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Cryptocurrency

Features of a Bitcoin Bear Market

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Bitcoin price weakness has similarities to the Nasdaq in 2000, just occurring at 15x the speed. Bear markets see rising trading volumes and recently USD tether, a cryptocurrency token, has taken increasing trading share. Companies are raising record amounts issuing new coins (ICOs).

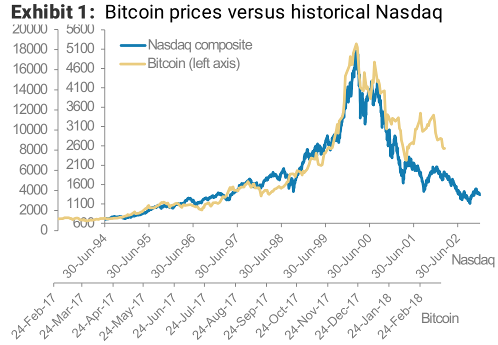
Bitcoin bear markets are nothing new: Since the coin's creation in 2009 there have been four prior bear markets, with price falls ranging from 28% to 92%, so the recent fall of 70% was nothing out of the ordinary. In the current bear market, prices have fallen 45-50% in each bearish wave, similar to the pattern in the Nasdaq from 2000. BTCUSD prices varying by more than 3% across exchanges would signify a return to the bear market. Recently, bitcoin:alt-coin correlations have picked up, while USD prices vary increasingly across exchanges when markets tended to bottom.

What currency trades versus bitcoin? Since 2013 there have been three major funding currencies for bitcoin: USD, CNY and JPY. 49% of recent trading has been versus JPY as the Japanese retail community have traded FX on margin for a long time. There has been a small move away from fiat. The largest bitcoin exchanges only trade versus other coins/tokens so US dollar tether (USDT) has seen an increase in trading share from 1% in November to 13% today.

Blockchain startups prefer ICOs over VC funding: Since the start of 2017, blockchain-related startups have raised US$1.3 billion via venture capital. Over three times that value was raised via ICOs. ICOs tend to ask for ethereum or bitcoin so cryptocurrencies could be becoming funding currencies. Beyond regulation, the ICO market is changing, with 60% now done via private investor rounds.

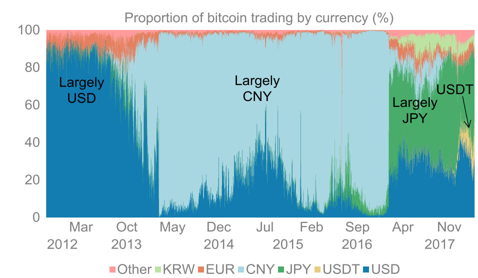
There are many open questions in relation to cryptocurrencies: The back of this document has a short comparison between bitcoin and the US dollar and definitions of new words. In future reports we will explore trading dynamics, the potential macroeconomic impact and the evolution of a growing blockchain industry and its impact on fiat currencies.

Exhibit 1: Bitcoin prices versus historical Nasdaq



Source: Bloomberg, Morgan Stanley Research

Exhibit 2: Main bitcoin trading currencies have evolved over time USD-->CNY-->JPY

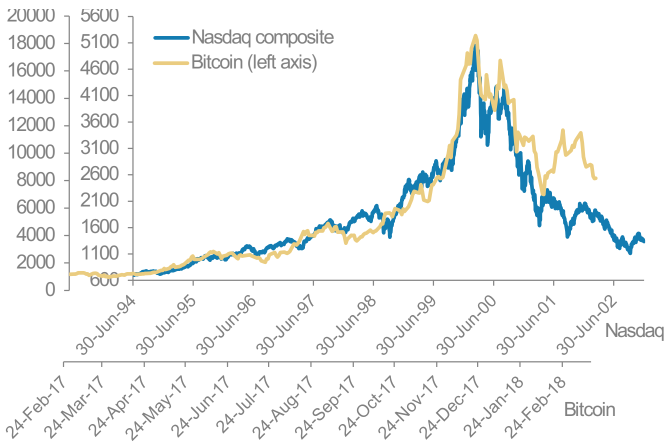


Source: CryptoCompare, Morgan Stanley Research

For important disclosures, refer to the Disclosure Section, located at the end of this report.

Bitcoin prices versus equity indices

Exhibit 3: Bitcoin prices versus historical Nasdaq



Source: Bloomberg, Morgan Stanley Research

Bitcoin bear markets are nothing new: Since the coin's creation in 2009 there have been four prior bear markets with price falls ranging from 28% to 92%. From the December 16 peak to the most recent low on February 6, bitcoin's price fell by 70%, so nothing out of the ordinary (apart from maybe more press attention).

Exhibit 4 shows that the previous bitcoin bear markets have averaged five months in length, after having rallied for 2-3 months. The small number of historical examples and variability of each of the bear markets make it difficult to assume that the current bear market may take the same time period.

Exhibit 4: Historical bitcoin bear markets

Dates			Bitcoin Price			Days		% change	
Start of rally	Peak	Trough	Start of rally	Peak	Trough	Start-Peak	Peak-Trough	Start-Peak	Peak-Trough
09-Apr-11	08-Jun-11	17-Nov-11	0.74	29.6	2.25	60	162	3900%	-92%
02-Oct-13	04-Dec-13	14-Jan-15	110	1240	157	63	406	1030%	-87%
11-Jan-17	06-Mar-17	24-Mar-17	778	1281	927	54	18	65%	-28%
27-Mar-17	10-Jun-17	16-Jul-17	1046	2914	1809	75	36	179%	-38%
14-Sep-17	16-Dec-17	06-Feb-18	3155	19588	5968	93	52	521%	-70%
					Average	63	156	1293%	-61%

Source: CryptoCompare, Macrobond, Morgan Stanley Research

Digging deeper into most recent bearish price action, there have been three waves of weakness before a short-term rally. **Bitcoin prices have fallen 45-50% each time** (Exhibit 5). The Nasdaq's bear market from 2000 had five price declines, averaging a surprisingly similar amount of 44% (Exhibit 6). This year there have only been two bitcoin bear market rallies (28% and 57%) or 43% on average. The Nasdaq bear market rallies had a similar range of 28-50%, with the rallies averaging 40%.

Exhibit 5: Breaking down the current bitcoin bear market: Prices

Dates		Price		Days		% change	
Peak	Trough	Peak	Trough	Peak-Trough	Trough-Peak	Peak-trough	Trough-peak
18-Dec-17	22-Dec-17	19511	10776	4		-45%	
05-Jan-18	17-Jan-18	16933	9186	12	14	-46%	57%
29-Jan-18	06-Feb-18	11785	5922	8	12	-50%	28%
26-Feb-18		10388			20		75%
			Average	8	13	-47%	43%

Source: CryptoCompare, Macrobond, Morgan Stanley Research

Exhibit 6: Breaking down the Nasdaq bear market in 2000: Prices

Dates		Price		Days		% change	
Peak	Trough	Peak	Trough	Peak-Trough	Trough-Peak	Peak-trough	Trough-peak
10-Mar-00	24-May-00	5133	3043	75		-41%	
05-Sep-00	03-Jan-01	4207	2252	120	104	-46%	38%
24-Jan-01	04-Apr-01	2892	1620	70	21	-44%	28%
23-May-01	21-Sep-01	2300	1387	121	49	-40%	42%
07-Jan-02	10-Oct-02	2081	1108	276	108	-47%	50%
			Average	132	71	-44%	40%

Source: Bloomberg, Morgan Stanley Research

What about the rally before the bear market? We have split up the analysis into the whole rally and the last leg (exuberant period). Exhibit 7 shows that the price change during the exuberant period was around the same for both bitcoin and the Nasdaq (250-280%), just that the bitcoin rally was around 15 times the speed. It is difficult to compare a single item (bitcoin) to an index of many company equity prices (Nasdaq) and with only a few data points for analysis.

Exhibit 7: Bitcoin and Nasdaq rallies

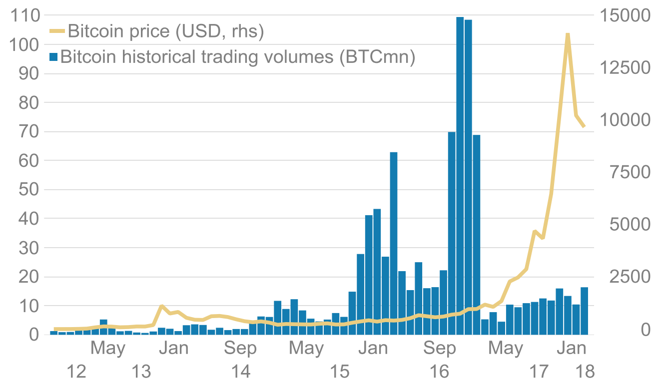
	Dates		Price		Rally		
Whole move	Start of rally	Peak	Start	Peak	% change	Length (days)	Nasdaq/bitcoin length
Bitcoin	24-Mar-17	18-Dec-17	959	19511	1934%	269	
Nasdaq	12-Oct-90	10-Mar-00	323	5133	1489%	3437	13

Last leg	Start of rally	Peak	Start	Peak	% change	Length (days)	Nasdaq/bitcoin length
Bitcoin	13-Nov-17	18-Dec-17	5605	19511	248%	35	
Nasdaq	08-Oct-98	10-Mar-00	1357	5133	278%	519	15

Source: Bloomberg, Morgan Stanley Research

Bitcoin trading volumes

Exhibit 8: Bitcoin transaction volumes have been low in the past year



Source: Blockchain.info, Morgan Stanley Research

Trading volumes for any market are useful to assess participant engagement and even potentially price volatility. **All the past bitcoin bear markets have seen rising trading volumes** at the trough relative to the peak (Exhibit 9). Since December 2017, bitcoin trade volumes have risen by almost 300%. In contrast, the rally prior to most of these bear markets has seen falling trading volumes. Rising trade volumes are thus not an indication of more investor activity but instead a rush to get out.

Exhibit 9: Bitcoin trading volumes always rise in a bear market

Dates			Bitcoin exchange volume (BTC, k)			% change BTC volume	
Start of rally	Peak	Trough	Start of rally	Peak	Trough	Start-peak	Peak-trough
09-Apr-11	08-Jun-11	17-Nov-11	12	97	119	697%	24%
02-Oct-13	04-Dec-13	14-Jan-15	255	66	870	-74%	1221%
11-Jan-17	06-Mar-17	24-Mar-17	4687	148	490	-97%	231%
27-Mar-17	10-Jun-17	16-Jul-17	364	351	733	-3%	109%
14-Sep-17	16-Dec-17	06-Feb-18	1197	494	1962	-59%	297%
		Average	1329	165	553	-58%	520%

Source: CryptoCompare, Morgan Stanley Research. *Note that volume data for 2011 were estimated from Blockchain.info so may not be directly comparable to the other bear markets.

Exhibit 10 and Exhibit 11 show the trading volumes in the breakdown of the 2017 bitcoin bear market relative to the Nasdaq in 2000. Trading volumes rose during the three downward bitcoin waves. The Nasdaq saw higher volumes in three out of the five bear market declines. The follow-up rally for both bitcoin and the Nasdaq always saw falling trading volumes. Lower market liquidity appears to emerge as participants become more uncertain.

Exhibit 10: Trading volumes: Current bitcoin bear market

Dates		Volume (BTC, k)		% change	
Peak	Trough	Peak	Trough	Peak-Trough	Trough-Peak
18-Dec-17	22-Dec-17	517	1462	183%	
05-Jan-18	17-Jan-18	570	1271	123%	-61%
29-Jan-18	06-Feb-18	367	1962	434%	-71%
26-Feb-18		680			-65%
	Average	534	1565	247%	-66%

Source: CryptoCompare, Macrobond, Morgan Stanley Research

Exhibit 11: Trading volumes: Nasdaq bear market in 2000

Dates		Volume (shares, mn)		% change	
Peak	Trough	Peak	Trough	Peak-Trough	Trough-Peak
10-Mar-00	24-May-00	1457	1759	21%	
05-Sep-00	03-Jan-01	1336	2897	117%	-24%
24-Jan-01	04-Apr-01	2265	2251	-1%	-22%
23-May-01	21-Sep-01	1769	2506	42%	-21%
07-Jan-02	10-Oct-02	2121	1636	-23%	-15%
	Average	1790	2210	34%	-21%

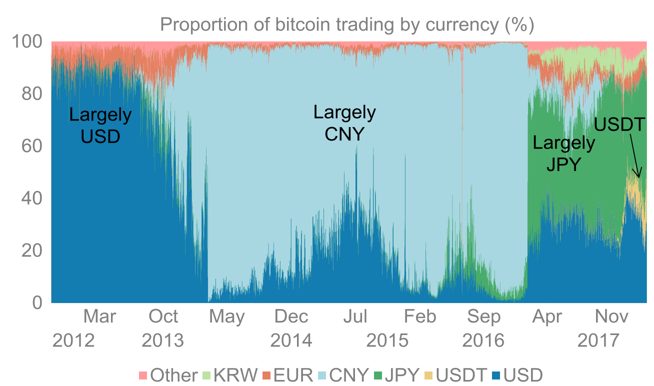
Source: Bloomberg, Morgan Stanley Research

Bitcoin trading: moving away from fiat?

Since 2013 **there have been three major funding currencies for bitcoin –** USD, CNY and JPY (Exhibit 12). Our dataset of bitcoin prices from over 350 markets (exchanges or versus different trading currencies) largely covers fiat currencies. Only 10% of the markets are trading bitcoin versus other cryptocurrencies. During the most recent bear market, USDT (US dollar tether) has been taking a larger share of trading volumes (Exhibit 13).

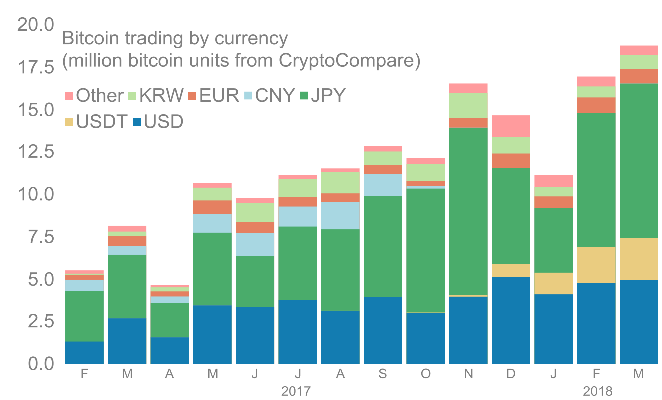
US dollar tether is a token that its creators say that for every unit of tether in the market, they back it up with 1 US dollar held in reserves, keeping its market price stable at 1 USD. The coin USDT is not a major funding unit but its increasing use is an interesting development. Over the coming years, we think that market focus could turn increasingly towards cross trades between cryptocurrencies/tokens, which would transact via distributed ledgers only and not via the banking system.

Exhibit 12: Favoured trading currencies have evolved over time USD-->CNY-->JPY



Source: CryptoCompare, Morgan Stanley Research

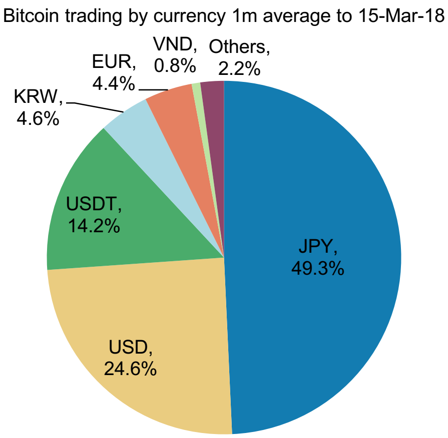
Exhibit 13: USDT (tether) has increased its presence in bitcoin trading since the December peak



Source: CryptoCompare, Morgan Stanley Research

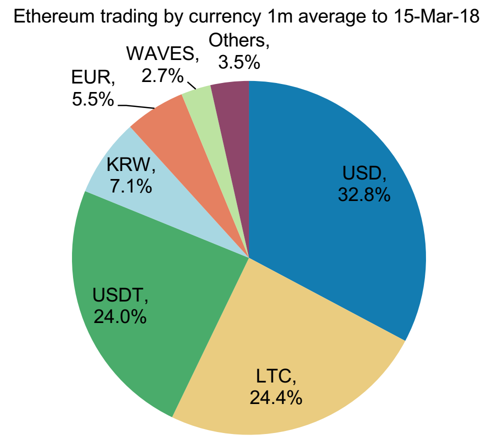
Exhibit 14 shows that, in the past month, half of bitcoin trading on exchanges has been done versus the Japanese yen (JPY), with volumes much higher than those versus the US dollar (USD). The Japanese retail community have long been active participants in the foreign exchange market, particularly via margin accounts. They tend to sell JPY and buy foreign currencies with high yields, leveraged up to 25x. Bitflyer, the largest bitcoin exchange in Japan, offers its clients up to 15x leverage but with volatility that is 10x that of USDJPY. Bitcoin trading volumes versus JPY in January were only around 2% of the margin FX trading account volumes. An appreciating JPY (as we expect) could move some of this margin trading volume onto cryptocurrencies. One risk to watch out for is if the Japanese financial regulator confirms that it will lower the FX trading leverage cap to 10x.

Exhibit 14: Most bitcoin exchange trading has been versus JPY, USD and USDT



Source: CryptoCompare, Morgan Stanley Research

Exhibit 15: Most ethereum exchange trading has been versus USD, BTC and USDT



Source: CryptoCompare, Morgan Stanley Research

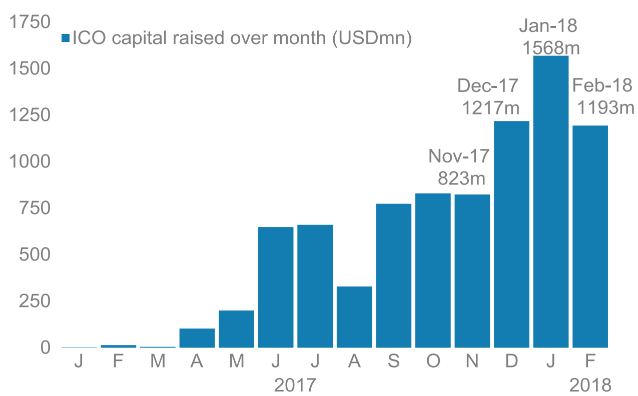
Why is tether (USDT) trading increasing? Tether trading volumes increased since December and we think this is because two major bitcoin exchanges, Binance and OKex, added tether to their platforms mid-late last year. Both of these exchanges do not accept fiat currencies, so when falling bitcoin prices also led to falling prices in most other cryptocurrencies, traders likely turned to tether due to its price being equivalent and stable to the US dollar.

The increasing tether usage may come as a surprise for some because the company behind the cryptocurrency has come under much scrutiny as some are sceptical that the company has the U$$2.2 billion on reserve. The potential impact of bank regulation could be another reason for bitcoin traders to move out of their position into a less volatile cryptocurrency rather than convert to fiat.

Crypto funding currencies?

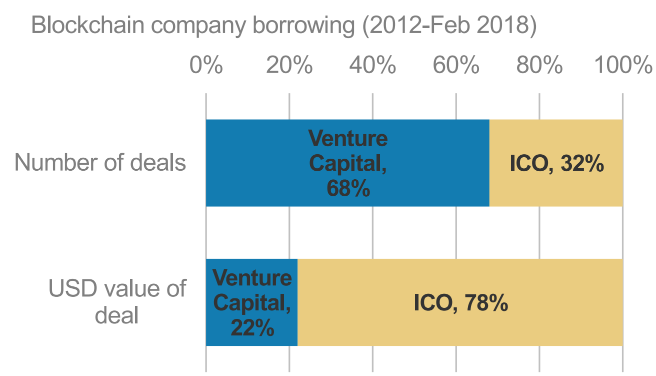
The bitcoin bear market saw selling of cryptocurrencies on exchanges but the market volatility didn't dent the issuance of new crypto tokens. **January and February 2018 saw a record dollar amount of capital raised via initial coin offerings or ICOs** – US$1.5 billion and US$1.2 billion, respectively (Exhibit 16). ICOs are being used as a way for companies to raise capital to start new projects usually associated with maintaining a blockchain. In an ICO, a company will issue units of their new token in exchange for a set amount of another coin/cryptocurrency or in some cases fiat currencies. In some ways an ICO is a new way of crowdfunding, where digital tokens issued are part of the future product from the company. ICOs over recent months have tended to ask for ethereum or bitcoin. This is why we say that cryptocurrencies are becoming funding currencies.

Exhibit 16: Increasing capital has been raised even as cryptocurrency prices fell



Source: Token Economy, Morgan Stanley Research

Exhibit 17: Blockchain-based companies largely borrowing via ICOs



Source: Techcrunch.com, Morgan Stanley Research

ICO preferred over VC funding: The buzz created as bitcoin prices soared last year invigorated a new industry that aims to convert any type of information stored in a database or contract between parties into a blockchain-based distributed ledger or smart contract. Bitcoin ATM installations have continued to grow at 8% a month this year, which is another sign that price weakness isn't stopping the growing blockchain industry. Tech-related startups have historically tended to get initial funding from venture capital. Blockchain startups appear to prefer to use ICOs.

Since the start of 2017, blockchain-related startups around the world raised US$1.3 billion via venture capital (VC). Over three times that value, US$4.5 billion, was raised via ICOs. The new method of raising capital continues to expand even as market prices for other cryptocurrencies are weak. According to Techcrunch, there have been twice the number of blockchain-based venture capital deals relative to ICOs in the past few years but **ICOs have raised over seven times the amount of money per deal** (Exhibit 17).

The continued strength of ICO fundraising may be in part attributable to increased direct participation by venture capitalists. For VCs, investing in a team via ICOs rather than directly can bring key benefits: i) VCs are afforded near immediate liquidity versus a typical holding period of several years to a decade or more for direct investment; ii) It allows VCs to build diversified portfolios much faster; and iii) VCs can have a lower level of advisory commitment to team managements.

Volatile market prices --> private investor borrowing: More interestingly, companies have started to issue more coins to private investors rather than leaving the ICO to run in the open market. 60% of the US$1.2 billion raised in February via ICOs was via private rounds (according to Tokeneconomy). We will continue to monitor how this market evolves and if coin offerings could become a favoured way for non-blockchain-based companies to raise capital.

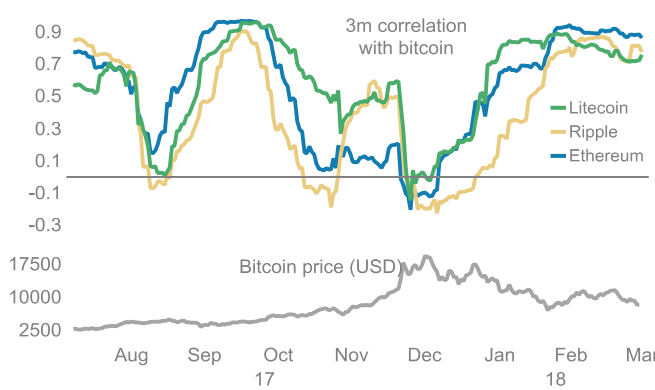
Telegram's ICO is closely watched in this regard as it will be one of the largest ever at over US$2 billion and the initial fundraising round was only open to accredited private investors with a certain amount of money to invest. You can only use US dollars to participate in Telegram's ICO.

Regulation increasing: The uncertainty over the definition of these newly issued tokens via ICOs is increasing the scrutiny by regulators. On March 14, the US House Financial Committee held a hearing titled "Examining the Cryptocurrencies and ICO Markets". The discussion concluded that they must distinguish between cryptocurrencies which are like digitally scarce commodities that are used for payment and those which are tokens that act like securities. They called for standardisation across documents promoting ICOs (white papers) to protect investors, with information about the origin of the ICO-issuing company and what legal rights the token holders may have. 80 ICO companies have received subpoenas from the SEC recently, as the SEC believes that they may have issued tokens that should be classified as securities and therefore follow the laws attached to securities.

Correlations and liquidity

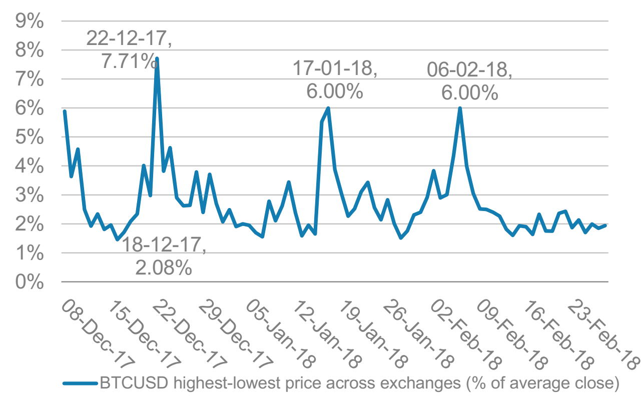
The market is **still in price discovery mode for bitcoin and all other cryptocurrencies.** The valuation of any of these cryptocurrencies is based on whatever they can be used for. Bitcoin is a mechanism for payment, yet isn't currently used for many payments for goods and services. The current price therefore reflects a future expectation that bitcoin and related technology may be used for payments. For this reason, when the bitcoin price started to fall in December, it brought down most other cryptocurrency prices. Exhibit 18 shows that the **30-day correlation between bitcoin and major cryptocurrencies rose as prices fell,** with correlations having fallen in the prior bitcoin rally. Bitcoin's 30-day correlation with the S&P 500 remains high but has come down from the peak on February 26.

Exhibit 18: Falling prices led to higher cross-cryptocurrency correlations



Source: CryptoCompare, Morgan Stanley Research

Exhibit 19: Price ranges across exchanges at any moment vary 6-7% in high volatility



Source: CryptoCompare, Morgan Stanley Research; The closing price is volume-weighted. Data to end-February.

Bitcoin prices are not the same on every exchange: Cryptocurrencies can be exchanged between anyone at any time and for any value, as long as the two parties agree. Financial markets focus on the fiat currency prices traded versus cryptocurrencies on exchanges. The price you will see quoted on websites like CryptoCompare and Bloomberg will be an average of traded prices across several exchanges. We examined intraday prices for bitcoin versus USD across 18 different exchanges and found that days that saw prices bottoming also saw the highest range of prices across exchanges.

Exhibit 19 shows that the day of the bitcoin price peak on December 18 saw a 2% deviation in prices between the highest- and lowest-priced exchange. In contrast, that rose to 7.7% as prices fell and bottomed out on December 22. The data show periods of highest market uncertainty after prices have been falling in the prior days. The average price range has stayed around 2% since mid-February. **Going forward, we will be looking for a spike in the range of prices across exchanges to mark whether a bearish trend is about to resume.** A non-zero price range should remain as long as bitcoin markets remain fragmented and there is no central exchange for price aggregation.

What is bitcoin?

Bitcoin is the name of digital currency that allows owners to transfer value to someone else, without having to go via the banking system. Bitcoin is known as a cryptocurrency as the currency transactions use cryptography for their security features. The bitcoin network is maintained by private individuals and not by any government or central bank. It is the technological features behind bitcoin that differentiate it from more widely used currencies like the US dollar.

Exhibit 20: Comparing bitcoin with the US dollar

	Bitcoin	US dollar (or any other fiat currencies)
Monetary supply	Maximum limited to ~21 million Set amount of BTC created approx. every 10 minutes (per block)	No maximum No set amount per minute, banking sector can increase monetary supply faster if there is more demand.
Creator	The Bitcoin code, where the rules for coin creation were defined at the start. Bitcoin "mining" creates currency units.	Central bank and commercial banks
Who controls money supply of coins?	Set within the code at creation in 2009 Would require the majority of bitcoin users to agree to any changes to rules setting money supply growth.	Central bank policy encourages or discourages a change of the pace of future currency creation by the commercial banks. Central banks use interest rates and the reserve requirements for commercial banks to control future money supply.
How are transactions made?	The sender transmits a signal to the network with their desire to send a set amount of bitcoin to another address. The network will check if the sender owns the bitcoin in the first place, when confirmed the bitcoin will arrive in the receiver's address. All information about the transactions (ledger) are held within the Bitcoin network. A copy of the ledger is stored on everyone's computer, which reduces the problems of requiring a central authority maintaining the database.	Commercial banks transfer deposits between each other. Coins or notes are transferred between two people. Each bank involved in sending and receiving a transaction will hold their own record on the transfer of the deposit. Different banks may store information in different ways, increasing issues with records potentially saying different things.
Smallest unit that can be sent	10^{-8} BTC or 1 satoshi	10^{-2} USD or 1 cent
Security features	"Fake" bitcoin cannot be sent as the code checks the validity of every unit before accepted by the receiver. Some say this feature means the receiver does not need to trust the sender. No single intermediary is required for a transaction, the user can hold their own "bank account" and send value directly to another user	Users need to check the validity of a coin or note being accepted. Banks additionally check the origin of funds for money laundering checks. Banks usually act as a intermediaries for digital payments via deposits into bank accounts. Alternatives like Paypal still require a transaction to be made via that intermediary company
Acceptance	Theoretically anyone in the whole world can accept bitcoin in exchange for goods and services, practically few retailers accept it.	A currency is usually accepted in the country of origin, e.g. US dollar in the US. Major currencies may be accepted outside of the country but that is not often available to the consumer.

Source: Morgan Stanley Research

Definitions

Below are some definitions to new or related words that are used in the cryptocurrency space.

Money: Any item or record that is generally accepted as payment for goods and services. Identified as a medium of exchange, a unit of account and a store of value.

Currency: A system of money in general use in a particular country or region (often coins and paper notes).

Cryptocurrency: A digital or virtual currency that uses cryptography for its security features.

Bitcoin: The name of a digital currency and the first major cryptocurrency created in 2009. Also, the name of the network and code managing the cryptocurrency.

Altcoin: Standing for alternative coin, this is a cryptocurrency or token that is not bitcoin.

Token: A digital asset that is used within a blockchain ecosystem. Cryptocurrencies help to transfer value, while tokens can have various use cases.

Blockchain: A database that has a specific way of storing and managing information. A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Bitcoin and other cryptocurrencies use blockchain technology but the blockchain can be used for any type of database. Blockchain is not the same as bitcoin. Click here for more.

Distributed ledger: A database that is not stored on one computer. A copy of all records are instead stored on everyone's computer that is on the network. An advantage over a single computer storage system is that you can continue updating records if one computer on the network fails.

Other cryptocurrency reports

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