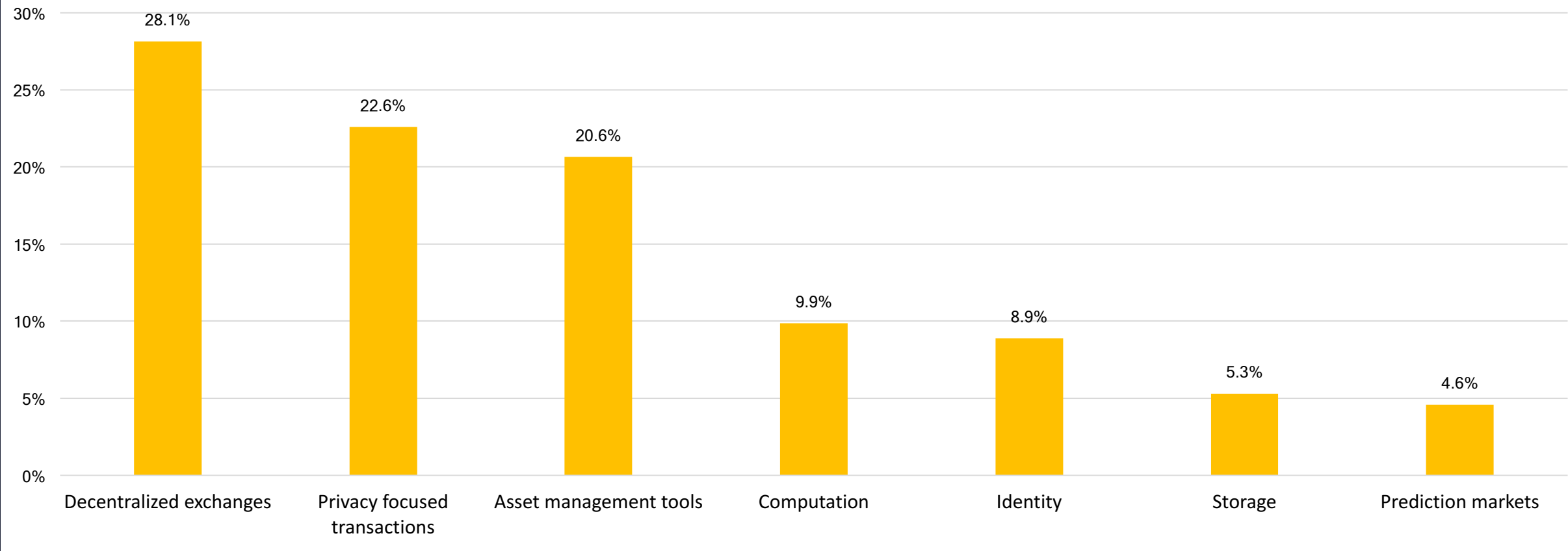
Do you think the regulated derivatives trading of BTC on the CME and Cboe paved the way for first digital asset-based ETF in 2018?





# Community Was Most Confident in Decentralized Exchanges

What sector of blockchain applications are you most bullish on?

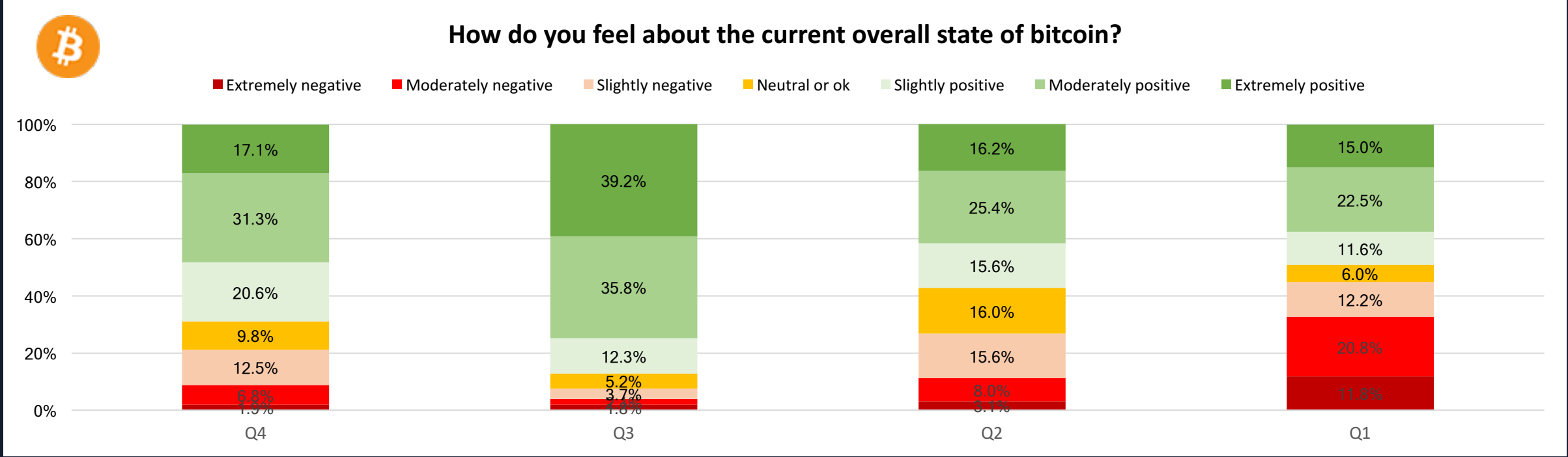



Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey





# Positive Sentiment Dropped -18.2% For Bitcoin in Q4

## Ethereum Saw Uptick in Positive Sentiment




Overall state of ethereum response: 


 **82.1% positive**


 **7.1% negative**

 **69.0%** **positive**

 **21.2%** **negative**

Q3 2017 State of Blockchain response: 

 **87.2% positive**

 **7.6% negative**

Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



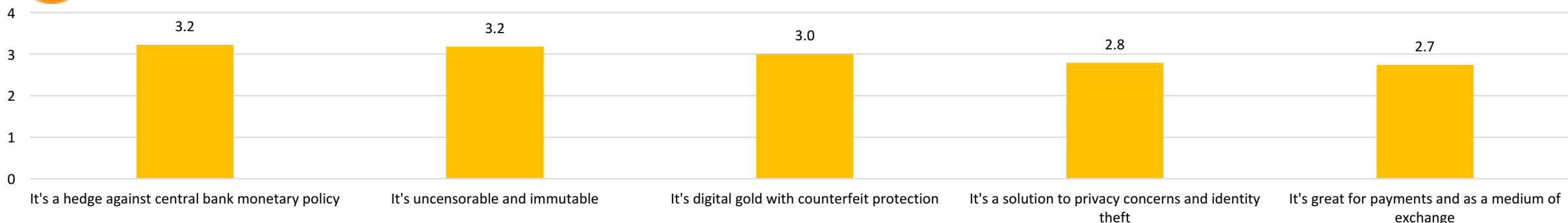


# Most Positive Aspect of Bitcoin Was Hedging Against Central Bank Policy

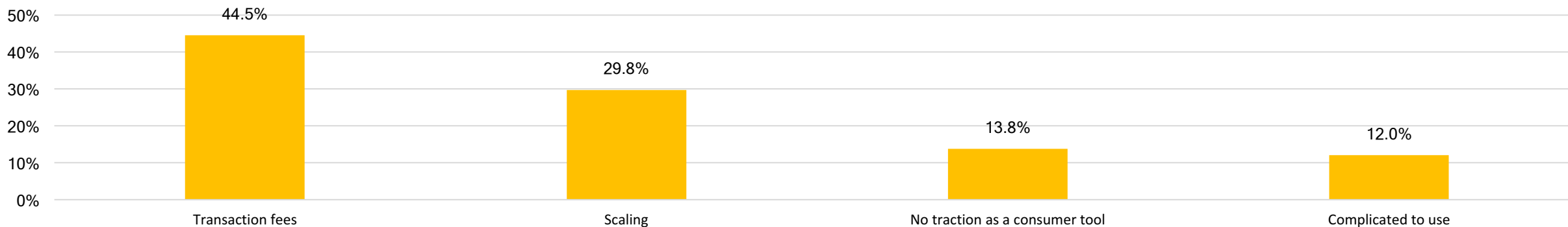
## Most Negative Aspect Was 'Transaction Fees'



How would you rank the following positive aspects of bitcoin today?



Which of the following do you consider to be the most negative aspect of bitcoin today?

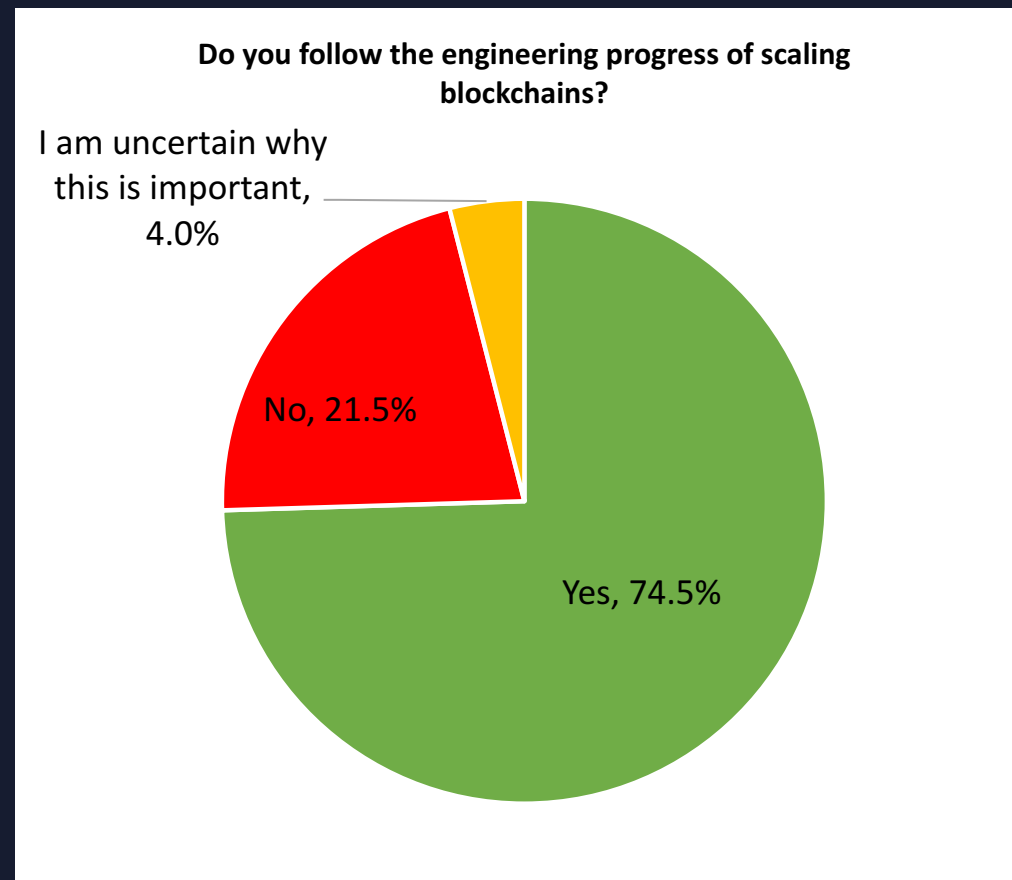
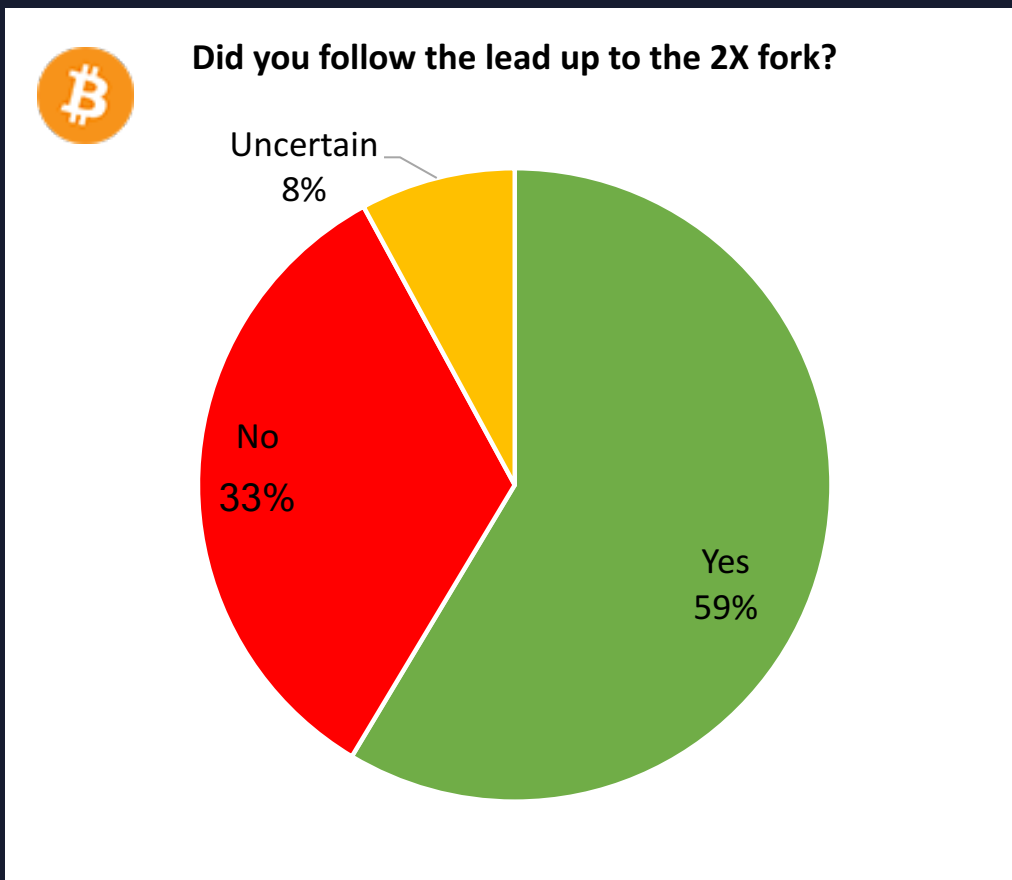


Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



## More Than Half Followed The Scaling Debate

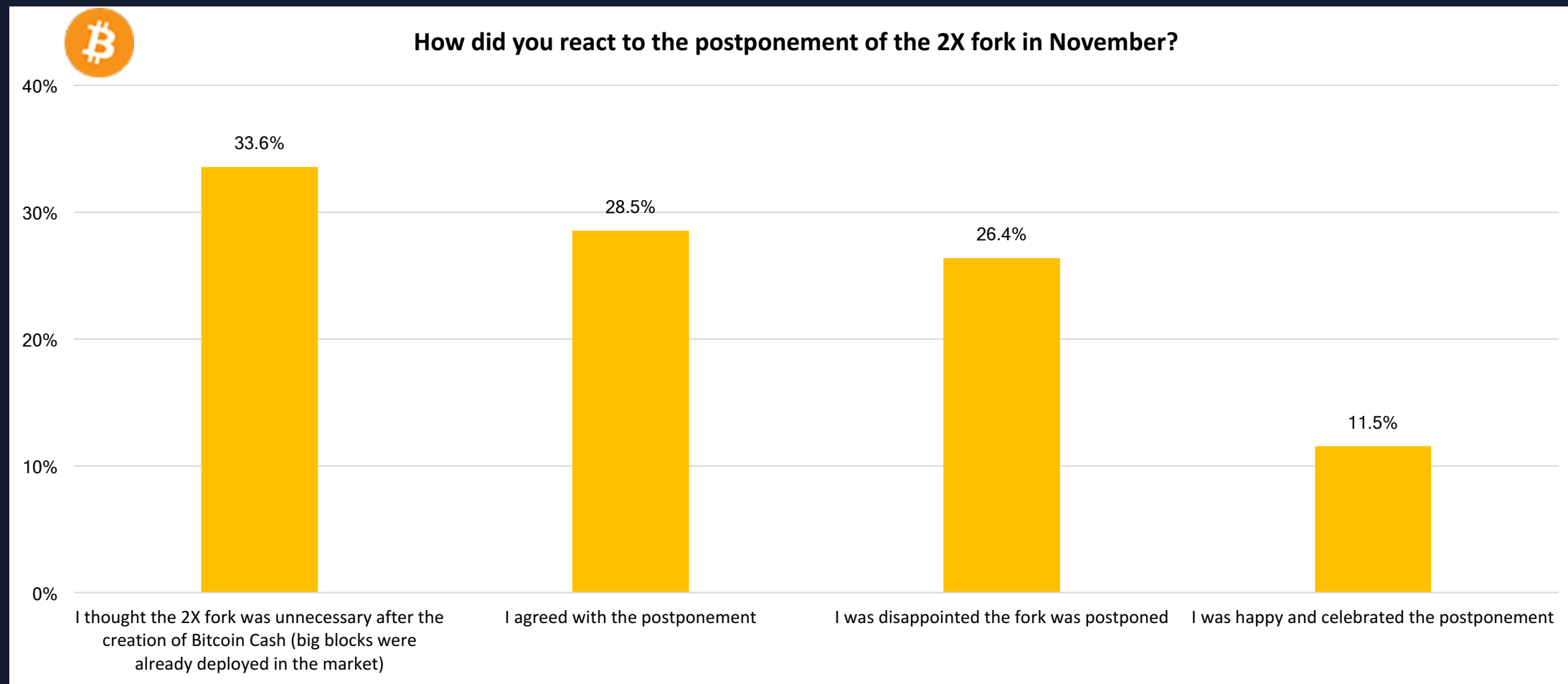
### 75% Follow Scaling Progress of Blockchains in General





## 34% Thought Bitcoin Cash Made 2X Irrelevant

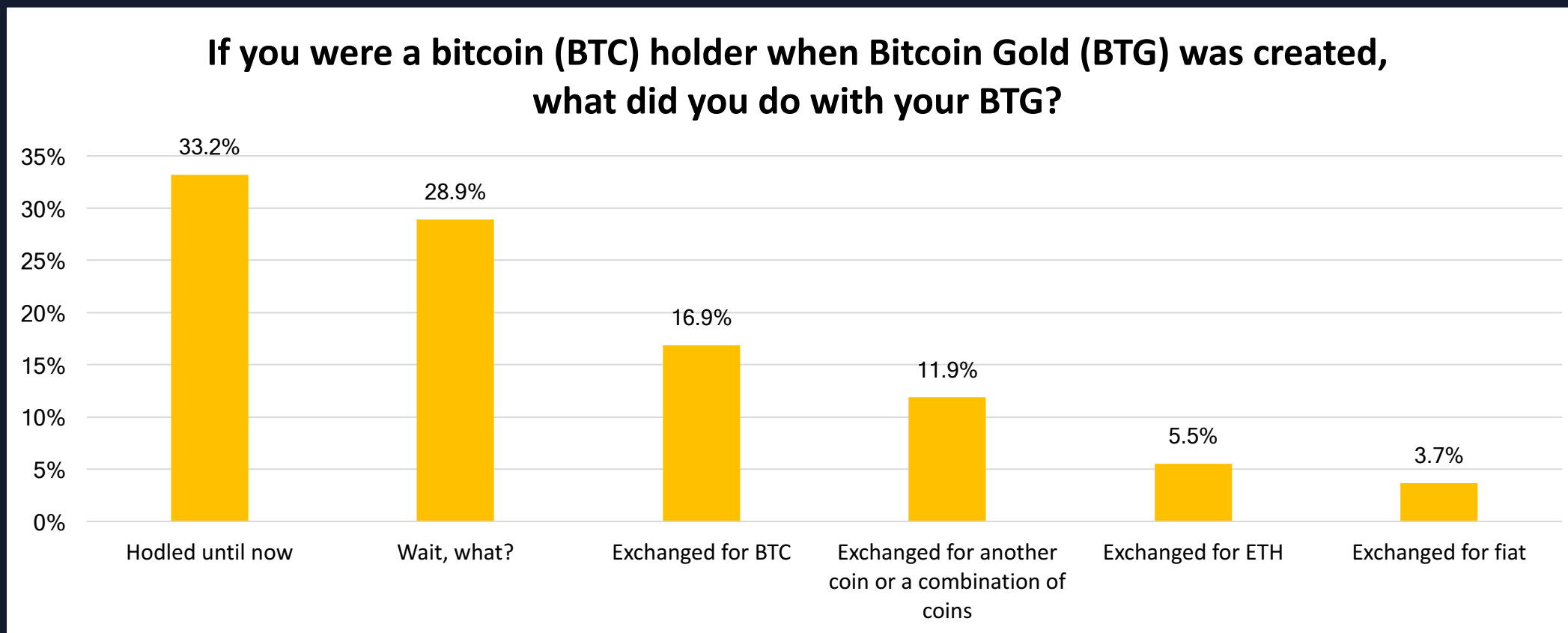
### Only 26% Were Disappointed



Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



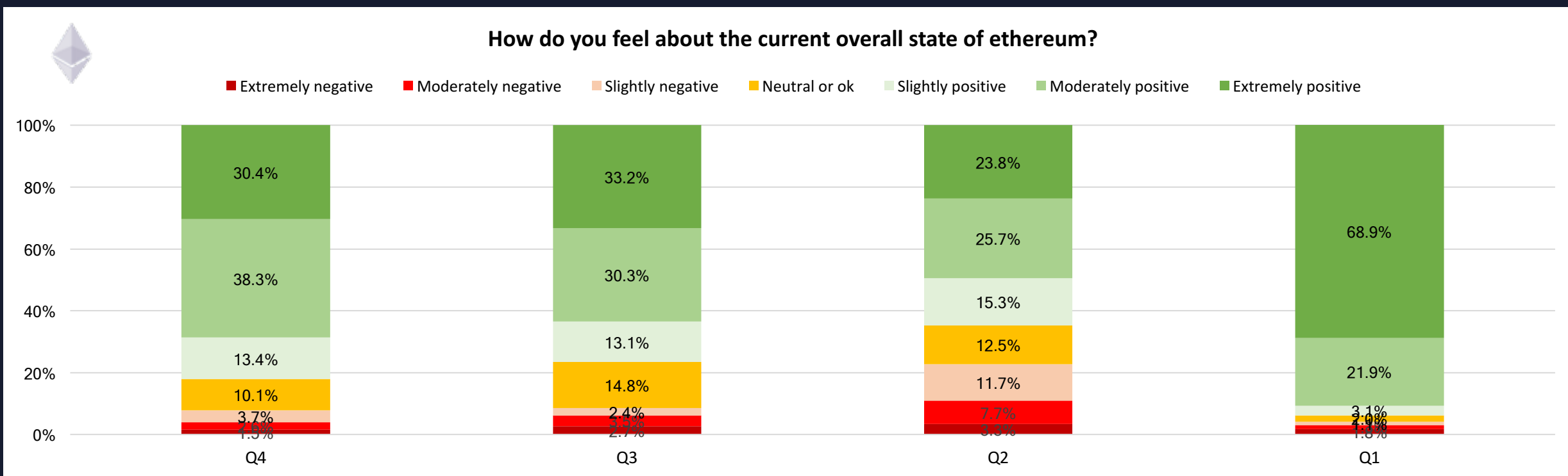
## After the BTG Hard Fork, 33% ‘Hodled Until Now’ 29% Were Unaware of BTG





# The Overall Sentiment Towards Ethereum Improved in Q4 Relative to Q3

## Ethereum Sentiment Much Higher than Bitcoin



Overall state of bitcoin response:

▲ 69.0% **positive**  
▼ 21.2% **negative**

▲ 82.1% **positive**  
▼ 7.7% **negative**

Q3 2017 State of Blockchain response:

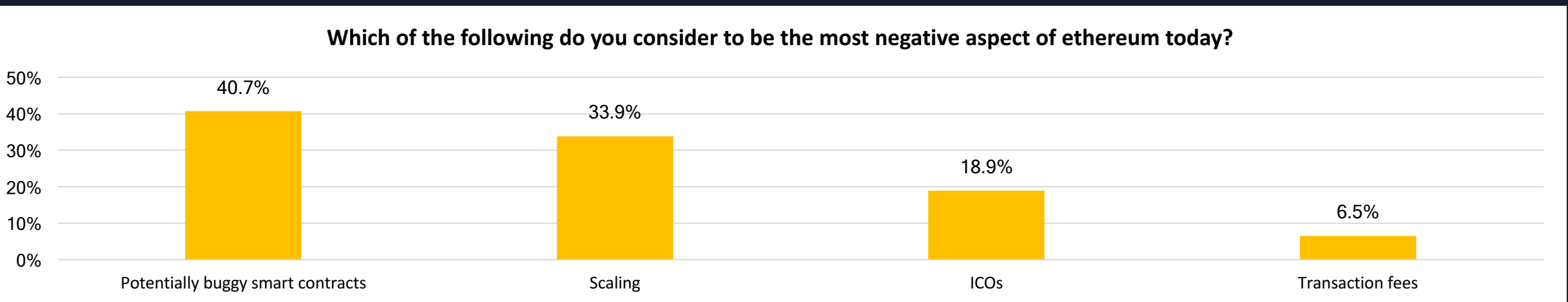
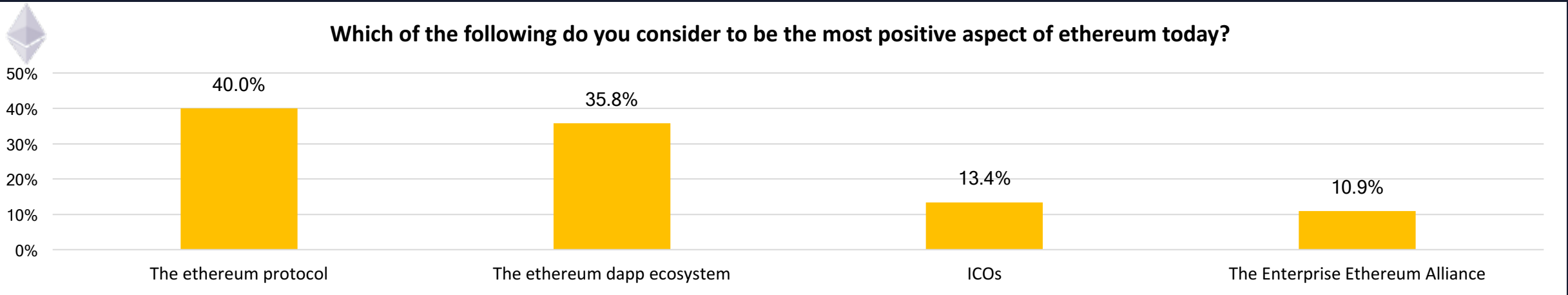
▲ 76.7% **positive**  
▼ 8.6% **negative**

Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



# Most Positive Aspect of Ethereum Was the Protocol

## 40.7% Say Problematic Smart Contracts Are the Most Negative



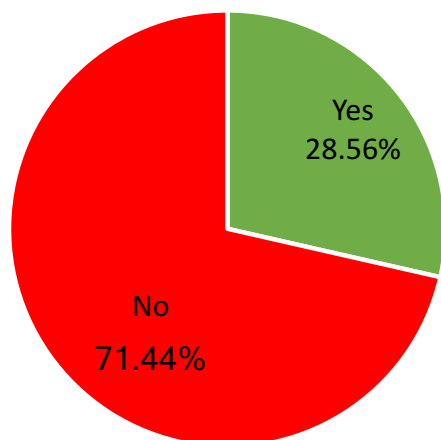
Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



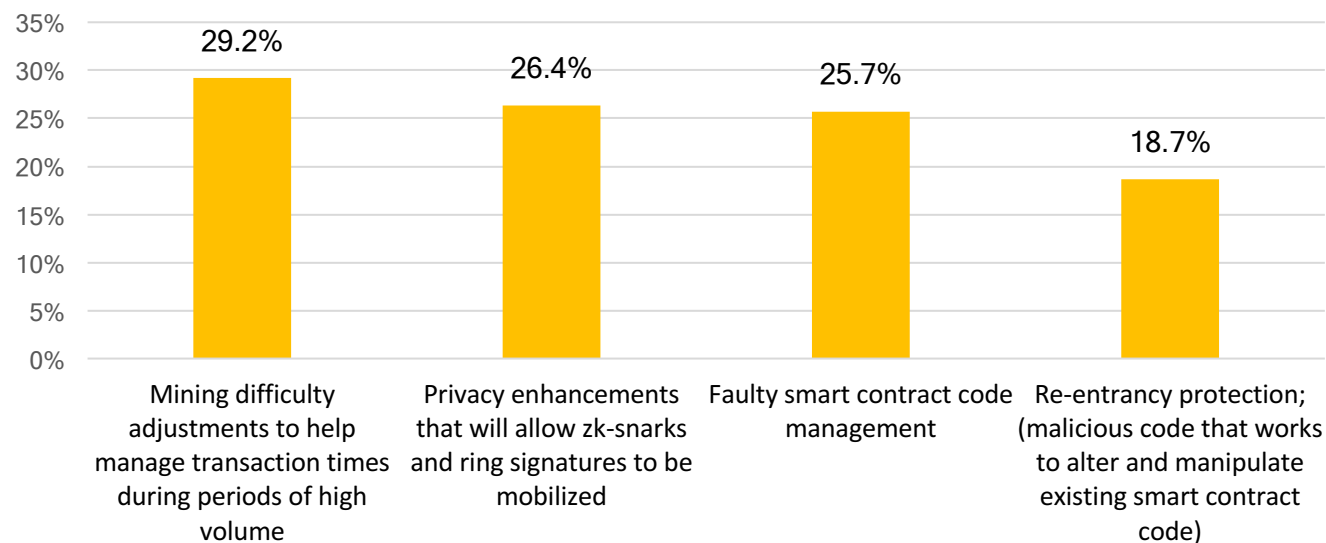
## 71% Didn't Follow the Byzantium Hard Fork

### 29.2% Cite “Mining Difficulty Adjustments” as Most Important

Did you follow the ethereum Byzantium hard fork in October?

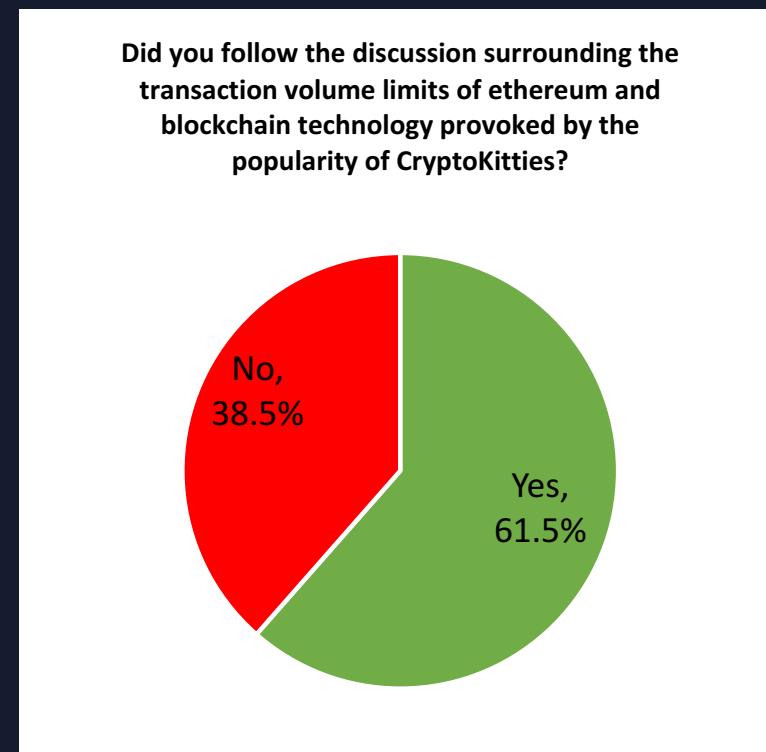
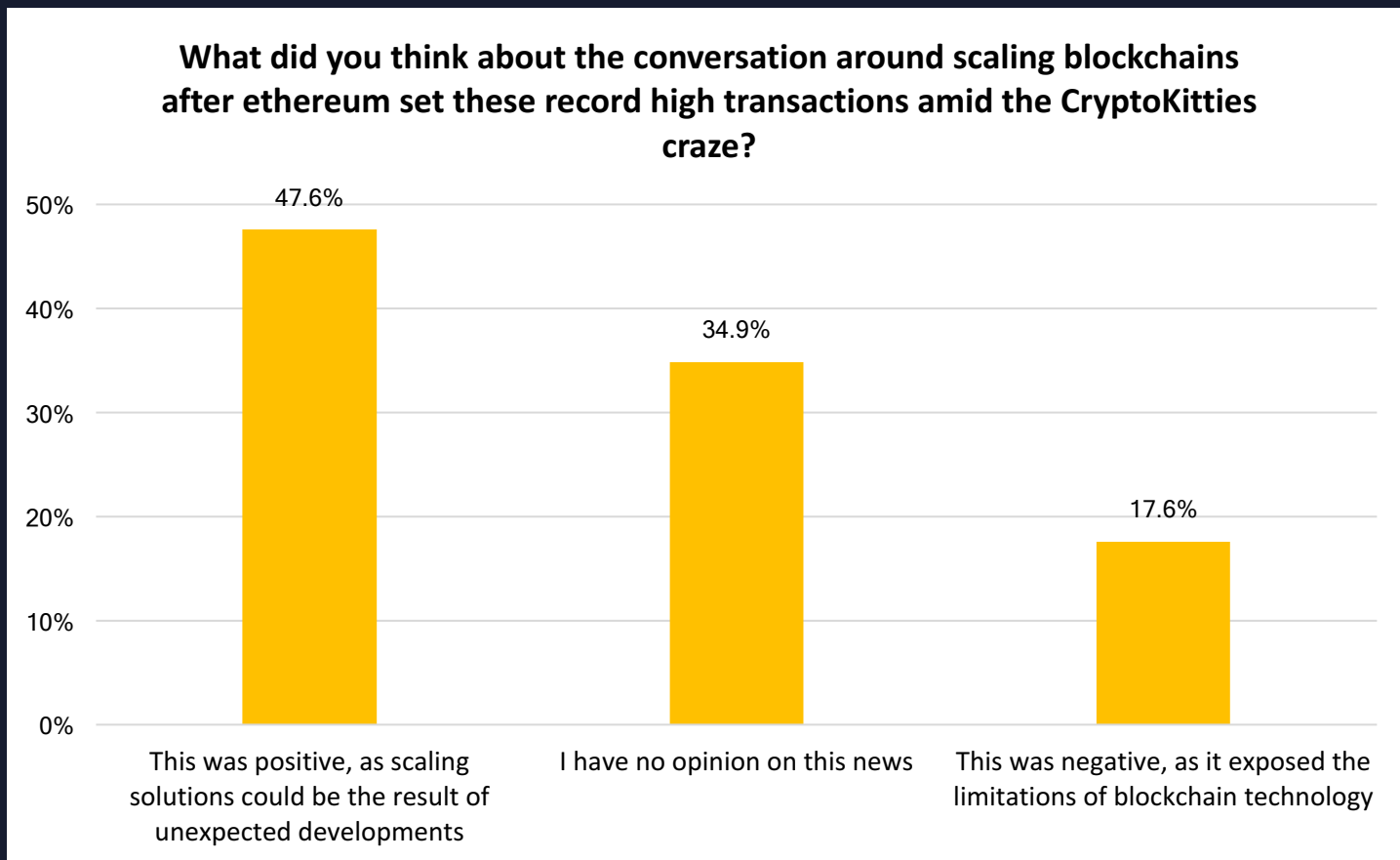


What feature of ethereum's Byzantium hard fork do you think is most important?





## 48% Think The CryptoKitties Phenomena Was Positive For Scaling 61% Followed The Discussion & 54% Foresee More Developments



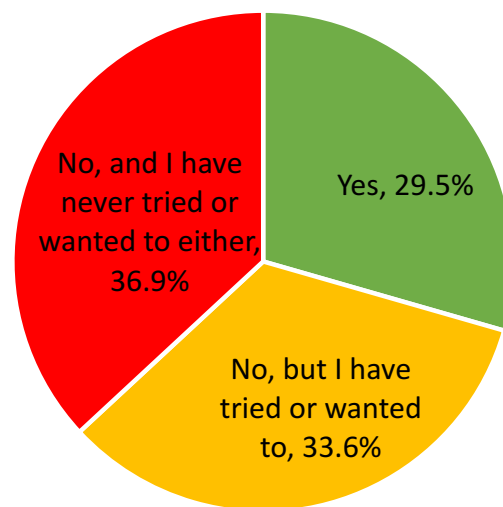




## 30% Participated in an ICO, Down -14% in Q4

### More Than Half Who Haven't Participated Tried or Wanted To

Have you ever participated in an ICO?

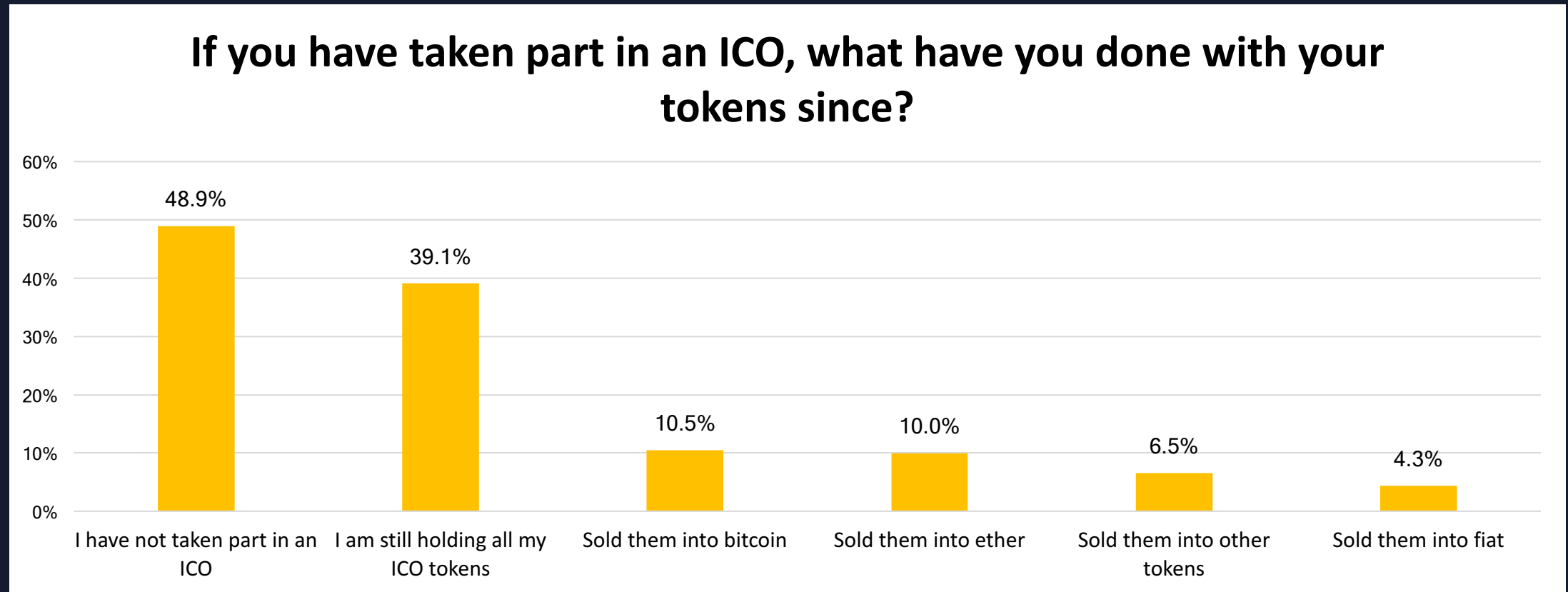


Q3: 43.8% had participated



## 51% Took Part in an ICO

### Most Who Participated Still Hold Their ICO Tokens

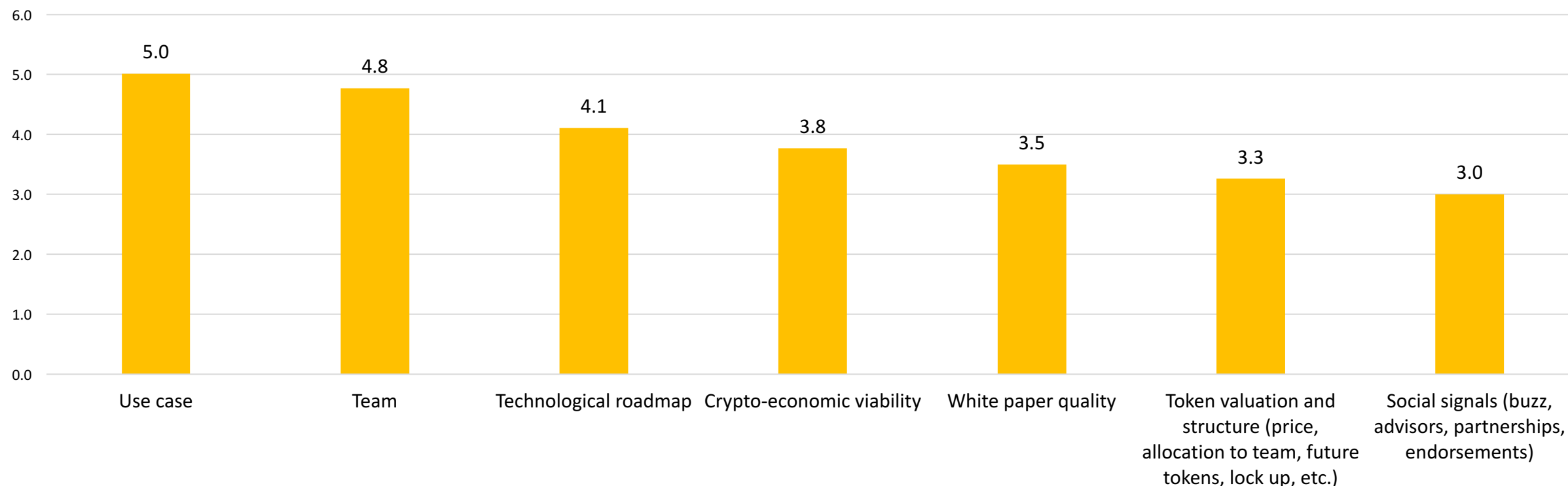




# ICO Participants Considered Use Case Their Primary Driver of Analysis

## Social Signals Remain the Lowest Ranked Factor

How would you rank the importance of the following factors behind buying an ICO?

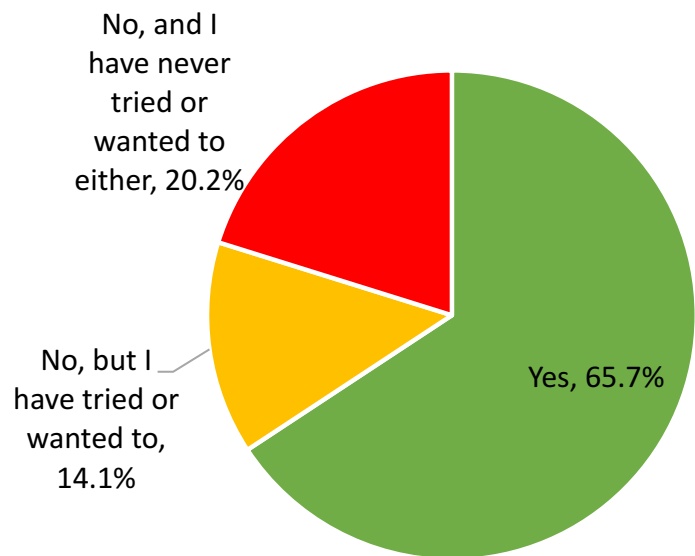




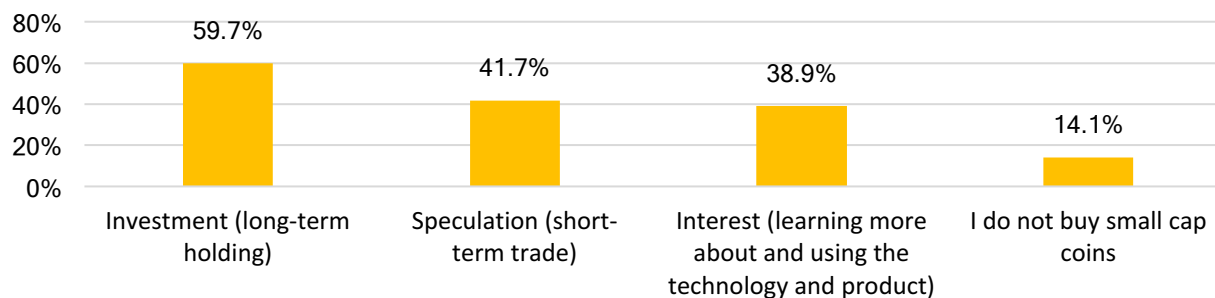
# 80% of Respondents Bought or Want to Buy “Small Cap” Coins

## Long-Term Holding Cited as Main Factor

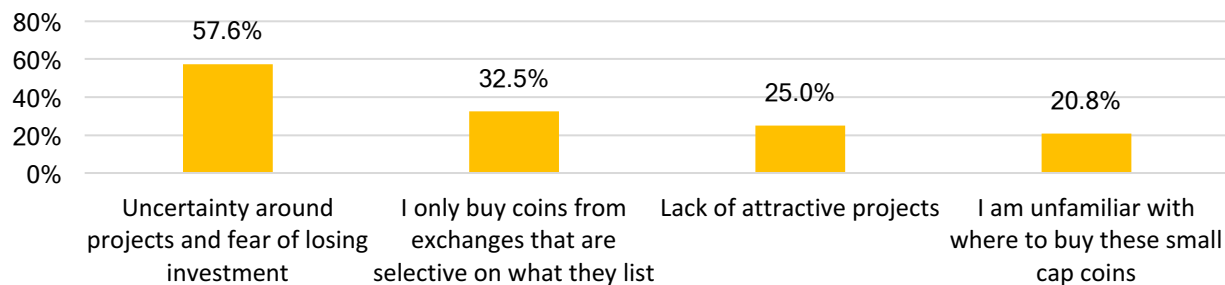
**Did you buy any 'small cap' (<\$1bn market cap) coins this year?**



**When looking to buy small cap (<\$1bn market cap) coins, what was the primary reason for your purchase?**



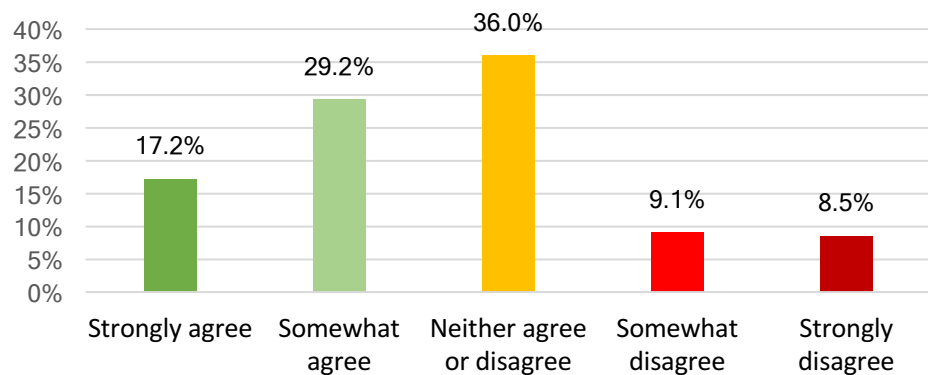
**If you have not bought a small cap coin, what has been the primary reason for your lack of participation?**





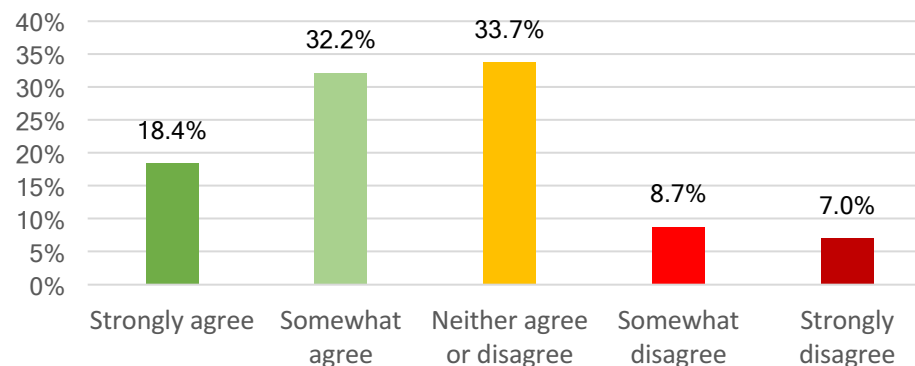
## Most Agree That ICO & VC Investment Are Complements

I believe new blockchain projects should consider mixing traditional investment funding (like venture capital and angels) and ICOs.



▲ 46.4% agree  
▼ 17.6% disagree

I believe VC or angel investment is a positive social signal and would make me more inclined to participate in an ICO.



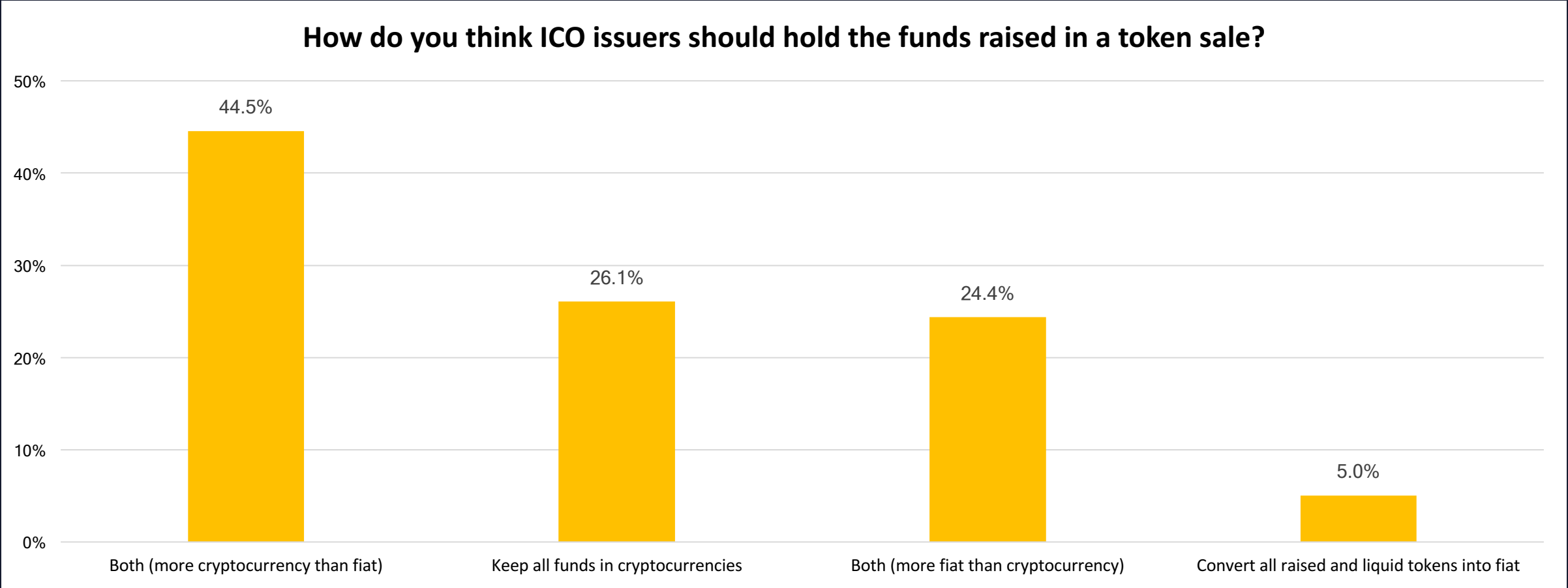
▲ 50.5% agree  
▼ 15.7% disagree

Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



# Respondents Think More ICO Funds Should be Held in Fiat

## About 13% for More Fiat in Q4 Than Q3

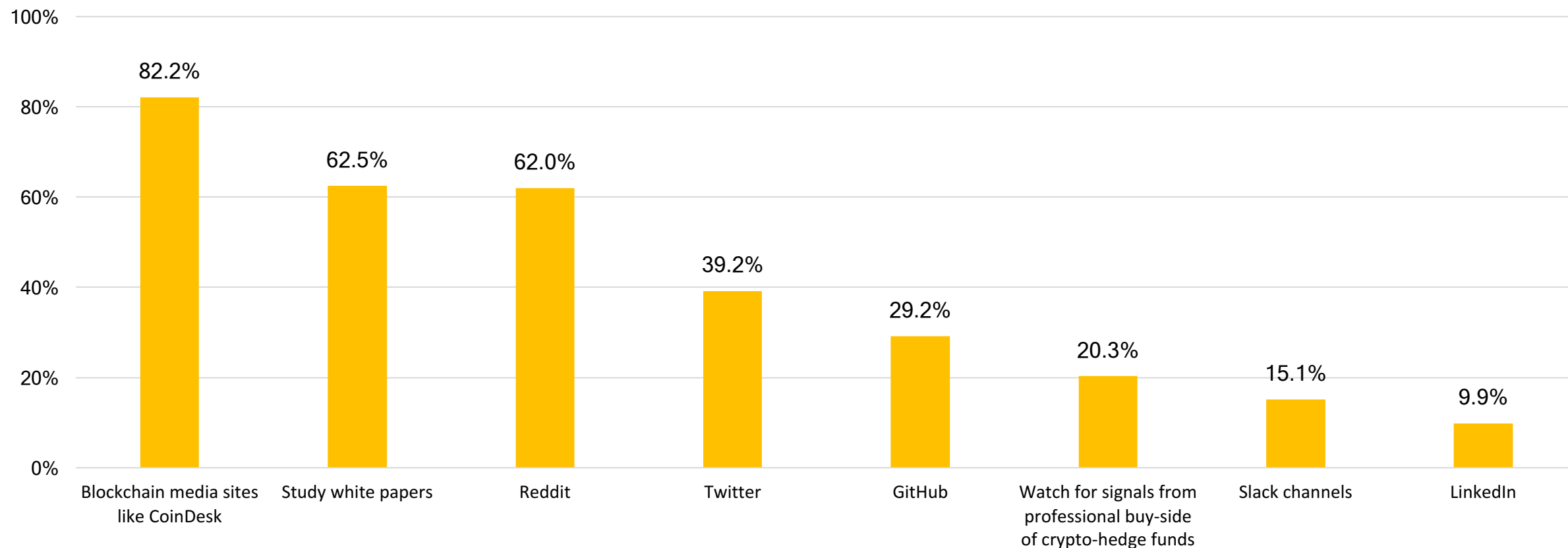


Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



## Blockchain Media Sites and White Papers Were Most Commonly Used to Learn More About Tokens or ICO Projects

What resources do you use to learn more about tokens or ICO projects?



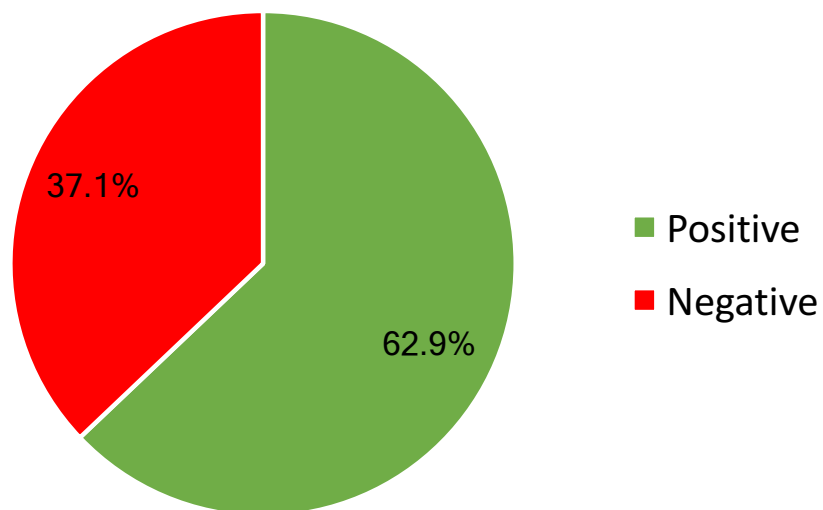
Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



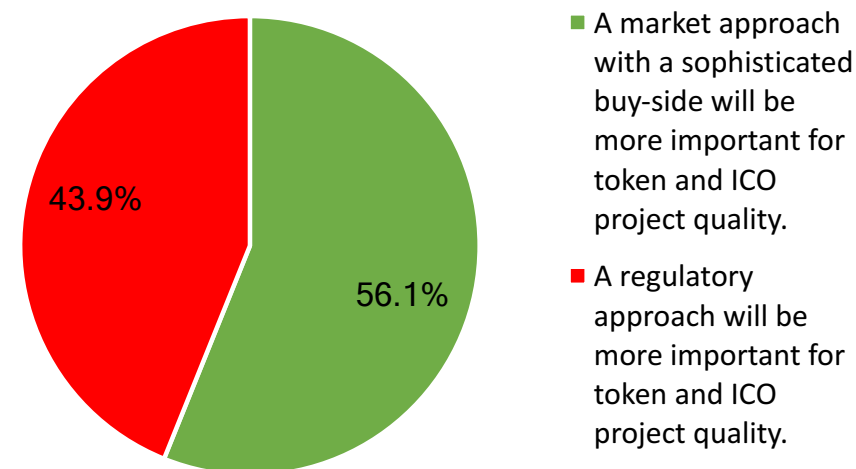
# 63% Think Positively of Cryptocurrency Diversification

## 56% Prefer Market Approach Rather Than Government Regulation

The number of cryptocurrencies exploded in 2017. Do you think token diversification is positive or negative for the industry?



Which will have a greater effect on the quality of tokens or ICO projects, a sophisticated buy-side of professional crypto-hedge-funds, or the regulatory approach?



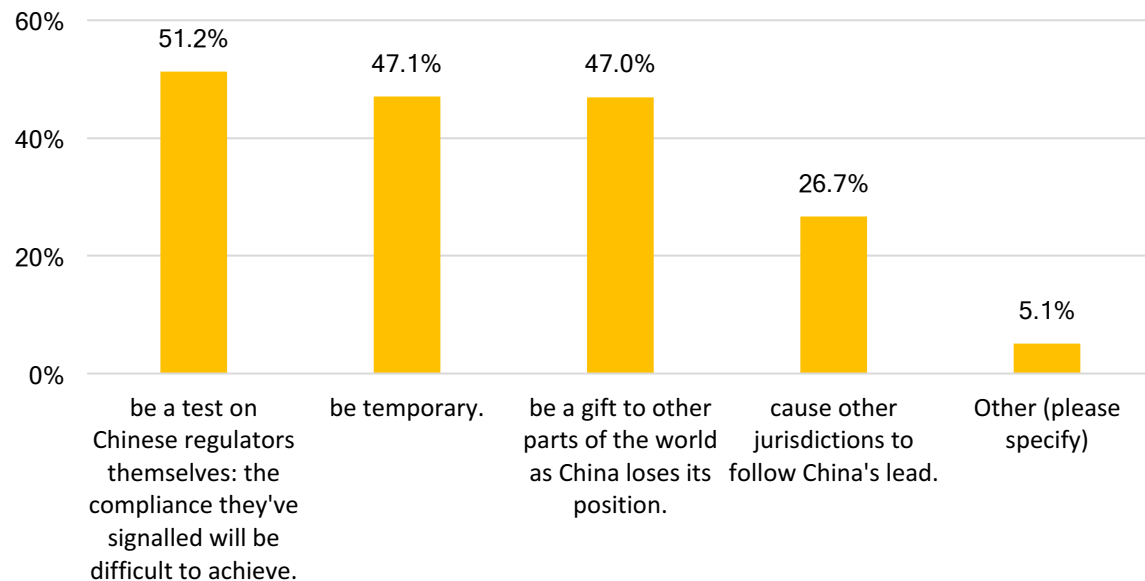
Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



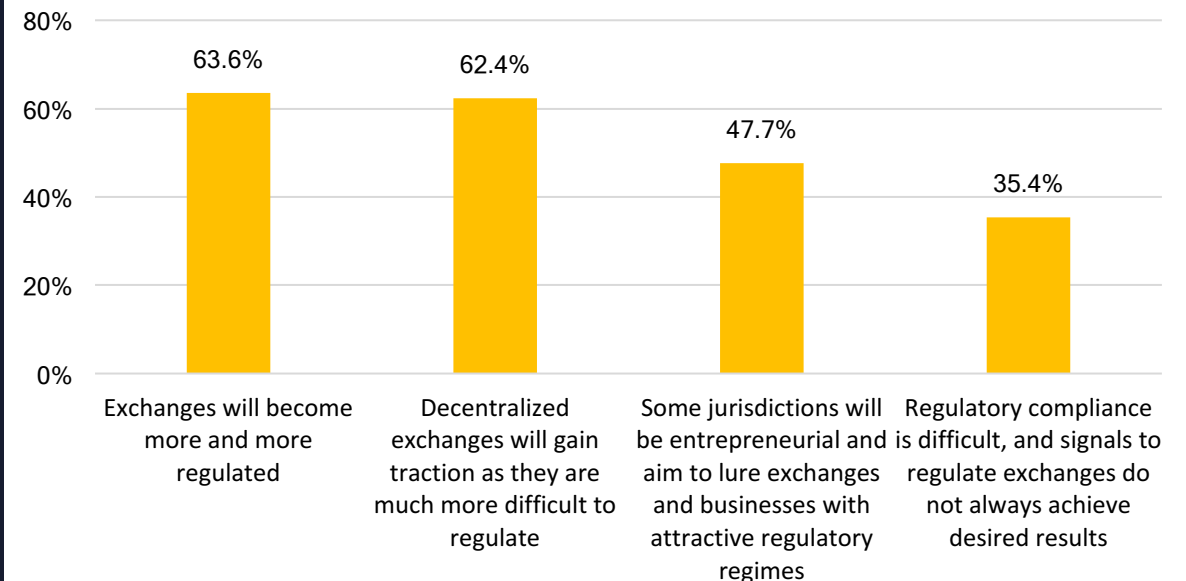


## Respondents Believed More Regulation in Future But Will Prove to Be Irrelevant or Temporary (More Than in Q3)

China took the strongest regulatory tone on cryptocurrencies in 2017. This action will...



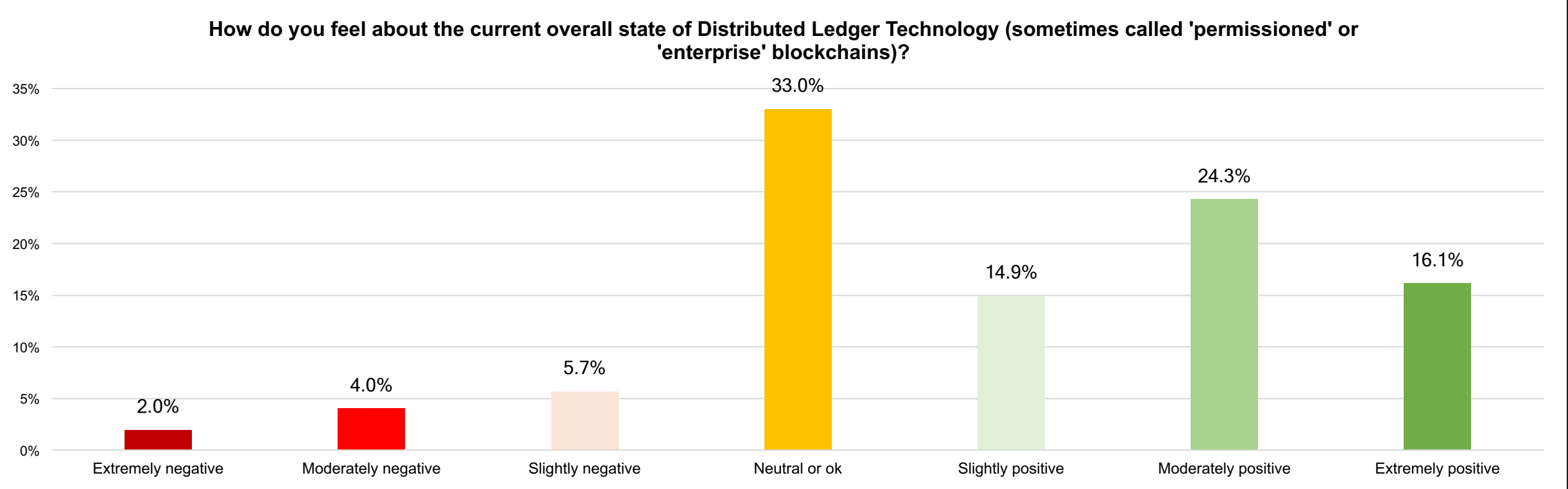
With several jurisdictions tackling exchanges with new regulations, how do you think the market will respond?





# Most Respondents Felt Positive About the Overall State of DLT

## The Largest Group Felt 'Neutral' or 'OK' About DLT



Q3 2017 State of Blockchain response:

▲ 52.7% positive

▼ 18.6% negative

▲ 55.3% positive

▼ 11.7% negative

Often called 'DLT', 'permissioned' or 'enterprise' blockchains

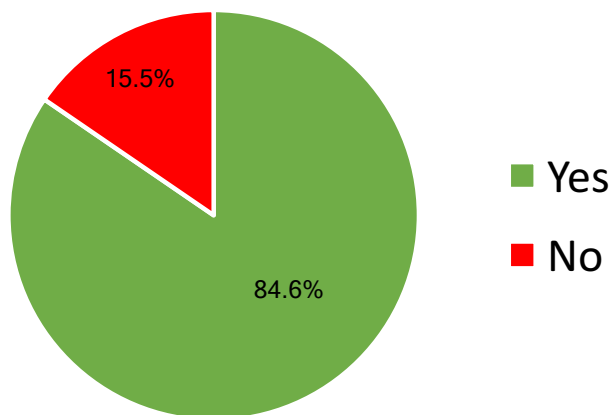
Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



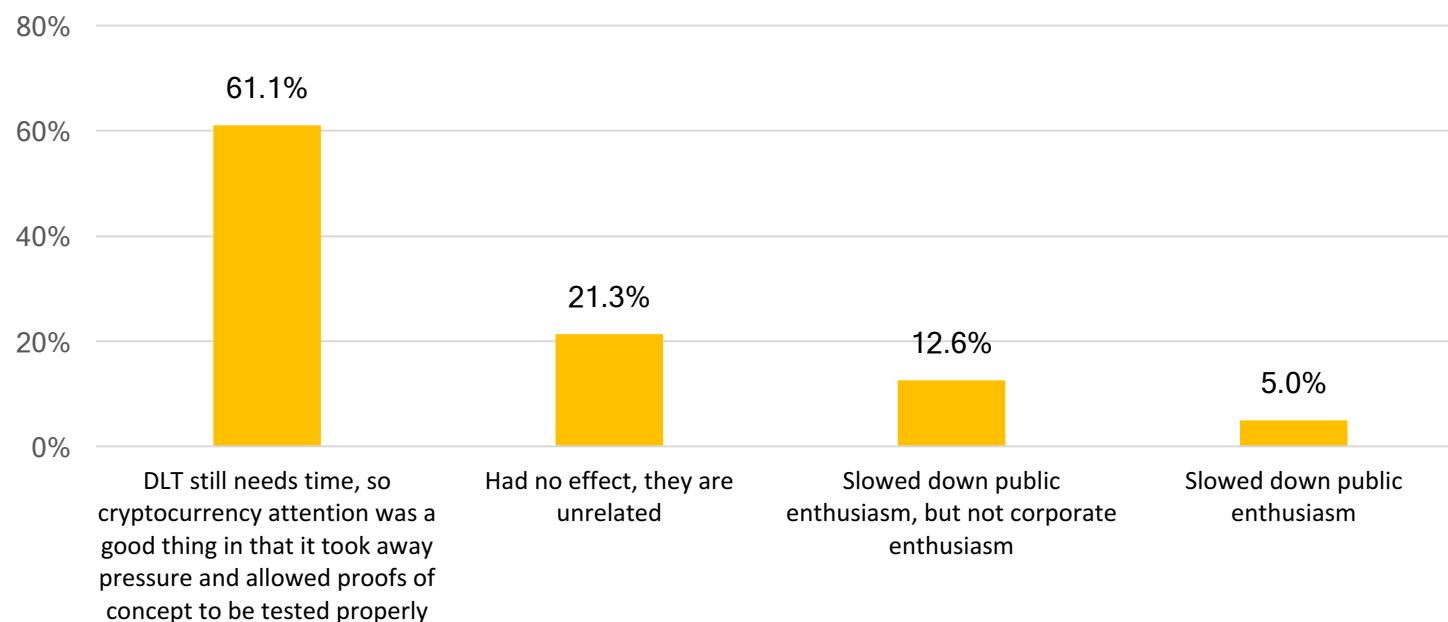
# Most Respondents Believed DLT Will Gain Traction in 2018

## Most Thought Lack of Attention Was Positive

Do you think DLT will gain traction in 2018 with projects going live?



With all of the attention cryptocurrencies got because of value increases, how do you think it affected the momentum behind DLT?

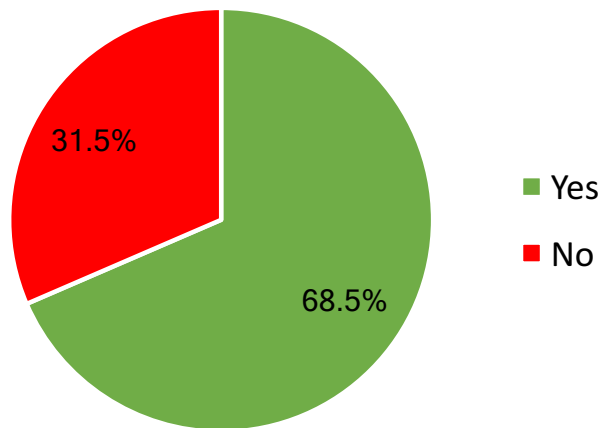




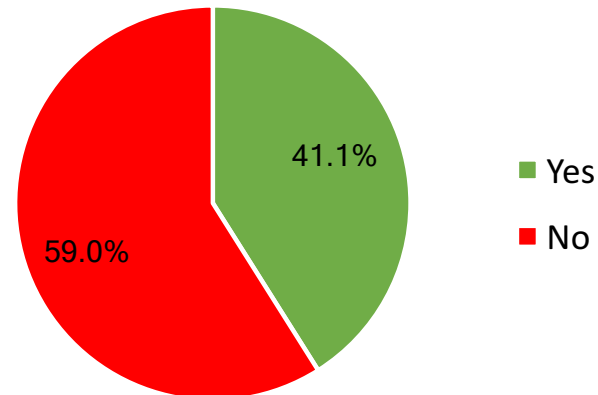
# Industry Moved Away From Cypherpunk Roots

## Most Think Central Banks Will Hold Bitcoin Eventually

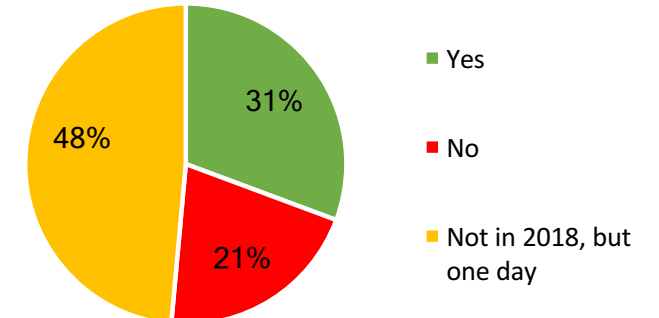
With the rise in popularity of cryptocurrencies in 2017, do you think the industry moved away from its cypherpunk roots?



With all the developments in the industry this year, do you think that mainstream public perception has finally made it over psychological hump of accepting that something natively digital can be private property?

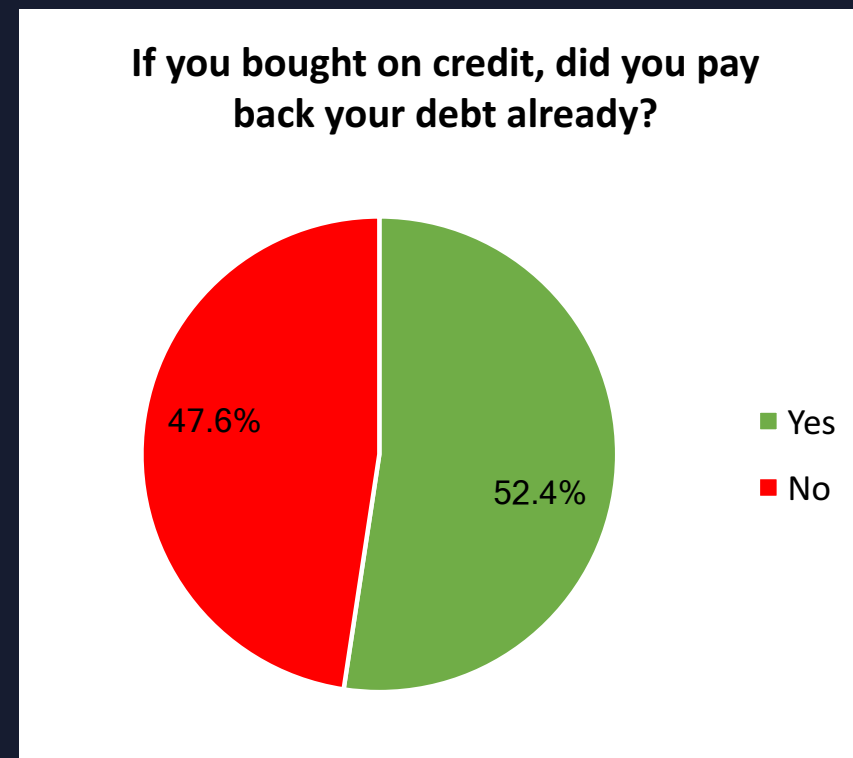
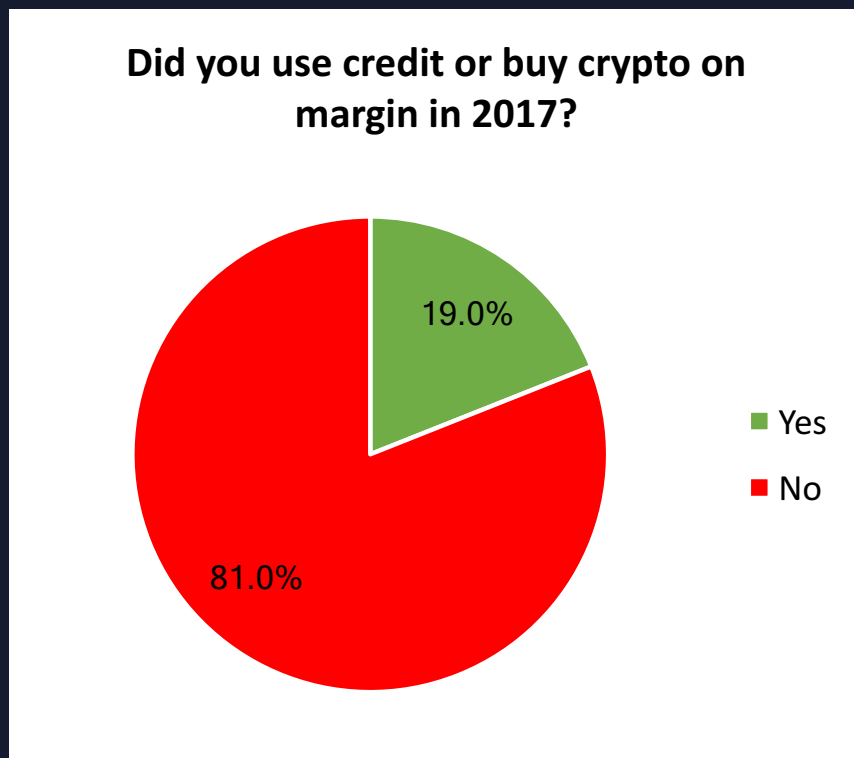


Do you believe a central bank will hold Bitcoin on their balance sheet in 2018?





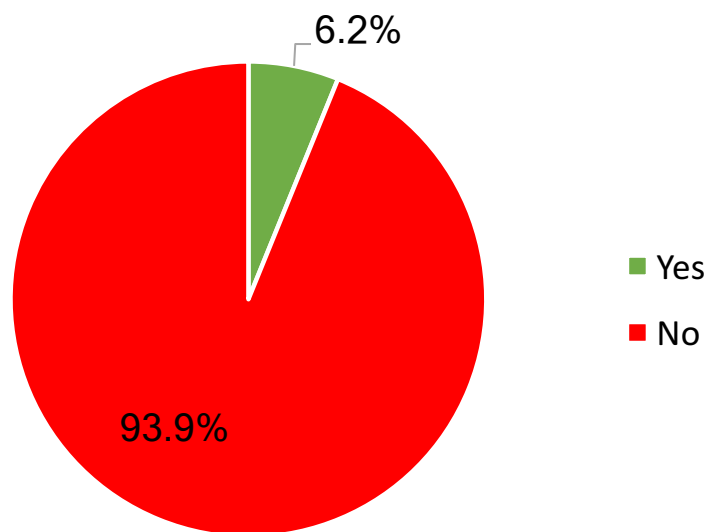
## 81% Did NOT Go Into Debt to Buy Crypto Of Those That Did, 52.4% Already Paid Back



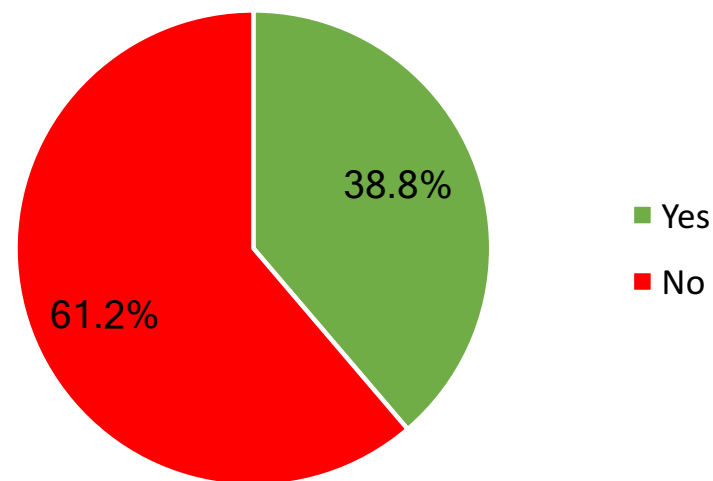


## 6.2% of Respondents Became Crypto-Millionaires in 2017 But 39% Think They Will in 2018

Did you become a 'crypto-millionaire' in 2017?

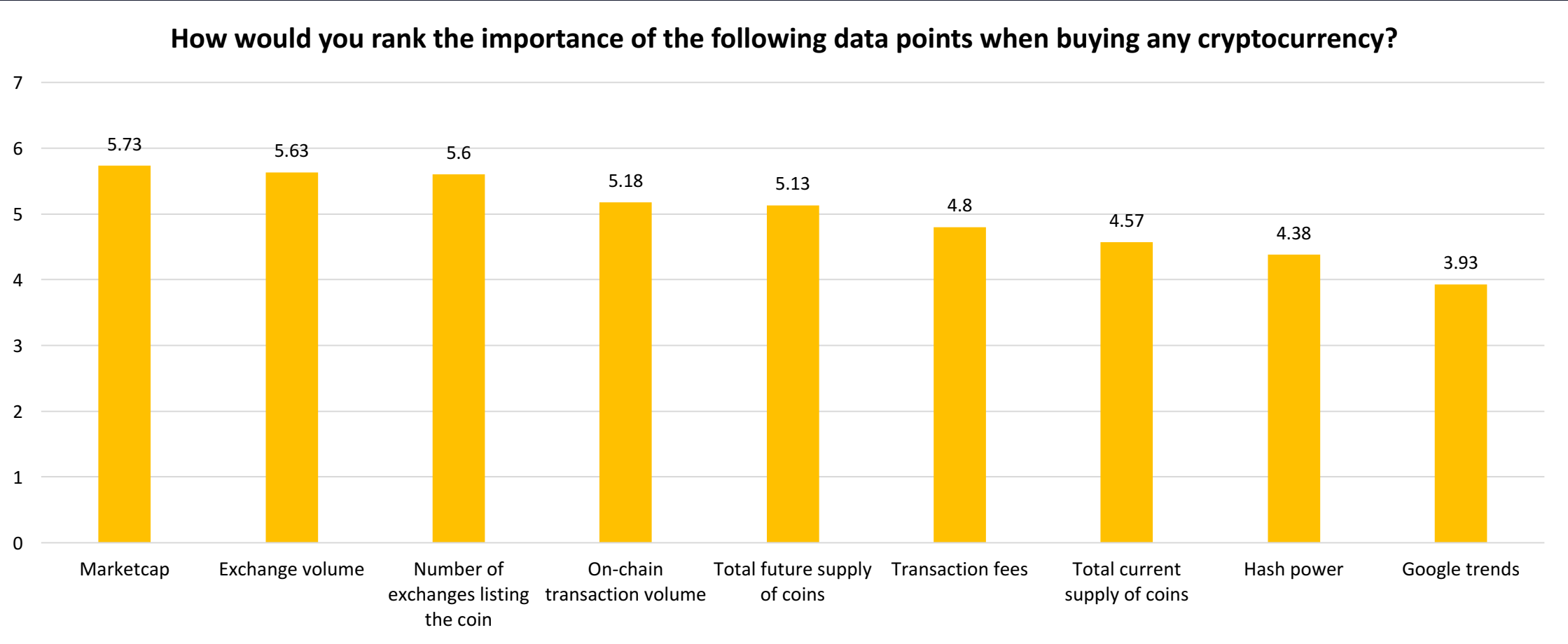


Do you think you can become a 'crypto-millionaire' in 2018?





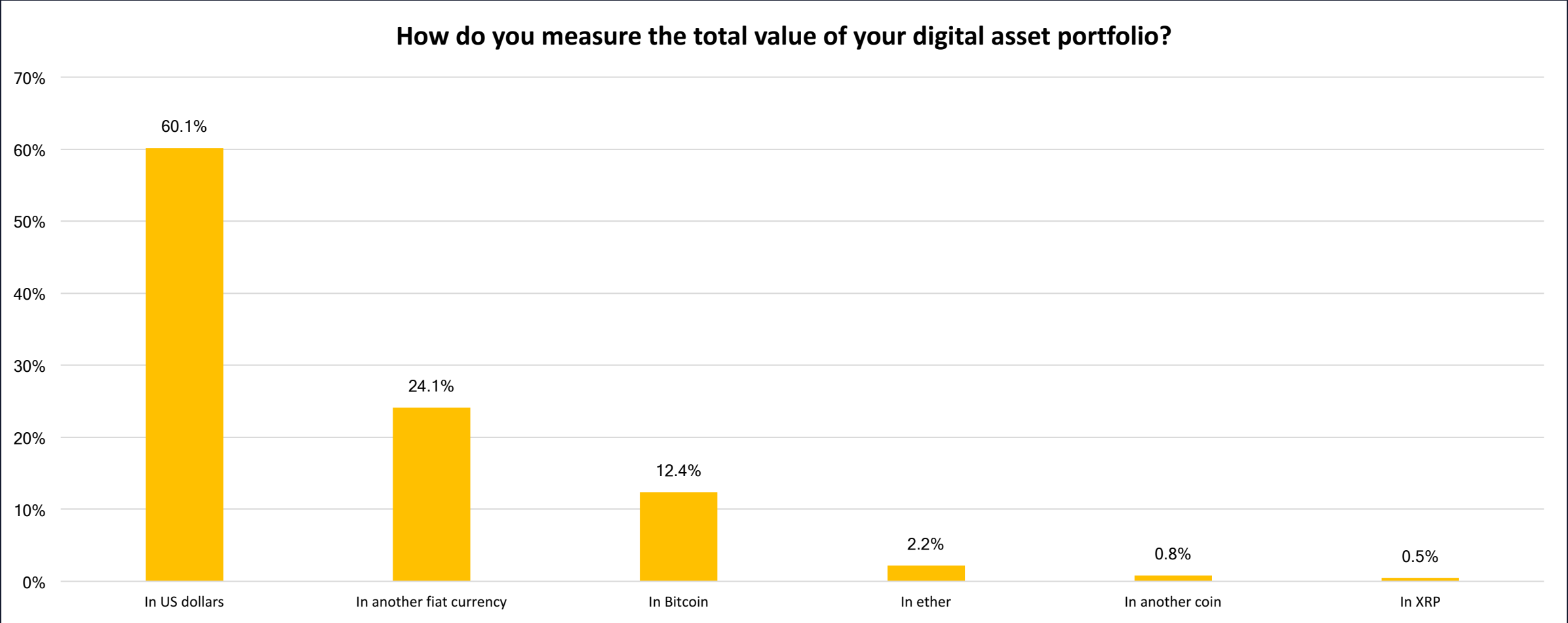
# Market Cap is the Most Valued Data Point When Buying Crypto



Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



# Almost 13% Measure Portfolio in BTC



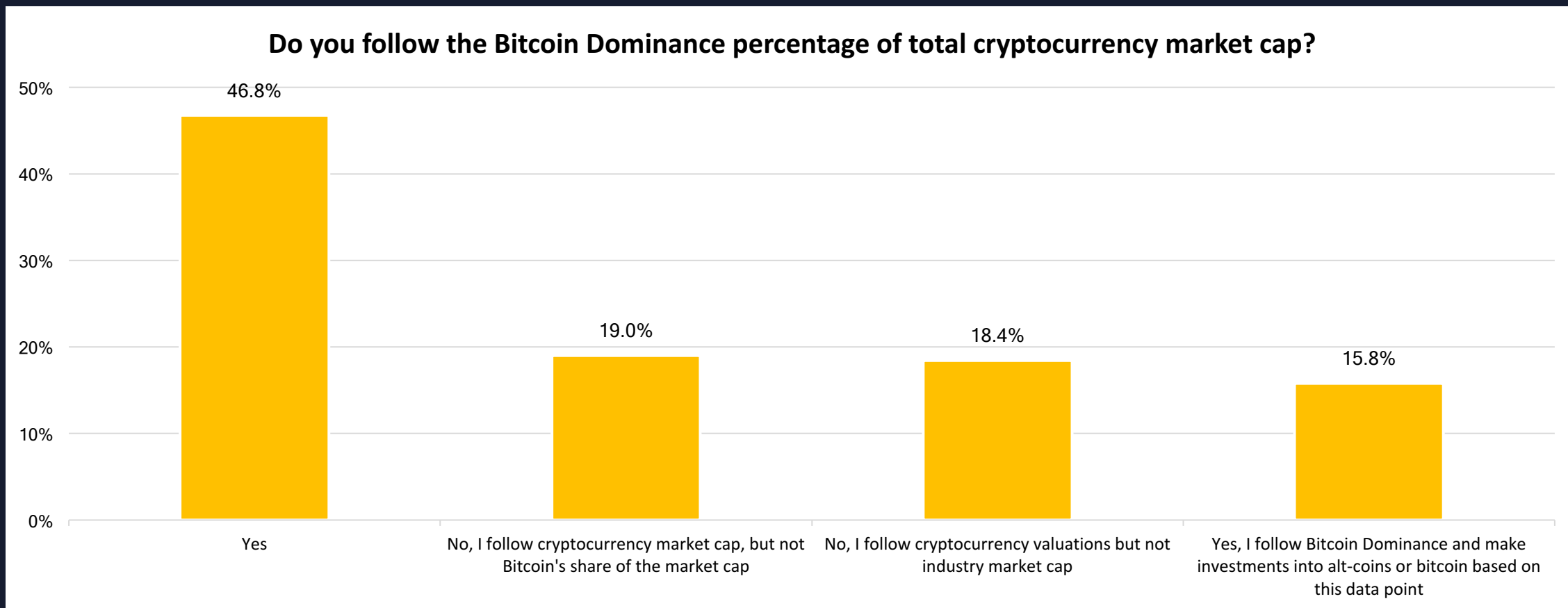
Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey





## 47% Follow the Bitcoin Dominance Percentage

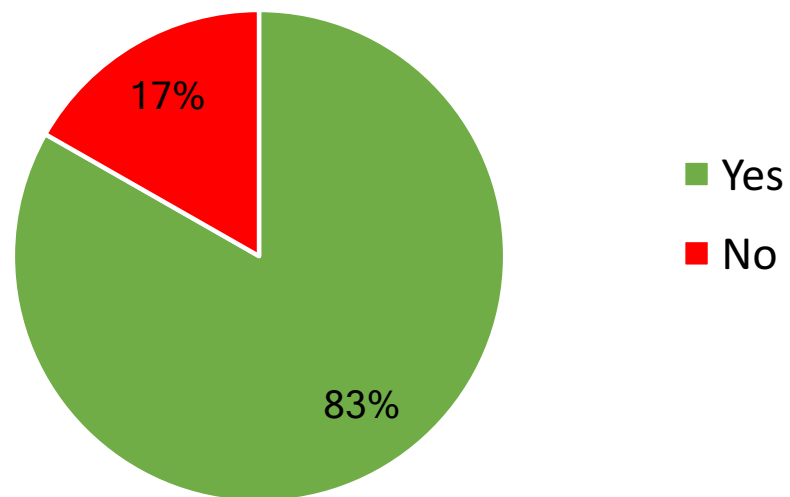
### 16% Use as Investment Criteria





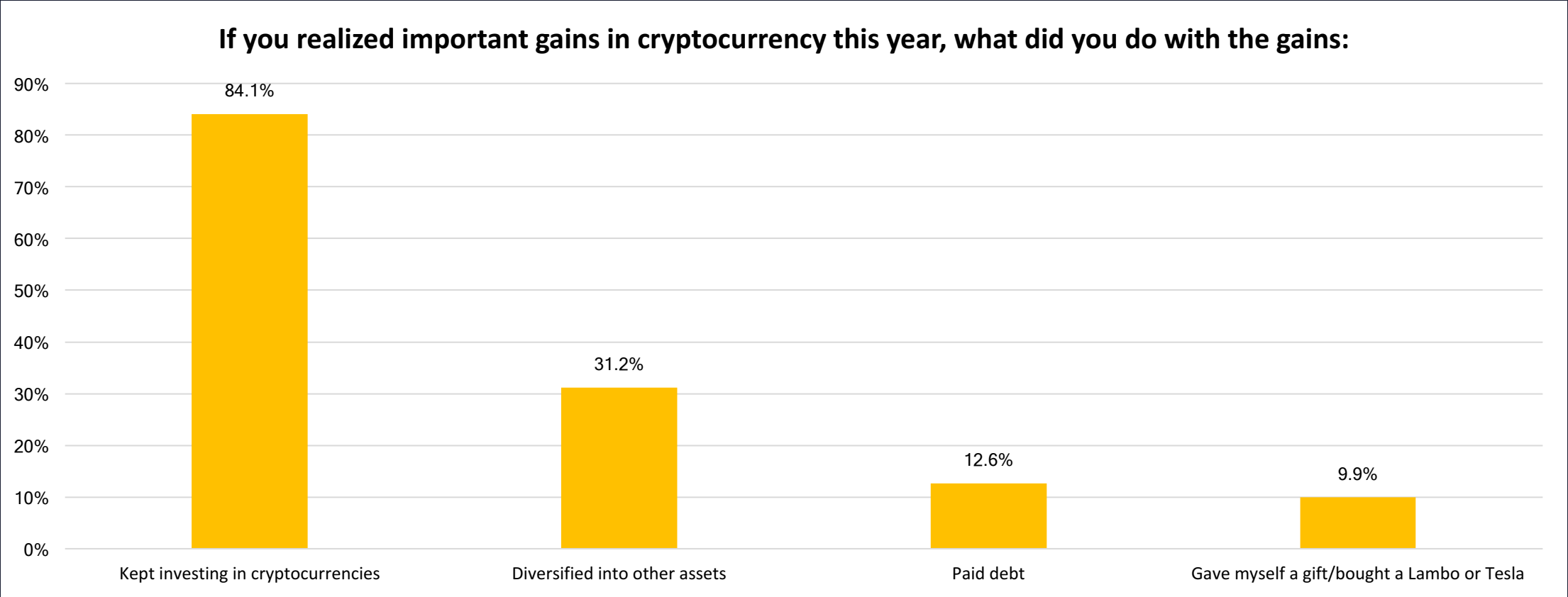
## 83% See Promise in Square Cash's Bitcoin Integration

With the Square Cash integration of a 'Buy Bitcoin' function, do you believe new entrants into Bitcoin infrastructure will put pressure on the existing exchanges to offer faster and more reliable services?





# 84% Re-Invested Gains into Crypto

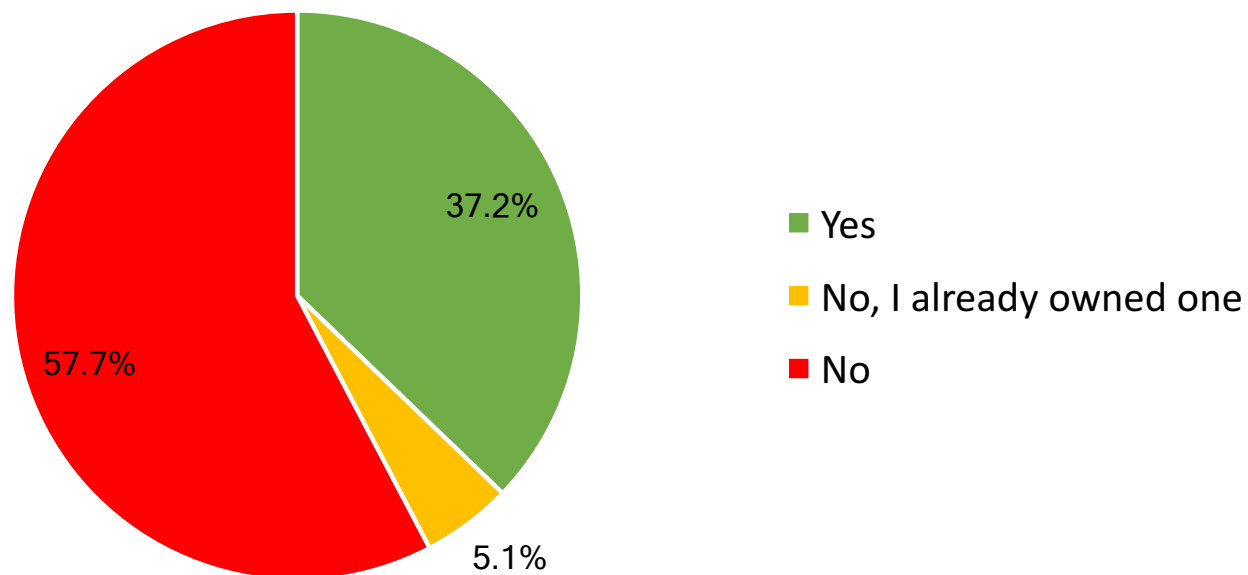


Data Source: CoinDesk's Q4 2017 Blockchain Sentiment Survey



## 63% Don't Store Crypto on Hardware Wallets

Did you buy a hardware storage device for your cryptocurrencies in 2017?



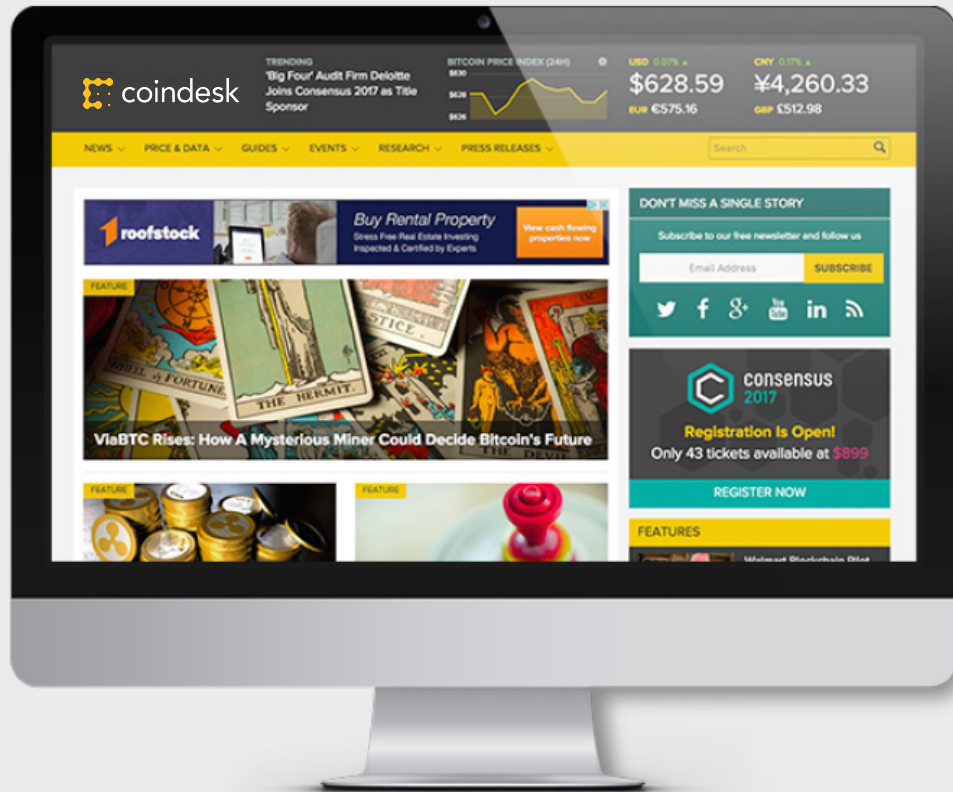


6

COINDESK



# CoinDesk – News, Events, Research and Data for Blockchain Technology



**Headquarters:** Midtown Manhattan, New York City

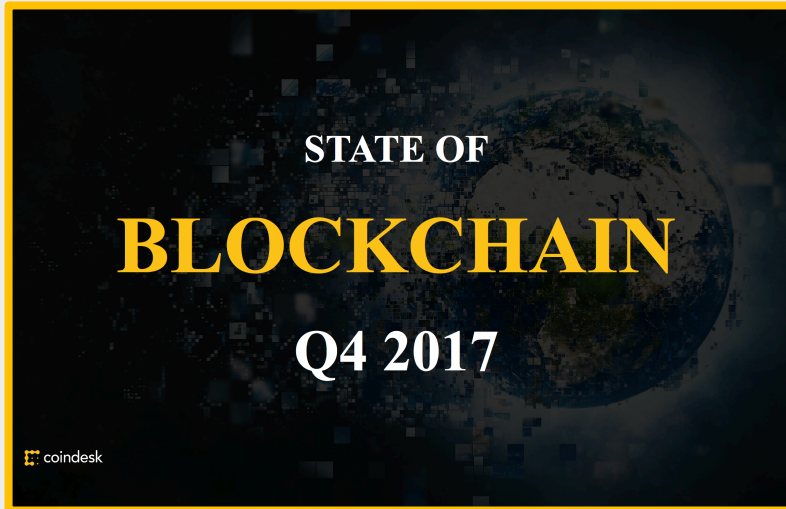
**News:** 10m monthly unique visitors

**Events:** 4,000+ attended our 2017 [Consensus](#) and [Invest](#) conferences in New York City and San Francisco

**Data:** Industry reference points including [Bitcoin](#) and [Ether](#) prices and [Venture Capital](#) and [ICO](#) databases



## About the 'State of Blockchain'



For four years, CoinDesk has analyzed the 'State of Blockchain' in our quarterly industry overview reports

We cover:

- **Technical trends** within the top open-source developer communities
- **Major product updates** from well-funded startups
- **Digital currency market data**, utilization rates, public sentiment and network performance metrics
- **Enterprise adoption** rates and new proofs-of-concept
- **Venture capital**, corporate, and public investment trends
- **Public policy** updates from around the globe



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- Subscribe to our [email newsletters](#) for the latest blockchain news
- If you have data you think should be included in future 'State of Blockchain' reports, email [stateofblockchain@coindesk.com](mailto:stateofblockchain@coindesk.com)
- We also welcome any general feedback you have on the report





- **We are the leading events firm in blockchain**
- Our annual [Consensus](#) events have attracted thousands of entrepreneurs, investors, executives, regulators, journalists and more to San Francisco and New York City
- Join us in May for our next event, [Consensus](#)!



# 6A

## RESEARCH FRAMEWORK



# Defining The Blockchain Technology Market

A **public blockchain** is an internet protocol that manages the distribution of provably unique data that:

- Acts as a unit of account for transactions on that ledger
- Incentivizes early adopters and developers to use, support and verify the ledger without the need for a trusted intermediary

An **enterprise blockchain** is a distributed ledger that provides:

- Consensus via trusted intermediaries, making digital currencies unnecessary
- Solutions to clients who wish to use cryptographic databases managed and shared by trusted parties

Many companies employ **hybrid** models where they:

- Build on public blockchain infrastructure
- Provide technology for permissioned networks



# The Internet-Intranet Comparison

**We believe both public and enterprise blockchains have useful applications,  
much like the Internet and corporate intranets**

## PUBLIC BLOCKCHAINS



public (inter-)  
**The internet**



## ENTERPRISE BLOCKCHAINS



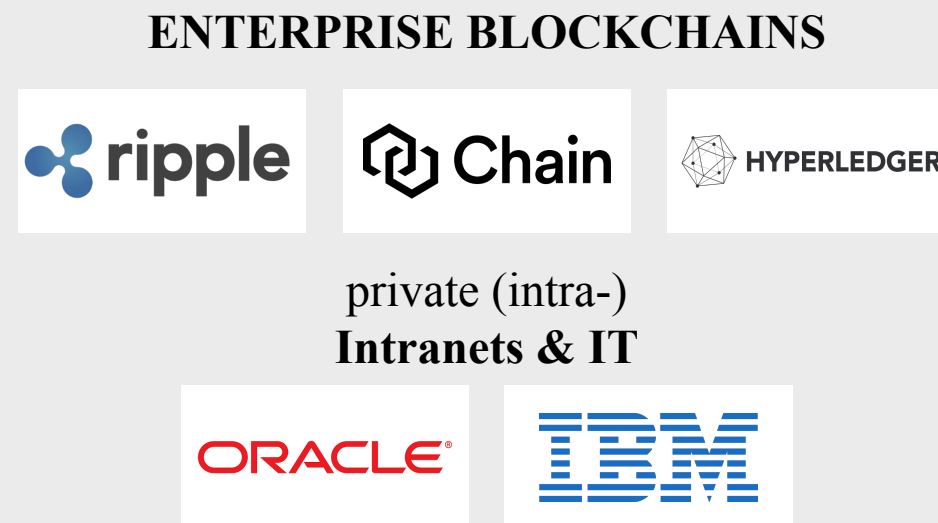
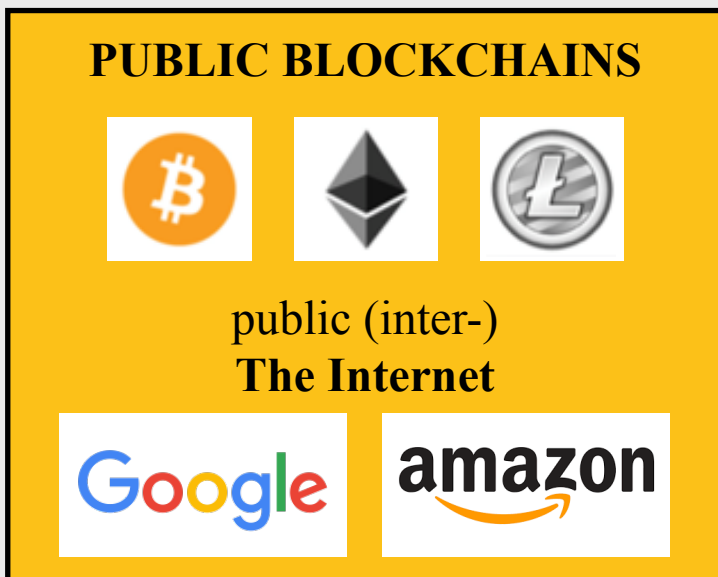
private (intra-)  
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# The State of Blockchain Focuses Primarily on Public Blockchains; Enterprise Data is More Opaque

The majority of development work to date has been done using open-source tools and public blockchains like bitcoin and ethereum





# ‘Public’ (Open) vs ‘Enterprise’ (Permissioned) Blockchains: Generalized Features Comparison

	PUBLIC	ENTERPRISE
ACCESS	Open read and write	Permissioned write and/or read
SPEED	Slower	Faster
SECURITY	Open network	Approved participants
IDENTITY	Anonymous or pseudonymous	Known identities
ASSET	Native assets	Any asset

Data Sources: [Chain](#), [Chris Skinner's blog](#)



# Strengths and Weaknesses of Public Blockchains

**We believe public blockchains will have the greatest impact on developing economies (reduced need for trust) and the connected device, IoT economy (immutability, auditability)**

## STRENGTHS

<b>Immutable ledger</b>
<b>Relatively fast settlement time</b> (e.g., 10 minutes or less)
<b>Reduced security risks associated with centralization-trusted third party</b>
<b>Easy to audit</b>
<b>Reduced need for trust</b>

## WEAKNESSES

<b>Irreversible transactions</b>
<b>Slow transaction clearing</b> (e.g., 3 – 7 transactions / second)
<b>More vulnerable to attacks</b> (e.g., 51%, spam, DDoS)
<b>Reduced privacy</b>
<b>Energy consumption</b>

Data Sources: [Ethereum](#), [MultiChain](#)

Notes: Ledgers and protocol rules may be changed via forks, although these changes can introduce risks



# Blockchain Ecosystem Breakdown

When producing market maps and following investment trends,  
we look for business shifts between these models:

	PUBLIC	ENTERPRISE
PROTOCOL	   	  
COMPANY	  	
APPLICATION	  	

The company layer crosses protocols and is heavily comprised of bitcoin related businesses,  
while the application layer is dominated by ethereum applications

Notes: Numerous protocols are also maintained by open source communities, non-profits like the  
Ethereum Foundation and consortiums like R3 and Hyperledger





# Blockchain Project Funding Models

Entrepreneurs have begun considering blockchain token sales ('ICOs') as fundraising alternatives to traditional venture capital and angel investment

	ICO			HYBRID		VC		
PROTOCOL								
COMPANY								
APPLICATION								

ICOs rather than VC has driven the development of most public blockchain applications, as well as numerous protocols and companies, a line which is becoming increasingly blurred

Notes: Numerous protocols are also maintained by companies like the Zerocoin Electric Coin Company, open source communities, non-profits like the Ethereum Foundation and consortiums like Hyperledger



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