



Charting the growth of cryptocurrencies

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In this report, GreySpark Partners explores the fundamentals and dynamics of the crypto industry. Specifically, the research focuses on the growth and institutionalisation of the space as well as the development of the regulatory landscape.

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Summary of key findings

Cryptos went viral and volumes spiked significantly before stabilising and decreasing

- The market caps of cryptocurrencies reached a record peak – **USD 836bn** – in **January 2018** after a meteoric rise in the last quarter of 2017. The market gained on average **38%** per month between February 2017 and January 2018 before tanking significantly.
- During **2018**, at times more than 20 cryptocurrencies had a market capitalisation of over **USD 1bn**.
- Volumes have surged on most marketplaces – most of it being traded against the major fiat currencies.
- The share of cryptocurrency volumes traded against fiat has steadily increased over time, which could indicate that traders are entering and exiting their crypto exposure more dynamically.
- USD has gained traction over the past two years to become the most actively traded fiat against cryptocurrencies.

Institutional trading is still relatively small compared to other asset classes

- Although the growth in the number of crypto-hedge funds has increased significantly over the past two years, the creation of funds has now started to slow down. The number is expected to stabilise in the range of 160-180 by the end of 2018 – still only a fraction (~2%) of the 5,500 hedge funds trading on other asset classes globally.
- The main factor behind this is the lack of trusted custody solutions. The market is waiting for big houses such as State Street and Northern Trust to take on this role. Difficulties in accessing liquidity or finding capital-efficient instruments for short or hedge positions is also an issue.
- **Crypto hedge funds use 4 types of strategies:**
 - **Index funds**, typically with portfolio allocation strategies
 - **Quant funds**, typically doing arbitrage on exchanges and algo trading
 - **Fundamental strategies**, which are more long-term, typically buy and hold
 - **Mining funds** (not included in this analysis) – a good example is Hut8

Liquidity has become vital for cryptos and coins to become tradeable assets

- Cryptocurrency liquidity is currently highly fragmented, and the need for digital asset investors to be able to access multiple pools of liquidity makes it difficult for institutional investors to assess prices and trade in a consolidated fashion.
- Institutional investors are seeking to access cryptocurrency and digital asset liquidity on a more-familiar OTC basis in an effort to offset the risks associated with trade execution and transaction settlement via bilateral relationships with trusted liquidity providers or counterparties.
- Trading OTC also allows institutional investors the opportunity to access bespoke lines of credit in the form of prime brokerage-like services from established leverage providers willing to service demand for risk associated with exotic or new asset classes or instruments types.
- Inadequate levels of liquidity often exposes crypto-assets to violent price movements, while volatility creates negative market sentiment and prevents coins from being perceived as a legitimate tradeable asset. Market-makers are working closely with ICO project managers to stabilise coins.

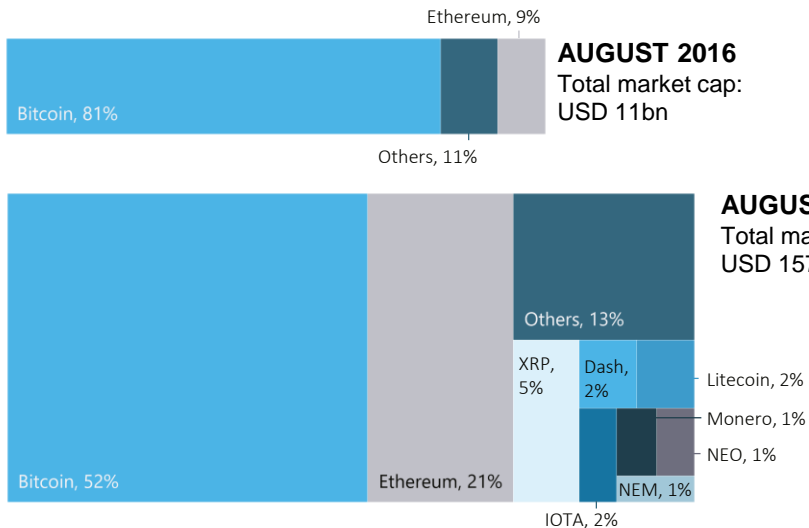
The regulatory landscape is maturing, with most countries now being aware and active with crypto

Three broad categories of regulatory approaches are emerging:

- The ones **embracing cryptocurrencies and ICO projects** – this category includes the likes of Gibraltar, determined to create and enforce the very first crypto-regulatory framework. Switzerland and Japan would also belong to this group as regulators have come up with clearly defined guidelines, for ICOs and the trading of cryptocurrencies respectively.
- The ones **reluctant to fully embrace the trend and rather be prudent** – this group includes the likes of France and the UK, clearly conscious that cryptos are more than just a trend but still, very cautious when it comes to embracing. Poland and Ukraine have taken the stance of becoming crypto-friendly jurisdictions; they can clearly be identified as advocates.
- The ones **fiercely against and feeling threatened** – China is the main country in this category. China is poised to tighten regulations banning ICOs and cryptocurrency exchanges. This move represents a very paradoxical situation given most mining firms and liquidity pools are based in the country.

Zooming in on the crypto wave

Bitcoin is no longer the only game in town



An increasingly diverse marketplace

- The landscape in cryptocurrencies in **August 2016** was much simpler than it is today – Bitcoin dominated the market to the tune of 81%, with Ethereum just starting to nibble at its market share at 9%. All other cryptocurrencies had market capitalisations of less than USD 1bn.
- In **August 2017**, seven more currencies had breached the USD 1bn-level, and Bitcoin's dominance had dwindled to 52%.
- In **August 2018**, 14 cryptocurrencies were valued at over USD 1bn (this number has fluctuated during the year, and has been more than 20 on occasion).
- The total market cap of all cryptos grew tremendously over the period (see also Slide 9).

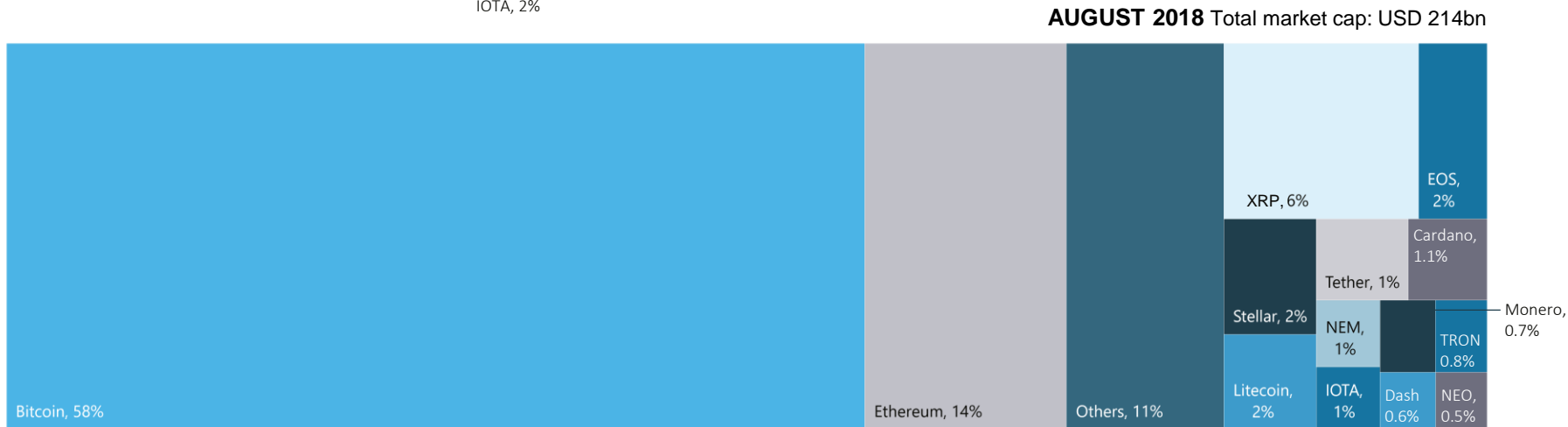


Figure 1

Public interest in cryptocurrencies is surging

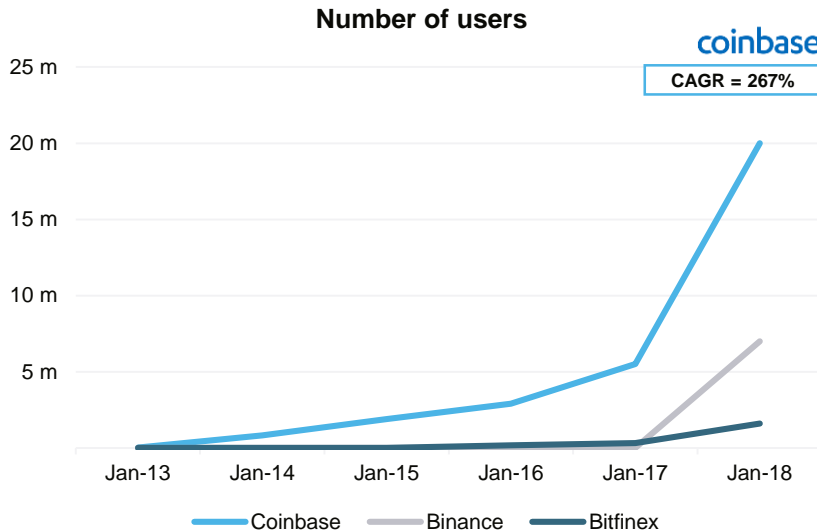


Figure 2

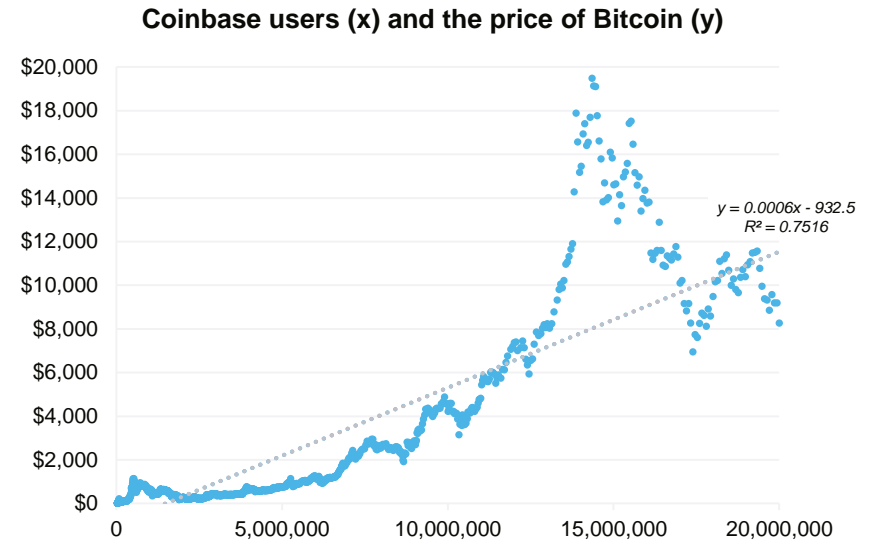


Figure 3

- The exchanges that share user numbers publicly have experienced strong growth, especially in the lead-up to the Bitcoin 'bubble' of early 2018.
- Coinbase's users grew slowly and steadily up to around January 2017, when the rate of growth started to accelerate and led to user figures during that year **growing more than 200%** (from approx. 3.5m to approx. 12m). The growth in users roughly coincides with the appreciation of Bitcoin during 2017.
- Changes in the price of Bitcoin, in general, explain approximately **75%** of the growth in Coinbase's user base between January 2013 and March 2018 (the period for which Coinbase has supplied snapshots of user statistics).

Crypto prices correlate with Google search interest

Google search term popularity and the price of Bitcoin

Year to 1 July 2018

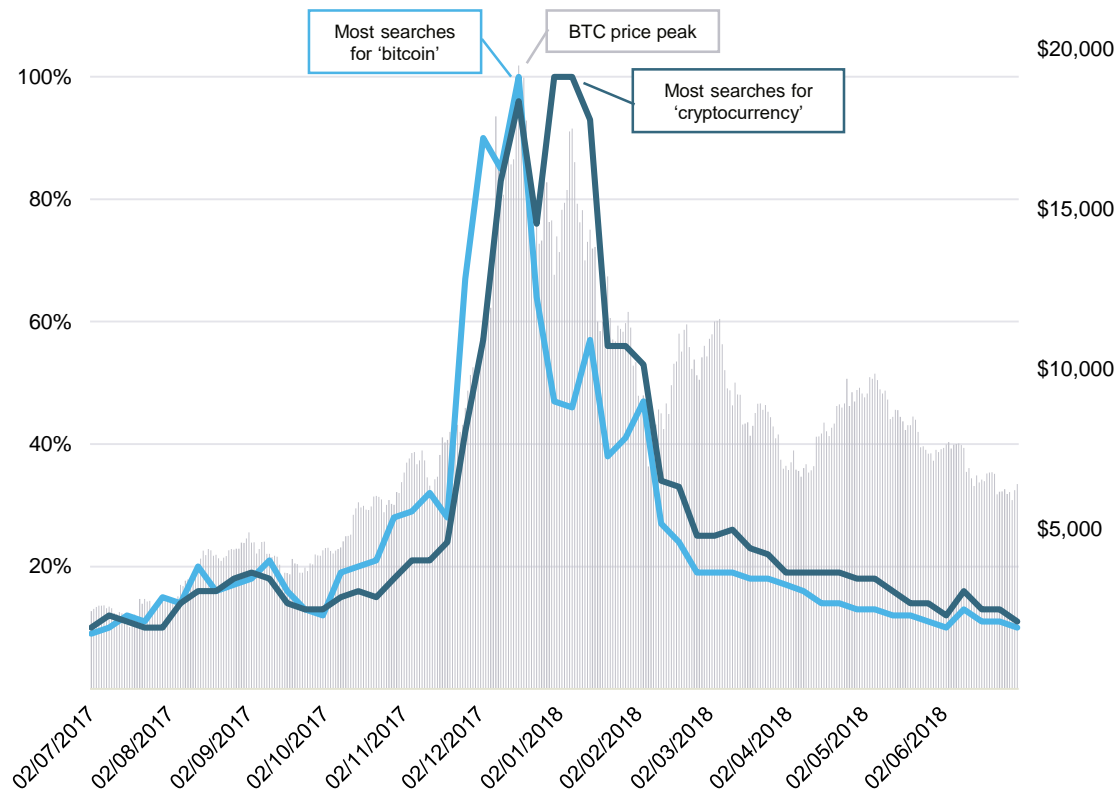


Figure 4

- Search term popularity data from Google reveals concurrent spikes of interest in Bitcoin (and cryptocurrency more generally) as the price of Bitcoin peaks.
- Searches for **'bitcoin'** were at their highest in the week of the record Bitcoin price of **USD 19,497** on **16 December 2017**, likely because news coverage of the appreciation encouraged would-be investors to get involved, or more casual observers to find out more.
- Searches for **'cryptocurrency'** found a second wind *after* the highest heights of the Bitcoin boom, reaching their peak in the two weeks surrounding **31 December 2017**.
- This could be because speculators were giving up on Bitcoin rallying again, and turned their attention towards other currencies – searches for **'XRP'**, **'stellar'**, **'tron'** and **'cardano'** also peaked in the first week of the year.
- The sudden loss of search interest in Bitcoin in the spring of **2018**, when its price was lower than in December but still higher than the preceding autumn, could illustrate the enchanting effect of 'gold rush' type events over less exciting, steady developments.
- Alternatively, it is possible that people who searched for the term earlier to learn what Bitcoin was had no need to learn it again later. Further analysis could be done on whether search interest has moved towards understanding developments in the price of Bitcoin, using terms such as **'btc usd'** or **'btc price'**, for example.

Address growth points to more people buying cryptos

- Cryptocurrency transactions take place on blockchains using unique **addresses** from and to which money is sent. A market participant can use the same address multiple times, but it is more common to use a different one for each transaction. A **wallet** is a safe place to store the various addresses a market participant has created.
- Therefore, the number of wallets is a useful proxy or upper bound for how many people transact with or trade cryptocurrencies. A caveat is that one person can have more than one wallet and not all wallets continue to be active.
- However, assuming that the average number of wallets one user controls has stayed stable, an increase in the number of wallets does indicate growth in the underlying user base.
- As with exchange users, record numbers of wallets and active addresses are achieved in the Bitcoin gold rush of late 2017; for example, the record number of **20m** Bitcoin wallets was first reached on 8 December 2017.
- Bitcoin and Ethereum addresses are shown on **Figure 5** and **Figure 6** together, but the following caveats apply:
 - There will be overlap between the two user bases
 - Ethereum users will have more addresses than Bitcoin users as Ethereum smart contracts (a feature unique to Ethereum) each have their own address

Number of wallets

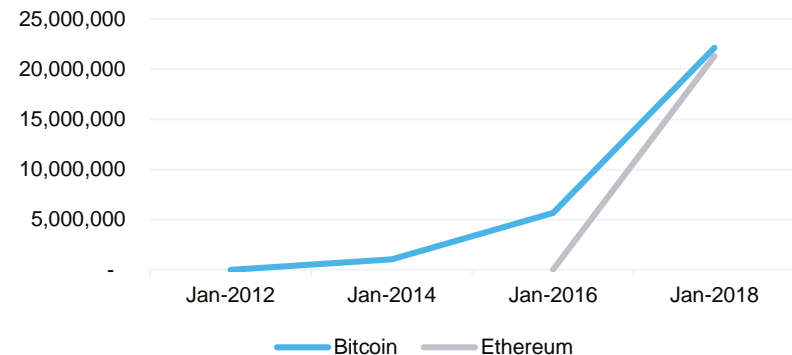


Figure 5

Active addresses per day

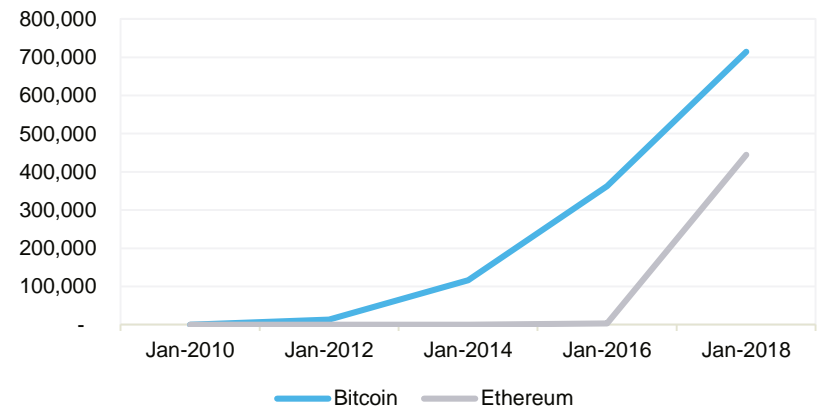
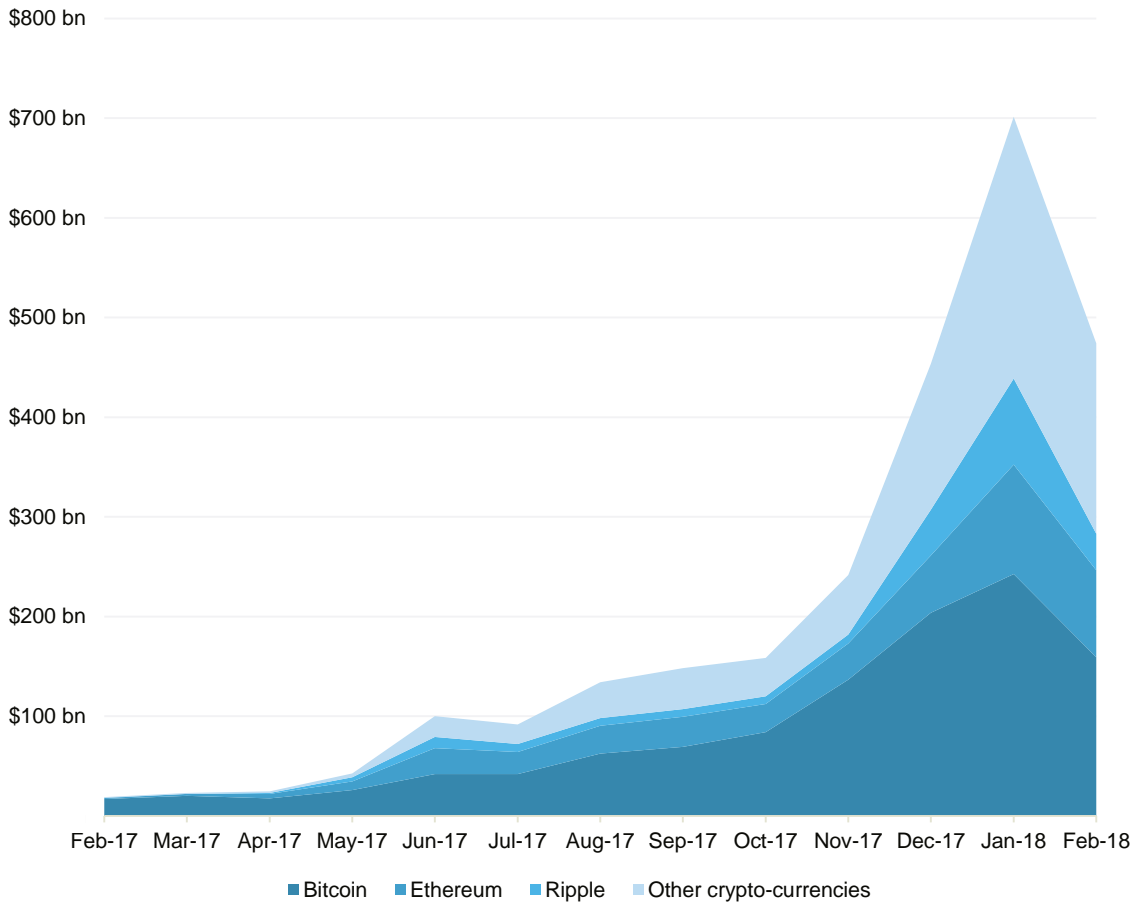


Figure 6

Market capitalisations reach for new heights



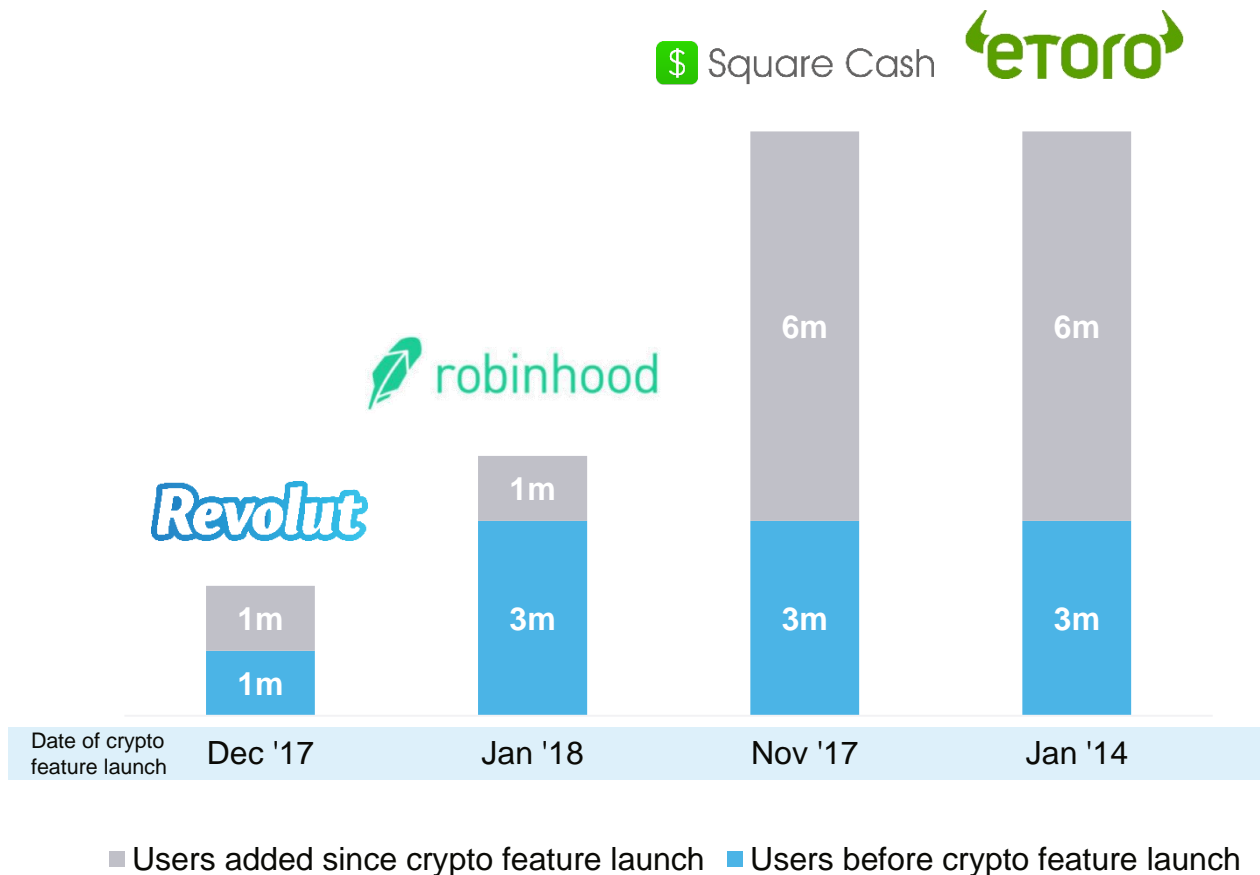
- The market caps of cryptocurrencies reached a record peak – **USD 836bn** – in January 2018 after a meteoric rise in the last quarter of 2017.
- The market gained on average **38%** per month between February 2017 and January 2018.
- Bitcoin's value, which in January 2017 made up **86%** of the market, tumbled in 2018 after the unsustainable peak. In August of this year, Bitcoin's market cap was hovering around 58% of the total (see also Slide 5).
- 'Altcoins', or alternatives to Bitcoin, are seen to grow alongside the market leader and exceed its growth rate in the 19 months between December 2016 and June 2018:

CAGR (Dec 2016-Jun 2018)

Bitcoin	13%
Ethereum	27%
XRP	30%
Other cryptocurrencies	34%

Figure 7

Cryptocurrencies are now a customer acquisition strategy



User growth post-crypto features

- Fintech companies that have added a cryptocurrency feature (such as enabling investment in Bitcoin) have seen user numbers shoot up, doubling or even tripling their customer bases.
- The surges are likely the result of many 'pure' crypto exchanges not being beginner-friendly or as straightforward to use as these highly user-optimised apps. When crypto-trading was enabled on them, people who had heretofore followed the phenomenon from the sidelines decided to join in. Marketing and communication efforts also contributed to making new crypto-features go viral.
- The most significant user increases of **200%** each followed after investment platform eToro enabled Bitcoin CFD as an investment instrument in 2014, and after payment company Square enabled trading Bitcoin on its Cash App.
- Banking app Revolut and stock trading platform Robinhood each racked up **over 1m** new customers after launching Bitcoin and cryptocurrency trading – subject to flat 1.5% fees in Revolut's case and fee-free in the case of Robinhood. The new users represented **100%** and **33%** increases respectively.

Figure 8

Cryptocurrencies are catching up on traditional finance

May 2016

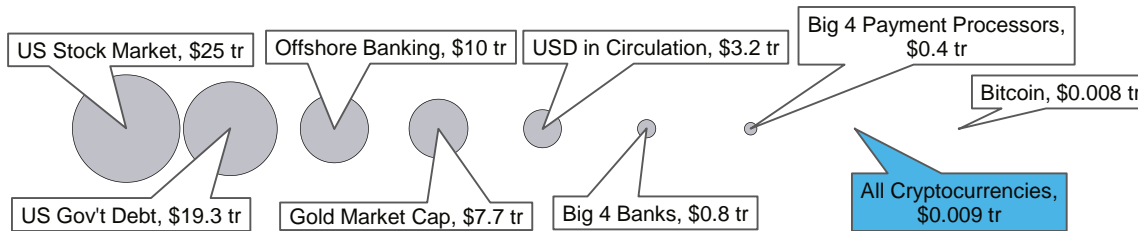


Figure 9

May 2018

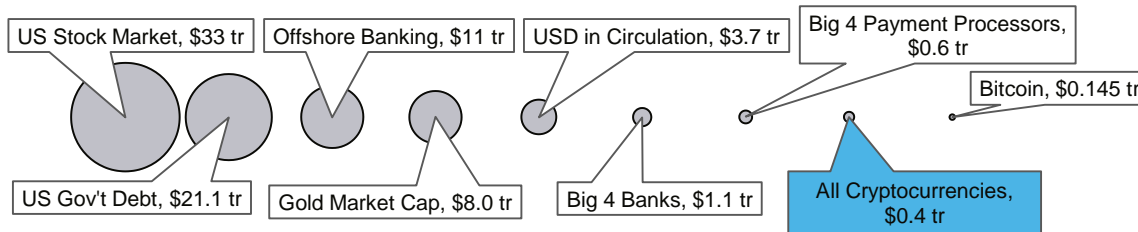


Figure 10

A game of catch-up

- Compared to other large pools of capital within financial services, cryptocurrencies are still small – but catching up at a CAGR of more than **550%**.
- At the growth rates listed below, cryptocurrencies would overtake the entire US stock market by **November 2020**.
- Cryptocurrencies, especially Bitcoin, have shown themselves to be volatile, so CAGRs for different periods could be even higher. This analysis is based on averaging the market caps on the first and last weeks of a month and, as such, smooths out the peak of December 2017.

CAGR (May 2016-May 2018)

All Cryptocurrencies	554%
Bitcoin	339%
Big 4 Payment Processors	26%
Big 4 Banks	20%
US Stock Market	14%
USD in Circulation	6%
US Gov't Debt	4%
Offshore Banking	4%
Gold Market Cap	2%

Figure 11

Overview of crypto exchanges and volumes

Exchanges overview

Exchange	Founded	Headquarters	Description	Crypto-to-crypto	Fiat-to-crypto	Institutional trading
 Bitstamp	2011	Luxembourg	The exchange founded as an alternative to the now defunct Mt. Gox	✓	✓	✓
 Kraken	2011	US	The leading Bitcoin exchange in EUR volume that also offers many other cryptocurrency and fiat pairs	✓	✓	✓
 BITFINEX	2012	Hong Kong	One of the early digital asset exchanges	✓	✓	✓
 coinbase Pro	2012	US	The crypto exchange from the makers of Coinbase, the popular cryptocurrency marketplace	✓	✓	✓
 BITTREX	2013	US	A crypto exchange with markets in one fiat currency (USD) and many cryptocurrencies	✓	✓	✓
 coinfloor	2013	UK	The largest crypto exchange in the UK	✓	✓	✓
 GEMINI	2014	US	A digital currency exchange and custodian founded by the Winklevoss brothers	✓	✓	✓
 POLONIEX	2014	US	A crypto-to-crypto exchange with markets in Bitcoin, Ethereum, Monero and Tether	✓		
 Bancor	2016	Switzerland	A decentralised token exchange with a proprietary protocol that enables counterparty-less liquidity	✓		
 BINANCE	2017	Japan	The Chinese-founded crypto-to-crypto exchange with the world's largest trading volume	✓		✓

Figure 12

Comments

- The exchanges selected are well-known exchanges serving a global audience with large, reliable trading volumes.
- Many exchanges, principally headquartered in China, report higher trading volumes than the exchanges on this list, but have been discredited as fake by a study from Sylvain Ribes in March 2018 and further documented by Eitan Galam the following month.
- More institutional traders are expected to enter the market, which can be reflected in the high number of exchanges on this list that include features aimed at professional traders, and the launches of 'institutional-grade' exchanges such as Archax and BeQuant.

Details of hacks on cryptocurrency exchange platforms (1/2)

Platform	Date of Hack	Monetary Value / Cryptocurrency lost	Cause of Incident
Mt. Gox (defunct)	2011-2014	USD 487m (750k Bitcoin)	Security vulnerability of hot wallets
Bitcoinnica	March and May 2012	USD 6m (46.7k Bitcoin) USD 2.4m (18k Bitcoins)	Security platform vulnerability of cloud servers
Bitfloor	September 2012	USD 0.25m (24k Bitcoin)	Security vulnerability of hot wallets/data encryption
Poloniex	March 2014	12.3% of the platform's Bitcoin reserves	Easily manipulated signatures
Bitstamp	January 2015	USD 4.3m (18.8k Bitcoin)	Phishing of platform's employees
Bitfinex	August 2016	USD 72m (119.7k Bitcoin)	Insufficiently secure multi-signature security device
The DAO	June 2016	USD 53m (3.5m Ether)	Security breach of smart contracts
Steemit.com	July 2016	USD 85k	Unknown
Parity	July 2017	USD 32m (150k Ether)	Security vulnerability of hot wallets
Bithumb	July 2017	USD 1m	Phishing on the platform's employees
Veritaseum	July 2017	USD 8.5m (153k Ether)	Unknown
Tether	November 2017	USD 30.9m	Security vulnerability of support transactions security software

Figure 13

Details of hacks on cryptocurrency exchange platforms (2/2)

Platform	Date of Hack	Monetary Value / Cryptocurrency lost	Cause of Incident
Yapizon/Youbit* (Bankrupt)	April and December 2017	USD 5m (3.8k Bitcoin) USD 2.125m	Security vulnerability of hot wallets Phishing of platform's employees
NiceHash	December 2017	USD 60m (4.7k Bitcoin)	Social engineering
Coincheck	January 2018	USD 530m	Security vulnerability of hot wallets Insufficiently secure multi-signature security device
Bitgrail	February 2018	USD 170m (17m Nano)	Unknown
Coinrail	June 2018	USD 53k-795k	Security vulnerability of hot wallets
Bithumb	June 2018	USD 30m	Security vulnerability of hot wallets
Bancor	July 2018	USD 13.5m (25k Ether)	Attacked during upgrade to smart contracts

Figure 13 (continued)

Crypto-to-fiat trading

Share of volume traded against fiat - Kraken

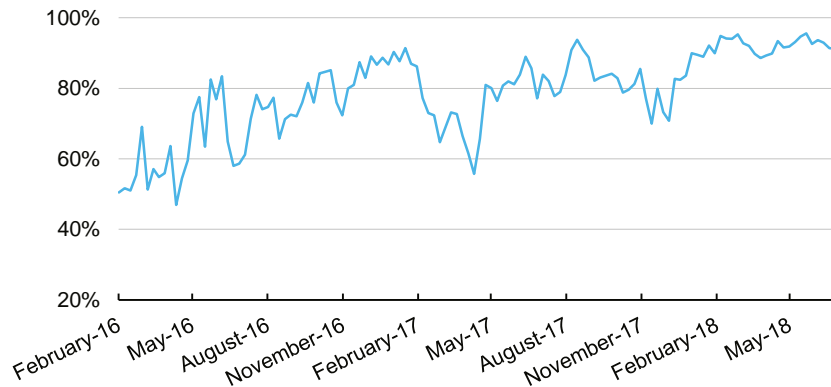


Figure 14

Share of volume traded against fiat - Bitfinex

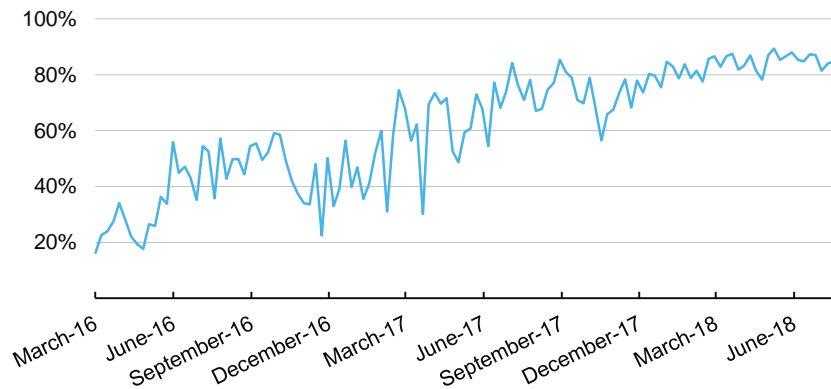
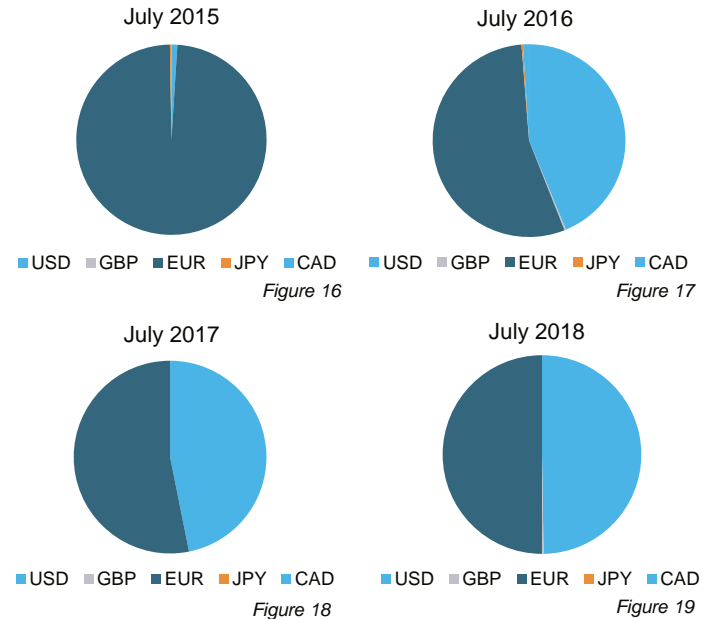


Figure 15

Development of fiat currencies' share of total volume - Kraken



Key takeaways

- Most of the volume traded is against main fiat currencies.
- The share of cryptocurrency volumes traded against fiat has steadily increased over time, which could indicate that traders are entering and exiting their crypto exposure more dynamically.
- USD has gained traction over the past two years to become the most actively traded fiat against cryptocurrencies.

Trading volumes analysis

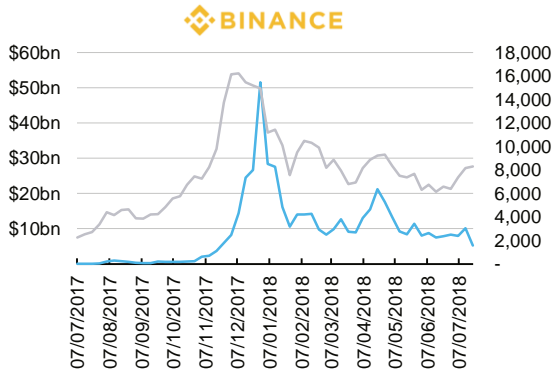


Figure 20

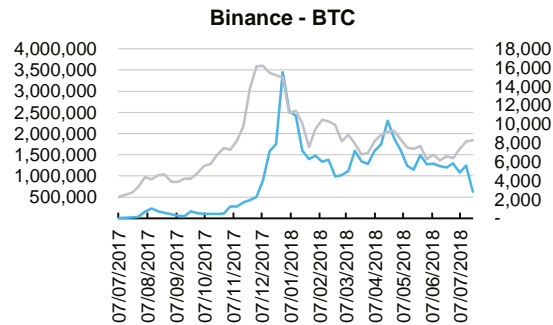


Figure 21

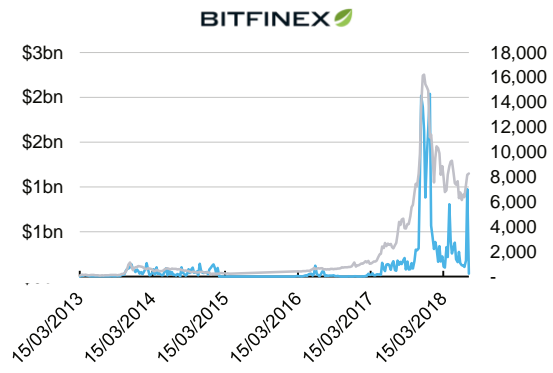


Figure 22

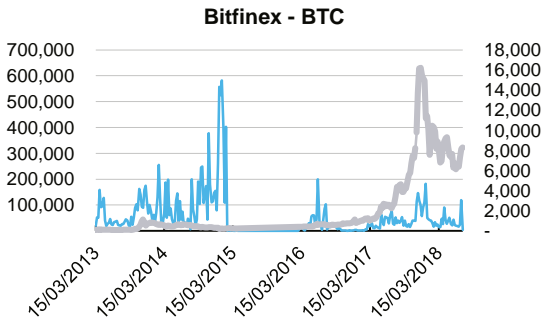


Figure 23

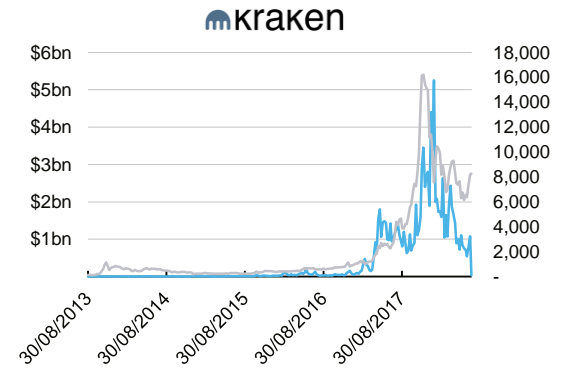


Figure 24

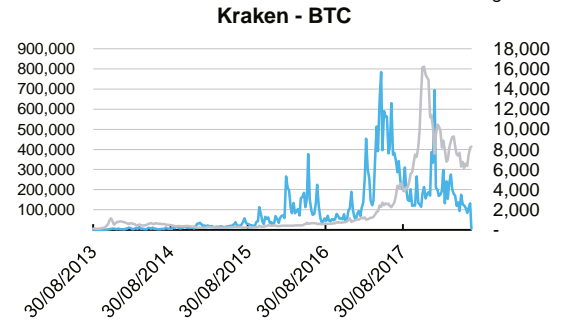


Figure 25

Key takeaways:

- Increase in trading volumes in USD is only partially explained by the overall increase of the crypto industry valuation.
- US-based exchange Kraken experienced a peak of volume several months before the Bitcoin price peak.
- Japan-based exchange Binance experienced the same peak of volume only after the price increase.

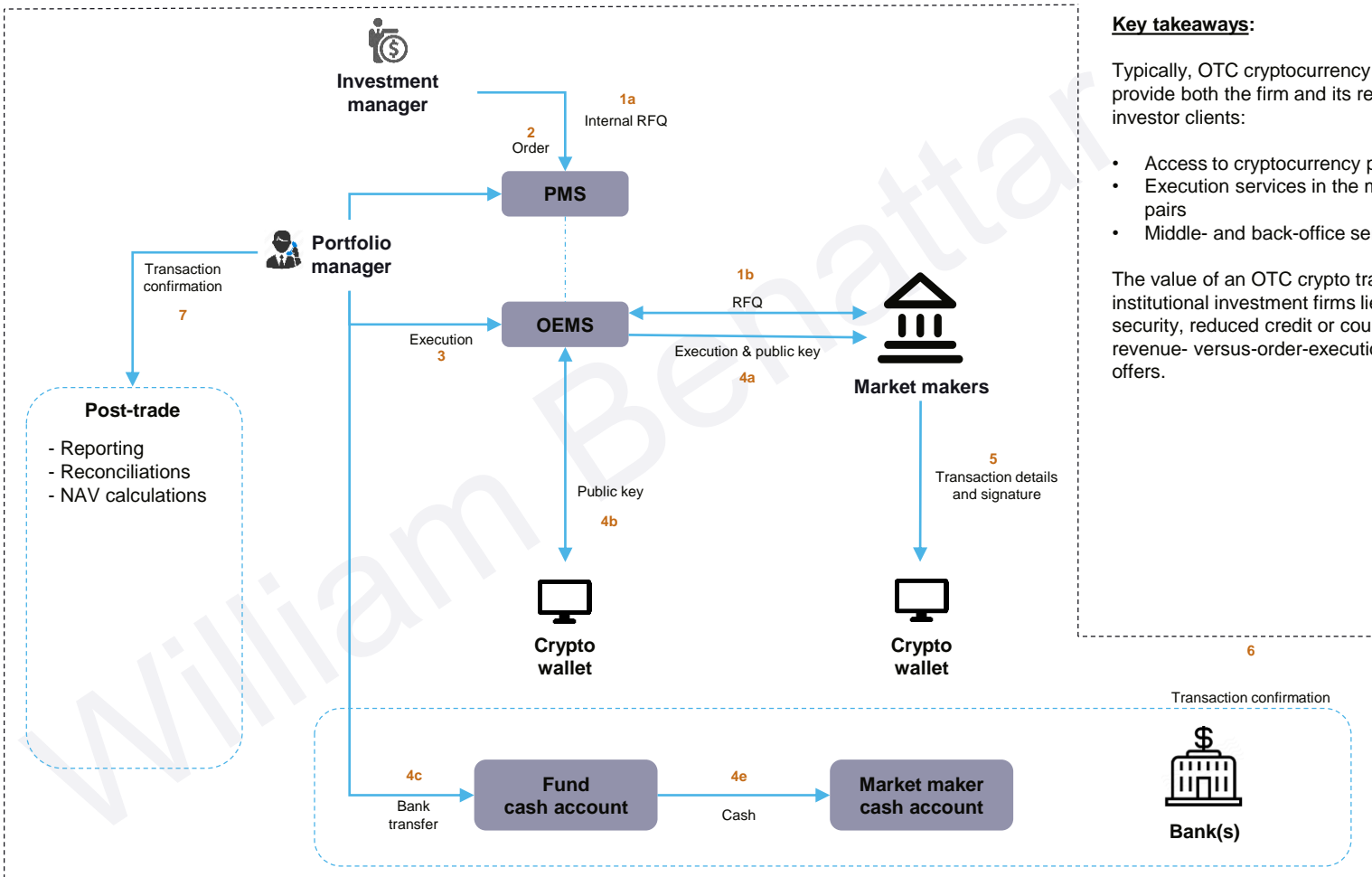
— Weekly volume (USD at the top, BTC on the bottom)
 — BTC price

Breaking down the crypto trading landscape

Wholesale cryptocurrency trading

Trade lifecycle

OTC cryptocurrency trading setup



Key takeaways:

Typically, OTC cryptocurrency trading desks provide both the firm and its real-money end-investor clients:

- Access to cryptocurrency pools
- Execution services in the major crypto and fiat pairs
- Middle- and back-office services










The value of an OTC crypto trading desk for institutional investment firms lies in the privacy, security, reduced credit or counterparty risk and revenue- versus-order-execution-costs that it offers.

Figure 26

Notes:

- T+1 settlement
- Example of Delivery vs Payment: 50/50, typically done using screenshots showing that Bitcoins have been sent on one side and USD on the other

OTC trading snapshot

	Liquidity Provider	Headquarters	Voice Trading	API Offering	Electronic Trading (algo)	Service ICOs	Sufficient Balance Sheet*
	B2C2	London	✓	✓	✓		
	Circle	Boston	✓			✓	✓
	Cumberland	Chicago	✓			✓	✓
	Genesis Trading	New York	✓		✓	✓	✓
	Jane Street	New York	✓		✓		✓
	Jump Trading	Chicago	✓	✓	✓		✓
	Octagon Strategy	Hong Kong	✓			✓	
	QCP Capital	Singapore	✓		✓	✓	
	SFOX	San Francisco	✓	✓	✓		

Comments:

Figure 27

- **Voice OTC** allows the firms to execute large orders directly with a trader, usually over Bloomberg, Skype or Slack. They each have different approaches to market risk, minimum trade sizes (USD 100,000–500,000) and the currencies they will trade, but they all usually supply blocks of liquidity to hedge funds, cryptocurrency businesses and brokerages.
- **Electronic OTC** allows firms to connect directly to the provider via API (FIX, REST) or web site. Electronic trading is suited for both small and large trades, and is especially useful for high-volume-of-order businesses such as brokerages or algorithmic hedge funds.
- Within these two models for institutional investor OTC cryptocurrency trading, bank and non-bank market-makers alike attempt to keep their trading units market-neutral or flat at all times, equalising the available long positions with one or many short ones in other markets. In practice, this is how it works: most crypto market-makers have their crypto held in a separate unit from their trading, and the crypto holding unit then 'lends' it to the trading unit for trading – technically, **market neutrality is achieved** at the trading-unit level, but at the entity level the situation is completely different. **There long positions are generally huge.** The use of capital is very intensive, but vital to market-making.

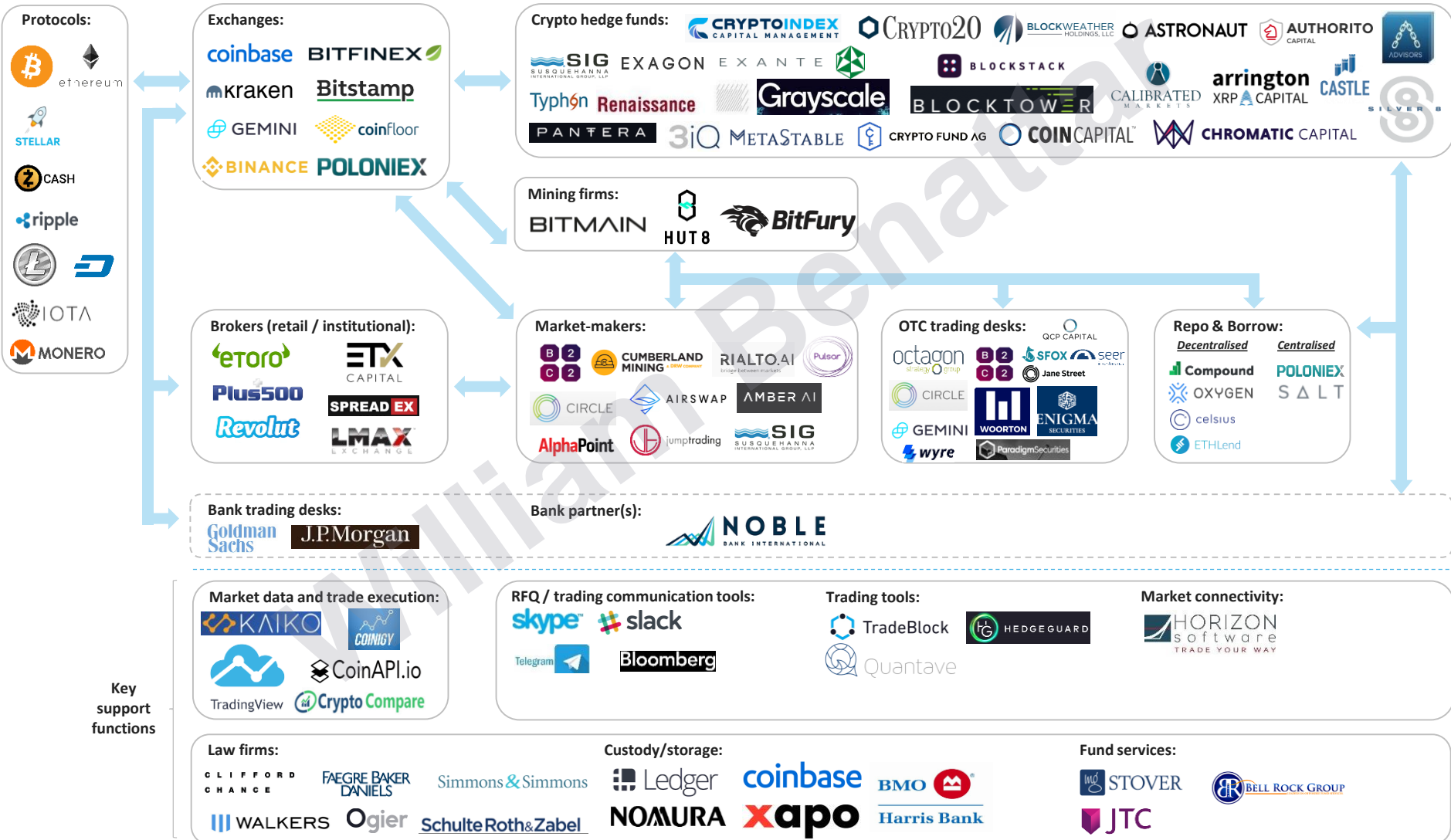
Wholesale cryptocurrency trading

Participants

Type	Function	Operating model	Revenue model	Main challenge(s)	Examples
Protocols	What investors care about, where the value comes from	Protocols (e.g. Ethereum) are systems of rules governing applications (e.g. cryptos, dApps) and running on top of a specific technology layer (e.g. DLT).	Increase in project / token value	Address market needs, gain adoption and usage	Bitcoin, Ethereum, IOTA
Exchanges	Venue for buying and selling	Digital marketplace where traders can buy and sell cryptos using different fiat currencies or altcoins; the platform acts as an intermediary between buyer and sellers.	Fees	Generate volume and match supply and demand	Binance, Bittrex, Kraken
Brokerage platforms	Retail access to cryptos	Digital platform through which retail investors can gain exposure to cryptocurrencies. Funds are traded via a dealer network, as opposed to a centralised exchange.	Spreads, fees	Manage market risk and crypto exposure	SpreadX, LMAX, eToro
OTC trading desks	Brokerage platforms and funds' access to liquidity	OTC desks find sellers or buyers who individually hold large pools of crypto, and pair them for the sale. Often more flexible and more convenient, with a settlement period that is generally faster than exchanges.	Spreads	Source liquidity pools, borrow and hedge	Enigma Securities, B2C2, Circle
Crypto hedge funds	Institutional crypto trading firms	Active investing. Crypto hedge funds buy and sell cryptos, typically using four different strategies: index, quant, crypto-mining or fundamental (<i>also see Slide 22</i>).	Management fee, success fee	Access to liquidity pools, borrow and hedge/short	Blocktower, Pantera, Silver8
Market-makers	Liquidity pools and price stability	Acting as the counterparty to all trades on exchanges. They supply liquidity on specific currency pairs or tokens, therefore eliminating execution delays, reducing and stabilising spreads and maintaining a certain level of market activity.	Exchange rebates, spreads, retainer	Electronic efficiency, exchange connections, on-board OTC desks	B2C2, Cumberland, Jump Trading
Mining firms	Transaction processors	Compete to mine blocks. Miners use several computers' processing power to calculate cryptographic hash functions, in an attempt to get lucky and mine blocks of transactions ahead of other participants or mining pools.	Block reward, transaction fee, hardware, leasing capacity	Limit crypto exposure, convert crypto at the right prices	Bitmain, BitFury, Hut8
Crypto-repo platforms	Provide access to lending	Enable users to earn incremental interest on token balances; borrow tokens for using, leveraging or hedging; and earn arbitrage profit by liquidating under-collateralised borrowing positions. Centralised or decentralised P2P platforms.	Membership fees, fees on interest rates	Chicken and egg problem: need to find lenders and borrowers	Compound, Oxygen, Celsius
Bank trading desks	What banks are said to do but has yet to be seen...	Should take on the role of market-making firms and OTC trading desks.	Spreads, fees, research	Manage market risk and reputational risk	Goldman Sachs

Figure 28

Wholesale cryptocurrency trading Landscape



Note: Not exhaustive
Sources: William Benattar, GreySpark analysis

↔ Cash flows (fiat and/or crypto)

Liquidity provisioning and coin market-making

PROBLEM

1. Inadequate levels of liquidity often expose crypto-assets to violent price swings, especially upon initial listing when news announcements are made.
2. Volatility creates negative market sentiment and prevents coins from being perceived as legitimate tradeable assets.

SOLUTION



Core market-making principles

- Market-makers aim to provide stability around a specific asset, therefore allowing traders to assess the potential of a project based on fundamental information.
- The two-sided auction nature of market-making helps to avoid liquidity gaps or random jumps.
- Market-makers help to guide the price of an asset towards its trading equilibrium as opposed to letting the price fluctuate widely.
- In the context of liquidity provision, market-makers work closely with token issuers to coordinate trading efforts around news announcements.

Additional market-making functions

- **Price flooring** defends a fair value threshold for the coin or token, agreed between the issuer and market-maker. Using a combination of tactical bids and trades, the market-maker ensures that coin price does not fall beneath the threshold even when facing market manipulation and attack from other market participants. Such price floors can be either hard or dynamic, in line with the issuer's needs for the firmness of the price floor as well as the resources available to defend that price.
- **Coin / token buyback** programmes utilise a portion of the proceeds from public coin / token sales to increase the issuers own token reserve or burn tokens. The market impact of buyback programmes can be controlled through a strategic mix of manual and programmatic trading during implementation.

Algo-trading strategies

Liquidity, Volume & Velocity Algos

- Make two-way prices to tighten bid-ask spread.
- Provide order-book depth to allow market participants to trade large quantities without moving the price.

Price Support & Stability Algos

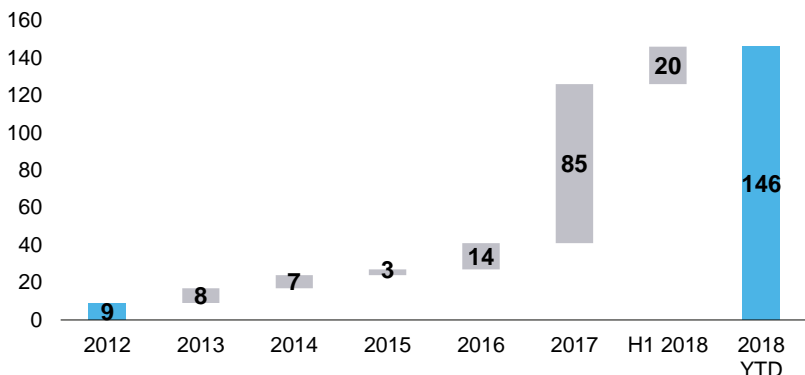
- Price smoothing is achieved through a combination of price-stabilising bids in the face of downward pricing pressure and price-influencing trading that reduces volatility by smoothing out sudden price swings.
- Mispricing gaps – both between exchanges and on a cross-border basis – are addressed through arbitrage trades.
- Dynamic price-floor mechanisms deploy tactical lifting trade execution strategies for cost-effective price-stabilisation, e.g. the iceberg strategy of splitting large orders into smaller orders.

Revenue model(s)

- **Retainer** – monthly fees in BTC, ETH or fiat currencies.
- **Deposit** – BTC or ETH and project tokens are required as a means of funding for the market-making trading operations. The size of the deposit varies depending on the selling pressure on the coin.
- **Revenue-sharing** – appreciation in the notional crypto value (BTC or ETH) of the total deposit at the conclusion of the market-making engagement is often subject to a profit split between the service provider and the company.

Crypto hedge funds

Net annual increase / (decrease) in active crypto hedge funds



Other key statistics:

- Average AuM observed is USD 15m
- 10+ funds shut down since Jan 2018

Figure 30

More than half of funds employ fewer than 5 people

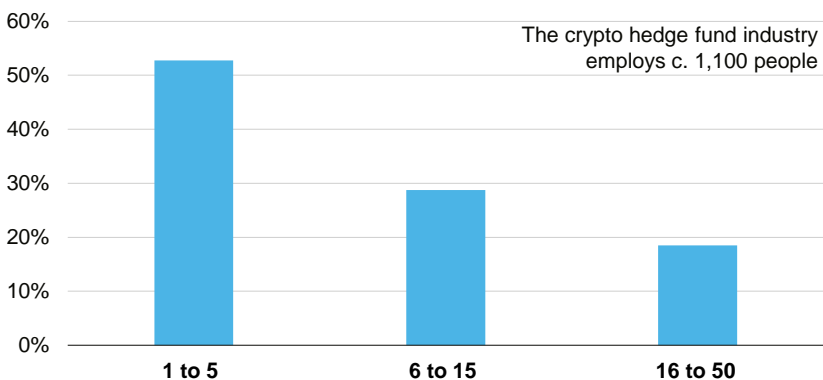
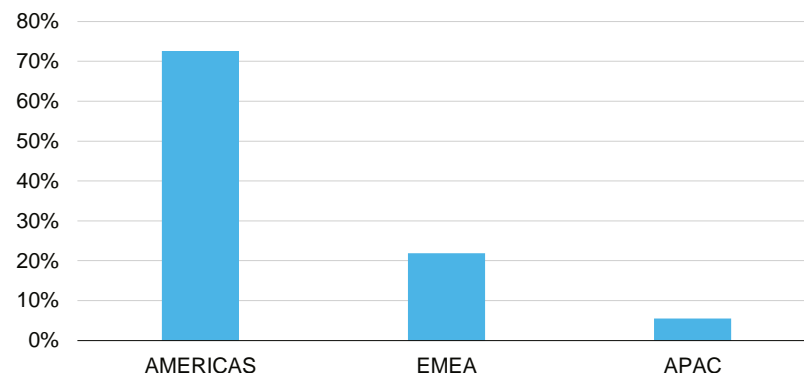


Figure 32

More than 73% of crypto hedge funds are based in the US



Other key statistics:

- 95% of crypto hedge funds are domiciled in the Caymans or Delaware.

Figure 31

The crypto hedge funds industry is still very fragile

- Although the growth in the number of crypto hedge funds has increased significantly over the past two years, the launch rate is now slowing down. GreySpark estimates that the number should stabilise in the range of 160-180 before the end of 2018 – still a fraction of the 5,500 hedge funds trading on more standard asset classes globally.
- **The main factor behind this is the lack of trusted custody solutions.** The market is waiting for big houses such as State Street and Northern Trust to take on this role. Difficulties in accessing liquidity or finding capital-efficient instruments for short or hedge positions is also an issue.
- Most crypto hedge funds fall in one of four categories:
 - Index funds, typically with portfolio allocation strategies
 - Quant funds, typically doing arbitrage on exchanges and algo trading
 - Fundamental strategies, which are more long-term, typically buy and hold
 - Mining funds (not included in this analysis) – a good example is Hut8

Tokens and ICOs

Ethereum is the platform of choice for token launches

The overwhelming majority of launches are on Ethereum (% of market cap of tokens on the platform)

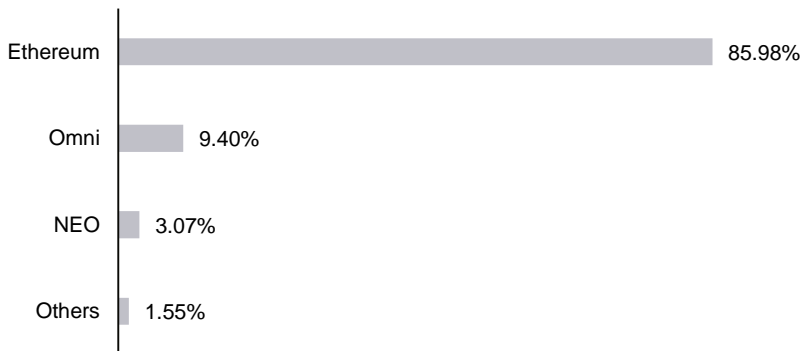


Figure 33

Market caps and average prices

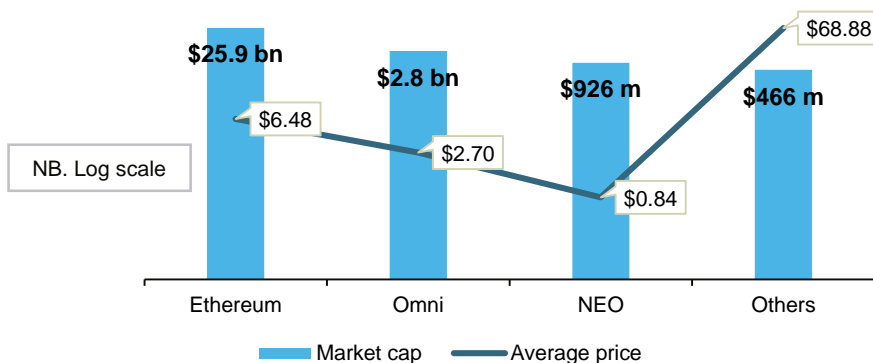


Figure 34

- An ICO, the limited-time sale of tokens to fund a project such as the launch of a company, has in recent years proved a quick, easy and potentially very lucrative way to raise funds.
- ICOs are launched using tokens, which act like cryptocurrencies and are built on and traded on a given blockchain.
- The vast majority of tokens – **86%** or **772** tokens – use the Ethereum blockchain as their platform.
- Ethereum's advantages are that it is:
 - **Designed for spin-off programs** (e.g. tokens or DApps, decentralised applications) on top of the currency 'layer' using smart contracts – in contrast, the Bitcoin blockchain is not designed for anything except straightforward a transaction ledger.
 - **Simple** – setting up new ICOs is relatively easy.
 - **Fast** – transactions get processed quickly (unlike other blockchains).
 - **Secure** – technical features ensure that certain types of hacker attacks, such as denial of service, are not feasible.
- In market cap terms, Ethereum's dominance places it more than **USD 20bn** ahead of Omni, the next highest-cap platform, which in turn has nearly **USD 3bn** over NEO.
- Typically, the smaller a platform's market cap, the lower the average price of tokens traded on it – however, the sample sizes are small for every other platform than Ethereum, which is the basis of 772 out of 833 tokens.

ICO returns analysis

Figures 35 and 36 present the returns of ICOs listed on Binance and Bitfinex.

Exchange	Ratio 1	Ratio 2	Ratio 3	Ratio 6	Return 1 week	Return 2 weeks	Return 3 weeks	Return 6 weeks	Number of coins
Binance	0.4427	0.3969	0.3740	0.3511	0.2351	0.1583	0.2178	0.3393	131
Bitfinex	0.4583	0.2083	0.1666	0.2083	0.2862	0.0083	-0.0827	0.3955	24

Figure 35

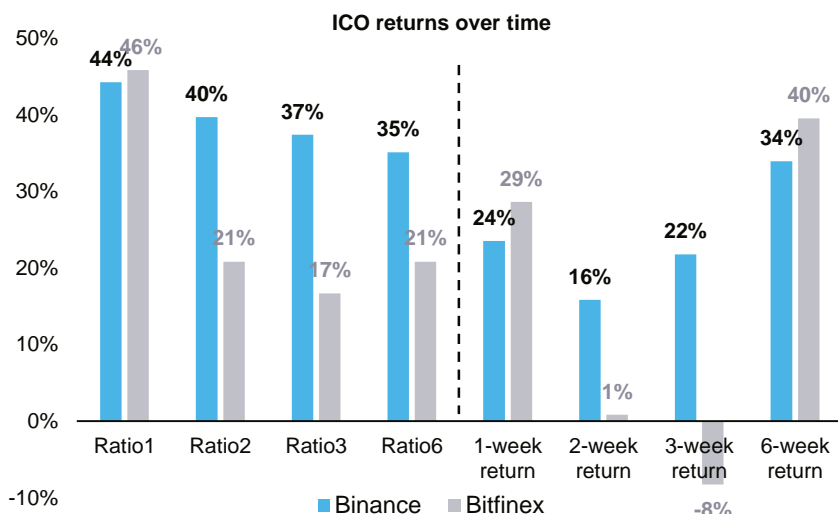


Figure 36

Key takeaways:

- The percentage of ICO projects showing positive returns significantly declines the more time passes after an ICO. The reasons vary: lack of traction, disappointing product advancements, scams, difficulties in execution, no market and poor marketing or go-to-market strategy.
- The right-hand side of **Figure 36** shows that among successful ICOs (those with positive returns), returns tend to increase over time, up to an average of 40% for projects listed on Bitfinex.

Item	Definition
Ratio 1	Percentage of ICOs with a positive return after 1 week
Ratio 2	Percentage of ICOs with a positive return after 2 weeks
Ratio 3	Percentage of ICOs with a positive return after 3 weeks
Ratio 6	Percentage of ICOs with a positive return after 6 weeks
Return 1 week	Average return after 1 week
Return 2 weeks	Average return after 2 weeks
Return 3 weeks	Average return after 3 weeks
Return 6 weeks	Average return after 6 weeks
Number of coins	Number of coins or tokens considered in sample

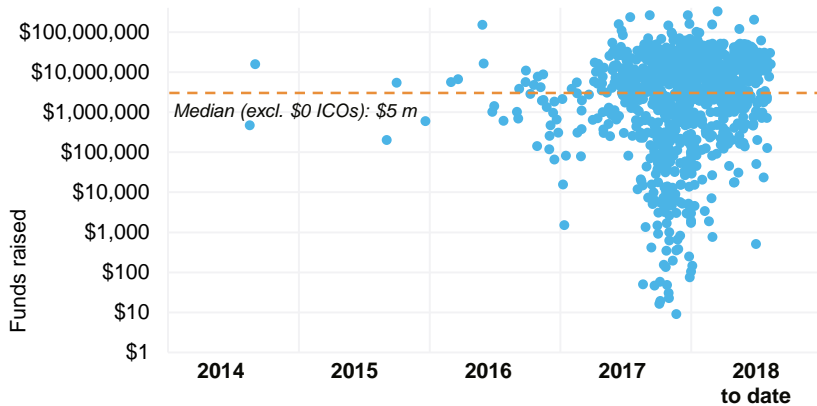
Figure 37

ICOs can be lucrative paths to funding, but nearly half fall short

ICOs proliferated in 2017 and 2018

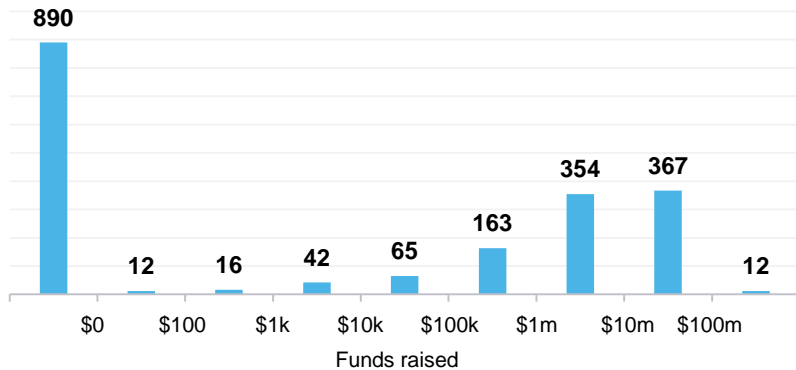
Ended public ICOs only

Figure 38



Nearly half of ICOs fail to raise a single dollar

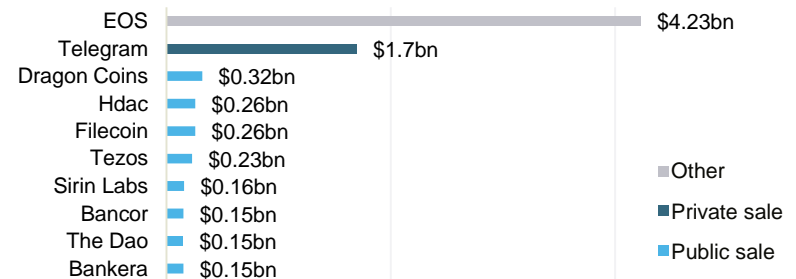
Figure 39



- ICOs may have different phases:
 - a private phase when only selected investors may purchase the tokens
 - a pre-sale where a limited amount of tokens is released publicly, but investors typically must commit to larger minimum contributions, and
 - a public phase, the actual crowdsale where anyone may purchase any amount of the remaining tokens.
- ICOs are said to have 'failed' if the project subsequently falls through (such as in the case of The Dao ICO, where serious security flaws were discovered in the product and the whole initiative was shut down), but the simple failure to raise enough money does not constitute a failure in the statistics on this slide.
- The largest amount raised by any crypto crowdsale to date is **USD 4.2bn**, and rising, off the sale of EOS tokens – however, the event lacked many features typical of ICOs (e.g. a set price, buying directly from the organisation, a short sale period, global availability and no re-sale until after the sale) and is therefore not strictly an ICO but a unique form of a crowdsale.
- While there is a lot of variance in the funds raised by ICOs, **743** of the closed ones, or approximately **40%**, succeeded in raising **USD 1m** or more
- Meanwhile **890** ICOs, or approximately **46%**, failed to raise any funds

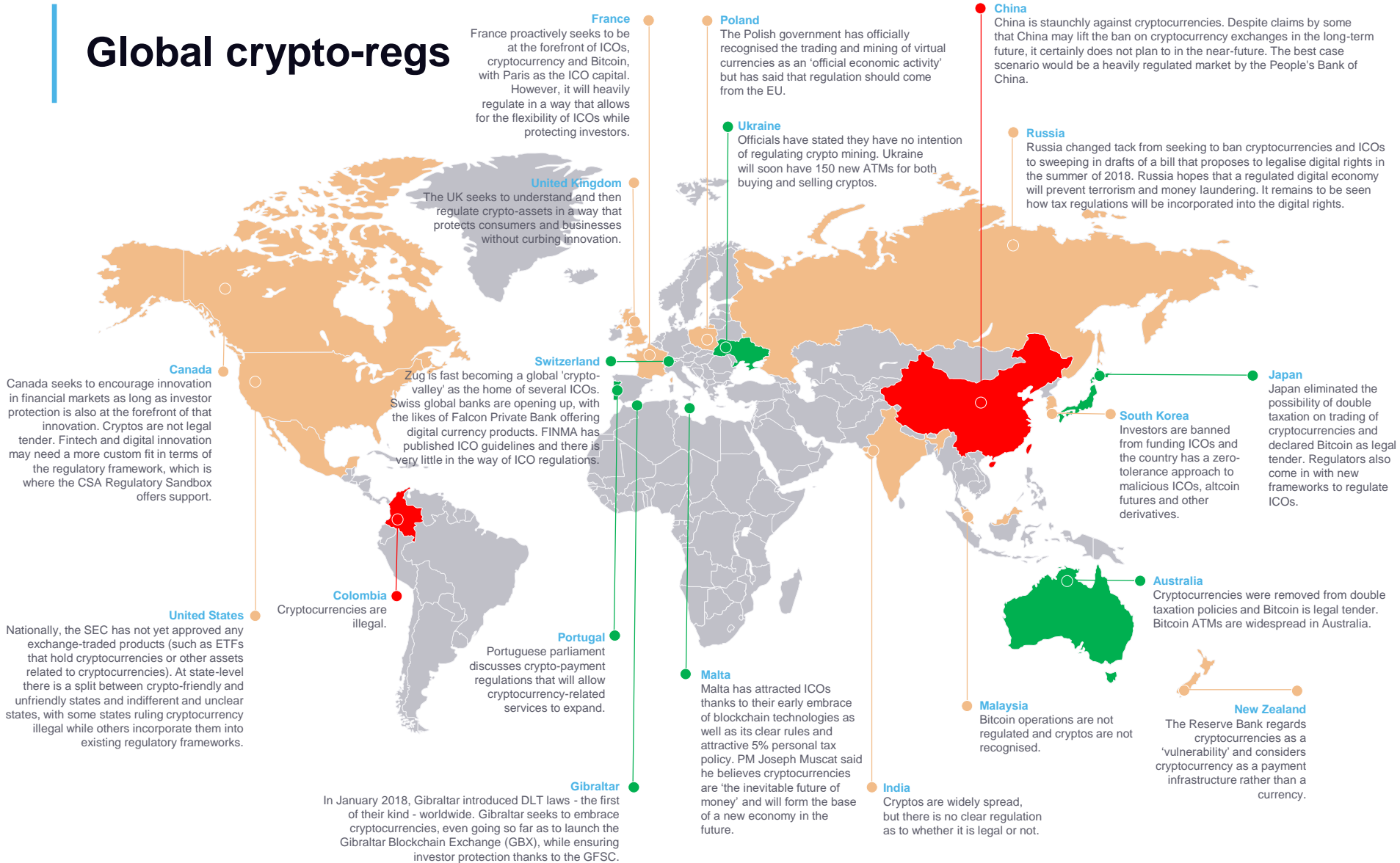
Most money raised by crowdsales, Top 10

Figure 40



Navigating the regulatory landscape for cryptos and ICOs

Global crypto-regs



Crypto regulation in detail (1/2)

Jurisdiction	Regulator(s)	Category	Regulatory positioning	Friendliness to crypto	Friendliness to ICOs	GreySpark view
China	The People's Bank of China	Hostile	<ul style="list-style-type: none"> China is poised to tighten regulations banning ICOs and cryptocurrency exchanges 			China is strongly opposed to cryptocurrencies
UK	FCA, Bank of England, Treasury	Developing	<ul style="list-style-type: none"> Governor of the Bank of England (BoE) Mark Carney has confirmed the UK is set for a new wave of cryptocurrency regulation, tackling potential financial stability risks and financial crime Regulators distinguish between crypto-assets and cryptocurrencies and the distributed ledger technology on which they are based 			The UK seeks to understand and then regulate cryptocurrencies. Wants to protect consumers without stifling innovation
France	AMF	Developing	<ul style="list-style-type: none"> The French Treasury, acknowledging the risks involved in ICOs, confirmed the need for ICO regulation Bruno Le Maire, economy minister, said Paris hoped to introduce legislation that would allow companies to gain a formal stamp of approval for their ICOs 			France wants to heavily regulate ICOs to protect investors but also give them flexibility
South Korea	FSS, FSC, The Blue House	Developing	<ul style="list-style-type: none"> South Korea's government seems to have realised how much potential there is in the blockchain and cryptocurrency space The change in attitude from the government, however, has come with heavy regulations and rules in the use of cryptocurrencies The regulator hopes to see South Korea normalise the virtual coin business in a self-regulatory environment 			South Korea is transitioning toward a cautious optimism regarding cryptocurrency
US	CFTC	Developing	<ul style="list-style-type: none"> Laws governing exchanges vary by state, and federal authorities actually differ in their definition of the term 'cryptocurrency' The US Treasury has emphasised an urgent need for crypto regulations to combat global and domestic criminal activities 			The US treats cryptocurrencies differently on a state and federal level, i.e. the rules are a 'patchwork quilt'
Canada	CSA, FCA of Canada	Developing	<ul style="list-style-type: none"> The regulator wants to encourage financial market innovation and facilitate capital raising by fintech businesses, while at the same time ensuring fair and efficient capital markets and investor protection Desire to protect Canada's financial ecosystem from money laundering and other terrorist financing activities 			Canada is attempting to become a cryptocurrency hub, but with new regulations to protect consumers

Figure 41

Key:

- Hostile
- Exploring
- Cautiously in favour
- Embracing
- Hostile
- Developing
- Advocate

Crypto regulation in detail (2/2)

Jurisdiction	Regulator(s)	Category	Regulatory positioning	Friendliness to crypto	Friendliness to ICOs	GreySpark view
Russia	Russian Finance Ministry	Developing	<ul style="list-style-type: none"> The Russian Finance Ministry published a working draft of a bill that proposes to legalise cryptocurrencies or 'digital financial asset' as a type of security in electronic form 			Russia is now ramping up efforts to regulate cryptocurrencies and ICOs
Poland	KNF	Developing	<ul style="list-style-type: none"> The Polish Ministry of Finance announced it would impose the 'Civil Law Transactions Tax' (PCC) on all purchases and sales of cryptocurrency in the country 			Poland takes a tough stance to regulating the cryptocurrency market
Japan	FSA	Advocate	<ul style="list-style-type: none"> Japan is becoming a hotspot for virtual currency exchanges that can afford to comply with its strict rules Japanese government passed the Bitcoin payment law that declared it legal tender and also gave legal status to crypto exchanges 			Japan has issued sanctions whilst increasing regulations to protect investors and growth
Switzerland	FINMA	Advocate	<ul style="list-style-type: none"> The Swiss government is making some serious reformations in its regulatory system to reinvent itself as the cryptocurrency hotbed of the world. 			Switzerland has a liberal regulatory environment for fintech firms and is seeing a boom in ICOs
Malta	MDIA	Advocate	<ul style="list-style-type: none"> Malta is the first country to provide an official set of regulations for operators in the blockchain, cryptocurrency and DLT space The Maltese Parliament voted unanimously to approve 3 cryptocurrency and blockchain bills 			Malta is gaining a reputation as the world's first 'blockchain island'
Gibraltar	GFSC	Advocate	<ul style="list-style-type: none"> Gibraltar introduced a comprehensive set of new laws to regulate DLT businesses, making it the first country in Europe to take this bold step Gibraltar is introducing the world's first legal framework for ICOs with dedicated rules for the cryptocurrency sector 			Gibraltar has embraced cryptocurrencies
Cayman Islands	CIMA	Advocate	<ul style="list-style-type: none"> Cayman's existing legal framework provides the flexibility to allow technologies like blockchain to flourish The focus of Cayman regulators will be in KYC and AML compliance, as well as watching out for securities issues 			The Cayman Islands has a flexible legal framework, but will use AML / CFT standards to legitimise its market
Ukraine	NBU	Advocate	<ul style="list-style-type: none"> The country's Financial Stability Council has thrown its weight behind the concept of regulating blockchain-based virtual currencies as financial instruments 			Ukraine is increasing efforts to regulate cryptocurrencies to prevent piracy

Figure 41 (continued)

Key:

- Hostile
- Developing
- Advocate
- Hostile
- Exploring
- Cautiously in favour
- Embracing

The economics of mining

Mining as a business

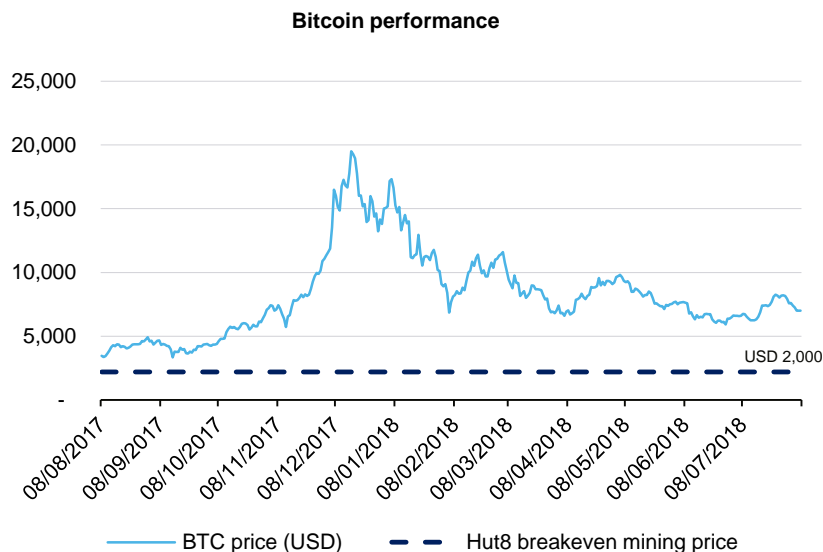


Figure 42

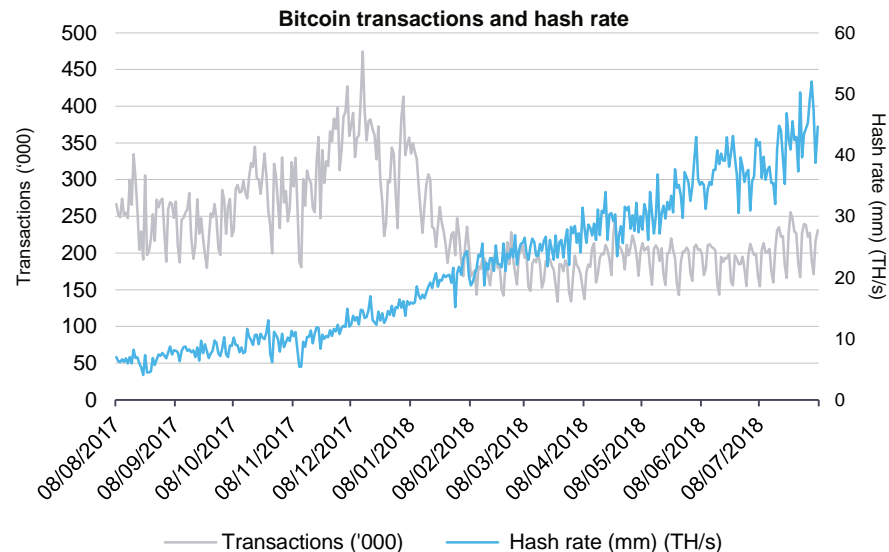


Figure 43

Key takeaways:

- **Figure 42** illustrates that Hut8's cost of mining a Bitcoin in the first half of 2018 was approximately USD 2,000, excluding overheads. This shows what market conditions most mining firms such as Hut8 need to assume in order to maintain a profitable mining franchise.
- Mining is a cost and efficiency play, the business model being driven by the hash rate (how many hashes per second can the miner make), the price of the underlying currency that is mined, power consumption (cost per kW/h) and cost of equipment (ASICs microchips, data centres, cooling systems), fast and efficient mining hardware will cost more.
- **Figure 43** shows that although the number of Bitcoin transactions has plummeted, the hash rate has increased – this means that more miners have entered the market, making it a more competitive place. The main reason for that is the combination of the simplification the technology required to mine and the ease of adoption. Mining firms such as BitFury and Bitmain are the main beneficiaries of this trend as they both supply mining equipment and have their own mining pools.
- Paradoxically enough, the process of mining has evolved from being completely decentralised and fragmented to being concentrated in the hands of a handful mining firms or pools such as Bitmain and BitFury. The main reason for that is the development of smaller and more efficient mining components called ASICs, replacing the classic CPU mining techniques.

Bitcoin mining market sizing

Item	Calculation	Key Assumption
Blocks mined per day	144	1440 min per day / 10 min (average block validation time)
Reward per block (BTC)	12.5	Until 2020
Transaction fee per block (BTC)	0.7	Year-to-date average
Bitcoin price in USD	\$6,000	Current price (rounded)
Number of days until next halving	654	From 08/08/2018 to next halving
Bitcoin mining revenue for grab until next halving	\$7bn	Next halving in May 2020
Bitcoin mining revenue for grab per day	\$11m	654 days from now (08/08/2018) to next halving in May 2020

Source: Blockchain.com, Hut8.com (investor presentation), Bitcoinblockhalf.com

Figure 44

Key takeaways:

- **Figure 44** presents a back-of-the-envelope calculation for the total Bitcoin mining market size – estimated as USD 11.4m for grab per day from now until the next halving in May 2020 when the reward will halve from 12.5 to 6.25 Bitcoin.
- The calculation above assumes the Bitcoin price will remain stable at USD 6,000.

About us

Team

Authors

William Benattar

Lead Consultant – Head of FinTech

William heads up the FinTech advisory team and co-leads operations in the fintech area with GreySpark's Managing Partner, Frédéric Ponzo.

By maintaining a comprehensive view of the fintech arena, William assists start-up firms enter the marketplace; advises private equity houses on financial technology investments; and advises buy-side and sell-side clients on the development of strategic and innovative projects. Prior to joining GreySpark, William worked for Kantox in the business and product development team, focusing on strategy developments of FX systems. While being a student ambassador for Google, William spearheaded initiatives aimed at helping SMEs develop and implement their digital strategies. William is a mentor at the London-based accelerator program - Startupbootcamp Fintech - advising start-ups on product development, roadmapping and fundraising avenues.

Meri Paterson

Analyst Consultant – FinTech practice

Prior to joining GreySpark, Meri worked on a number of consulting projects, including market-entry strategy for a startup in the foreign exchange analytics space, and wrote a thought-leadership piece for an independent research provider on post-MiFID II changes to the cross-section of equity research, stock exchanges and SMEs. She holds an MBA in Finance and Strategy with Merit from Imperial College Business School and joined GreySpark's FinTech Strategy team as an Analyst Consultant in 2017 to contribute to the delivery of large commercial due diligence projects for trade buyers and institutional investors.

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Eitan Galam (Telegram: eitan.galam) is a Harvard-educated mathematician and senior executive in the quantitative asset management industry. Eitan is the CEO of Mayan Capital, a quantitative hedge fund based in New York, and of M-Squared Solutions, a market-making firm working with cryptocurrency exchanges and token issuers. Eitan is also the chairman of G-Squared Partners, an advisory and research firm dedicated to blockchain technology and cryptocurrency trading.

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Emmanuel is former Vice President, Sales & Business Development, at leading cryptocurrency market maker and OTC liquidity provider B2C2. Emmanuel helped drive the OTC Sales efforts out of London and steered overall development of the client-facing, sales & marketing side of the business. Prior to B2C2, Emmanuel was an Associate in the Securities Division at Goldman Sachs, where he worked in the Foreign Exchange Hedge Fund Sales team for four years.

About GreySpark

GreySpark offers Capital Markets **business, management and technology** consulting. We are at the heart of the financial industry, helping different kinds of businesses across all asset classes. GreySpark is 100 people based in London, New York, Hong Kong, Sydney and Edinburgh as of January 2018.

GreySpark brings deep and intimate knowledge to our clients' businesses.

GreySpark helps financial institutions address their business-critical concerns at any stage of their business or project cycle. Most importantly, not only do we advise our clients of the best possible solution, we are committed to them until that solution is operational.

100 people

based in **London, New York, Hong Kong, Sydney and Edinburgh** as of January 2018

Sell-side institutions	Buy-side institutions	Solution providers
Investment banks	Venture capital funds	Exchanges / ECNS
Corporate banks	Private equity funds	Market data providers
Brokers and dealers	Hedge funds	Established and emergent Fintech companies

Electronic Trading	Risk & Trade Management	Data Management
Market & client connectivity	Portfolio management	Decision support & analytics
Order routing & management	P&L calculation & reporting	Compliance & reporting
Market data	Credit & market risk	Post trade processing
Algorithmic trading	Operational risk	Reference and historical data
eCommerce	Liquidity risk	Infrastructure
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