Bitcoin – Pathway to the USD 100,000 level

- **The SVB fallout has reignited BTC's core use case as a decentralised, trustless and scarce digital asset**
- **Increased miner profitability and the end of the FOMC hiking cycle should provide the next leg higher**
- **Regulatory benefits and the next BTC halving (in H1-2024) are further tailwinds**

Winter is over

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We see potential for Bitcoin (BTC) to reach the USD 100,000 level by end-2024, as we believe the much-touted 'crypto winter' is finally over. In this report, we identify the factors that we think need to be in place to achieve this. Some of these factors are already in place, while others are more distant.

Importantly, the recent banking-sector crisis has helped to re-establish BTC's core use case as a decentralised, trustless and scarce digital asset. Troubles faced by stablecoins (competing digital assets) have also helped Bitcoin to regain its reputation as 'digital gold'. For example, USD Coin (USDC) was temporarily de-pegged as its issuer, Circle, held USD 3.3bn with Silicon Valley Bank (SVB); this followed the May 2022 Terra/Luna collapse and the de-peg of Tether (USDT). Against this backdrop, Bitcoin has benefited from its status as a branded safe haven, a perceived relative store of value and a means of remittance. As a result, we expect BTC's share of total digital assets market cap to keep rising, most likely back to the 50-60% range (from 40% before the SVB collapse and 45% currently).

The associated price jump – from below USD 20,000 before the SVB issues to above USD 30,000 – has dramatically increased the profitability of Bitcoin mining companies. With the price of BTC now well above our USD 15,000 estimate of direct costs, miners are unlikely to sell many coins. The broader macro backdrop for risky assets is also gradually improving as the FOMC nears the end of its tightening cycle. While BTC can trade *well* when risky assets suffer, correlations to the Nasdaq suggest that it should trade *better* if risky assets improve broadly.

Over the longer term, the next BTC halving – a mechanism to cap supply whereby the reward for mining a new block is halved after every 210,000 blocks produced – is due in around April-May 2024. While we note that previous halvings have had a successively smaller impact on BTC prices, prices have bounced around each halving. This should add a cyclical tailwind to the structural positives at play.

Even further out, regulatory developments should provide a tailwind for BTC. The EU's Markets in Crypto Assets (MiCA) regulation has been passed by the European Parliament, and the regulation could have constructive implications for investor interest and volatility. Further positive regulatory steps in the US and UK are also likely.

While sources of uncertainty remain, we think the pathway to the USD 100,000 level is becoming clearer.

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As assets thaw after the 'crypto winter', we outline the path to the USD 100,000 level for Bitcoin

Building blocks for a move higher

When we launched our digital assets coverage in September 2021, we estimated a medium-term valuation range of USD 50,000-175,000 for Bitcoin, and a cyclical peak of USD 100,000 (*Bitcoin investor guide*). While USD 100,000 has not been reached yet, BTC reached a peak of almost USD 69,000 on 10 November 2021. We now think the USD 100,000 level can be achieved by the end of 2024, driven by the factors listed below (which are covered in detail in subsequent sections of this report).

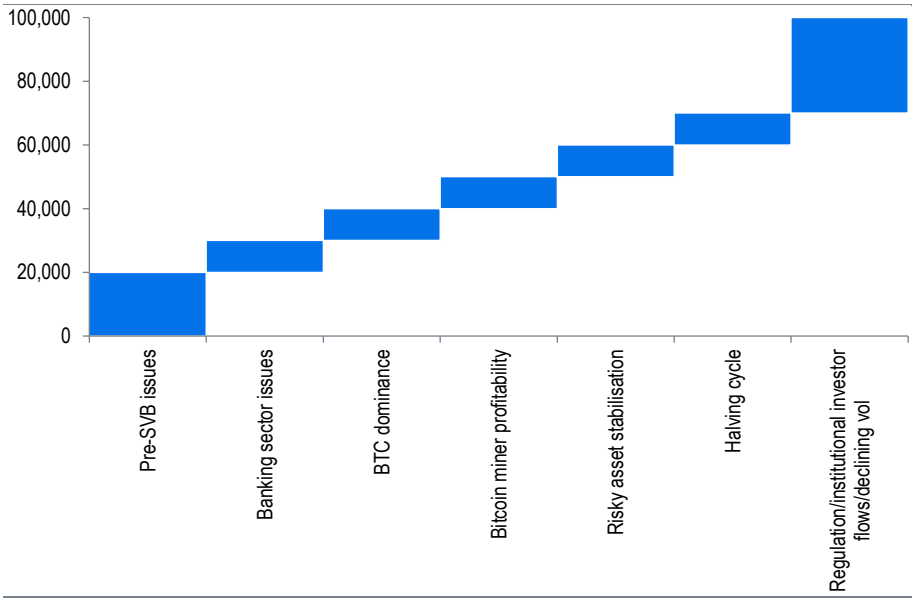
- Banking-sector fallout – implications for stablecoins
- Banking-sector fallout – implications for self-custody and BTC dominance
- Stabilisation in broader risky assets
- Improved profitability for Bitcoin miners
- The start of the supportive phase of the halving cycle
- Positive steps on regulation and the creation of a spot ETF in the US
- Growing institutional investor interest
- A gradual decline in realised and implied volatility
- Continued uptake of the Bitcoin Lightning Network/scaling solutions

Many of these drivers are inter-related. For example, the recent BTC price jump triggered by the banking-sector crisis has boosted miner profitability (which should also improve structurally with energy prices past their peak).

Furthermore, regulation has a clear impact on institutional investor interest and volatility. On the regulatory front, key developments that would support BTC include regulation of stablecoins, the introduction of central bank digital currencies (CBDCs), and the introduction of spot ETFs for digital assets in core markets like the US. There have been positive steps on regulation (MiCA in the EU and Bank of England consultation papers) and CBDCs, but little progress so far on a spot ETF in the US.

Figure 1: Steps to the USD 100,000 level

Estimated BTC price upside from various factors (USD)



Source: Standard Chartered Research

Banking-sector fallout – Implications for stablecoins

Banking issues hit stablecoins directly; regulation is needed

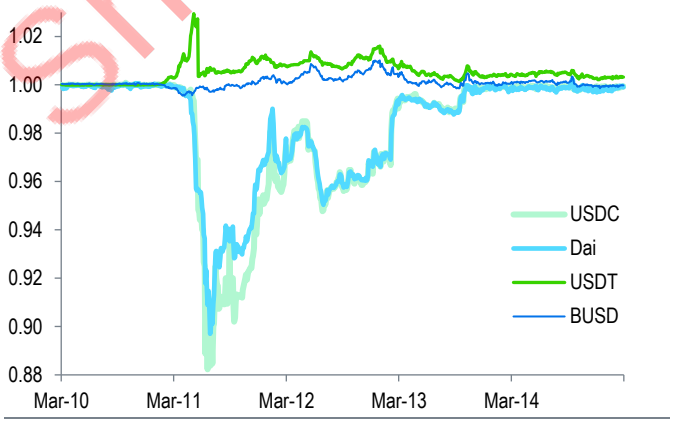
The recent banking-sector turmoil has had several consequences for the digital assets sector. SVB, Silvergate Bank and Signature Bank New York all serviced digital asset firms and have now collapsed. This has had a direct impact on the digital assets ecosystem, with both immediate implications (stablecoin de-pegs, flight to quality) and potential longer-term regulatory implications.

As the crisis unfolded, the immediate focus was on Circle – the issuer of the USDC stablecoin – and its USD 3.3bn in cash held with SVB. Concerns about the assets backing USDC led to its temporary de-peg from the USD. The Dai stablecoin also de-pegged temporarily, as USDC accounts for 55% of the assets directly backing Dai (Figure 2). Fears around USDC benefited the other major fiat-backed stablecoins, USDT and BUSD; USDT in particular traded above USD 1. USDT had temporarily de-pegged during the May 2022 Terra/Luna/UST stablecoin collapse amid a lack of transparency on its reserves; but it took a failure in the traditional financial world to unsettle USDC.

The USDC de-peg is likely to lead to the continuation of two trends, in our view (Figure 3). First, the value of stablecoins held on (centralised) exchanges is likely to continue to decline. This is because more of the industry is gradually moving towards self-custody (discussed in detail in the next section), a trend that started after the FTX collapse in November 2022. This trend looks set to continue, as the FTX collapse has made centralised exchanges less trusted, while the recent USDC de-peg has made stablecoins less trusted. Regulation of stablecoins is needed if confidence is to be fully restored, in our view.

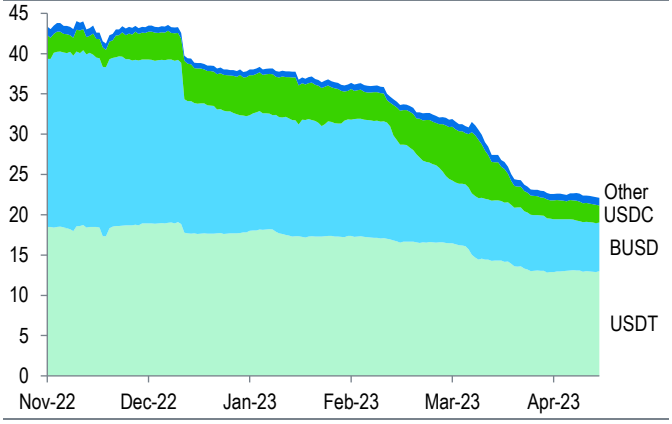
Second, USDT's dominance of the stablecoin universe is likely to continue to recover, having been in decline until H2-2022. USDT is the key beneficiary of the recent troubles faced by both USDC and Binance USD (BUSD), which has halted issuance since February 2023 amid regulatory issues.

Figure 2: Stablecoins' reaction to the recent banking crisis *(USD)*



Source: Glassnode, Standard Chartered Research

Figure 3: Value of stablecoins held on exchanges
USD bn



Source: Glassnode, Standard Chartered Research

Banking-sector fallout – Self-custody and BTC dominance

Banking-sector crisis has reinforced BTC's core use case

The trend towards self-custody in digital assets – where individual users hold the private key to their digital assets wallet, rather than a third-party custodian – has been strong since the FTX collapse in November 2022. This is evident in the increase in the share of total trade done on decentralised (rather than centralised) exchanges after the FTX collapse, and in the declining proportion of BTC and ETH held on exchanges (Figure 4).

During the weekend of the SVB collapse (10-12 March), approximately 0.144% of all BTC and 0.325% of all Ethereum (ETH) in circulation was removed from exchanges, echoing the initial reaction to the FTX collapse. As well as underscoring the desire for self-custody (which is completely trustless), this reflects investor confidence in these core digital assets – as coins are normally brought onto exchange to be sold and taken off for self-custody storage.

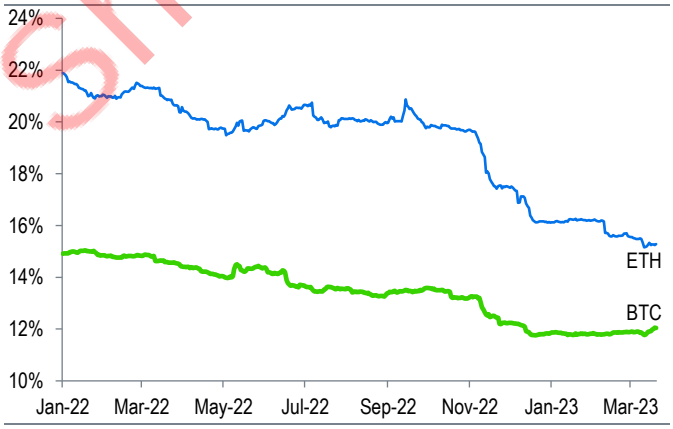
Investors also reacted to the SVB news by seeking safety in the largest digital asset, Bitcoin. In the two weeks following the SVB collapse, BTC's market share jumped from 40% to 45% (Figure 5).

These inflows to BTC may have come partly from USDC. As of 20 April, USDC's market cap is down USD 12bn since 9 March (before the SVB collapse), while USDT's is up USD 9.5bn. Of the USD 2.5bn difference, some may have left the digital assets ecosystem altogether, but price action suggests that some has likely gone into BTC. This money is likely seeking a liquid, near-cash alternative with low transaction costs, which settles T+0 and has good 'rails' (payment and settlement infrastructure). BTC meets all of these requirements.

The current stress in the traditional banking sector is highly conducive to BTC outperformance – and validates the original premise for Bitcoin as a decentralised, trustless and scarce digital asset. Given these advantages, we think BTC's share of total digital assets market cap could move into the 50-60% range in the next few months (from around 45% currently). Even if digital assets' overall market cap did not increase, if BTC reached a 60% share of the total, that would add USD 10,000 to its price (relative to current levels).

Figure 4: Balance on exchanges

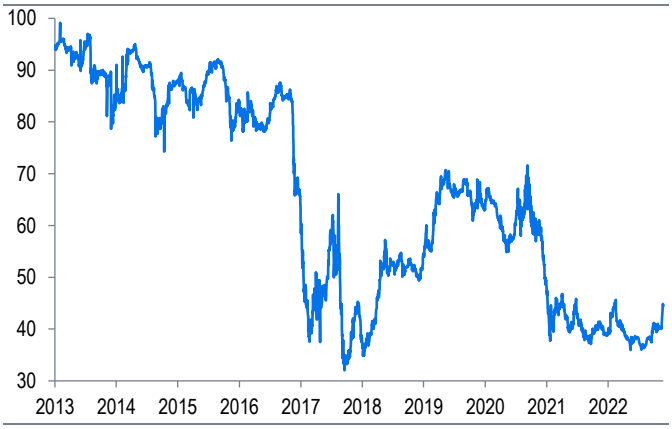
% of current total ETH and BTC supply



Source: Glassnode, Standard Chartered Research

Figure 5: BTC's share of total digital assets market cap

%



Source: theblock.pro, Standard Chartered Research

Stabilisation in broader risky assets

BTC trades better when risky assets stabilise; we expect this to happen soon

BTC is positively correlated to other risky assets; its strongest link is to the Nasdaq (Figure 6), as we highlighted previously (*Opportunity, not threat*). Indeed, during the current halving cycle, the correlation between Bitcoin and the Nasdaq 100 index has been positive almost the entire time. This stands in stark contrast to the previous halving cycles, when there was almost no correlation between the two.

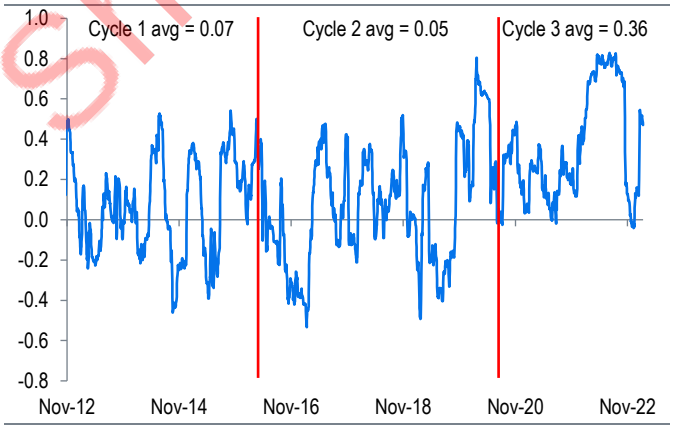
This suggests that while BTC can trade *well* during times of financial-market stress, it should trade *better* if broader risky assets stabilise. We expect such a stabilisation as the Federal Reserve nears the end of its tightening cycle, as higher P/E multiples should offset concerns about declining earnings. The tightening cycle was more aggressive than we and the market had expected, creating challenges for financial assets; to some degree, it led directly to the recent banking-sector crisis. However, the 22 March FOMC meeting suggested that the cycle is nearing an end, which is in line with our view (see *Global Focus*).

As for rate cuts, while we think markets may be pricing in too much too soon, we think the focus has now shifted from peak rate pricing to when the cutting cycle will begin. Over time, this narrative is likely to become supportive of risky assets.

There is also a strong relationship between equity vol and BTC vol (Figure 7). While volatility in digital assets has caused a jump in BTC implied vol on a number of occasions (for example, the May 2022 Terra/Luna collapse and the November 2022 FTX collapse), broader macro volatility (as represented by equity vol) can also drive BTC vol. As a result, a stabilisation in broader risky assets – and specifically fewer vol events – would help to lower BTC vol going forward. Given the importance of a lower vol profile to the BTC price trajectory, this would add further price upside.

Figure 6: Bitcoin correlation to Nasdaq 100 index

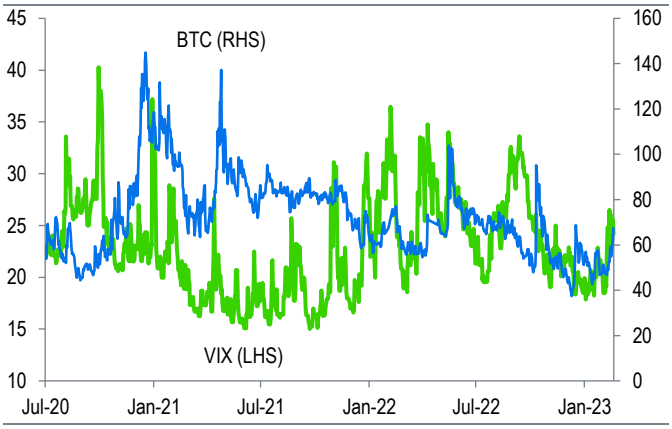
Rolling 3M correlation of weekly changes



Source: Bloomberg, Standard Chartered Research

Figure 7: VIX index vs BTC ATM 1-month vol

%



Source: theblock.pro, Bloomberg, Standard Chartered Research

Improved profitability for Bitcoin miners

As BTC's price slid throughout 2022, Bitcoin mining companies faced increasing financial distress; Core Scientific, the largest publicly traded Bitcoin miner, announced in October that it might consider bankruptcy if its situation did not improve. However, the opposite is now true after the recent price rise. If BTC prices remain well above mining costs, as they are now, miner behaviour patterns suggest that they will hold onto what they mine – selling less as a result. This creates price upside, in our view. In addition, with energy prices likely having peaked, the structural profitability backdrop for miners should improve, adding further upside.

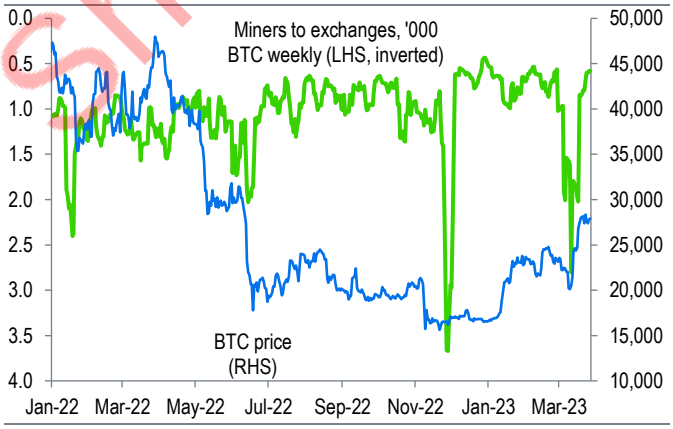
BTC price is now well above mining costs; lower miner sales follow

On top of last year's price decline, Bitcoin miners' troubles were compounded by the fact that they typically do not mine and sell immediately; rather, they hold onto the bitcoins they have mined for as long as possible. In that sense, they are effectively making a leveraged bet on the future BTC price. As a result, the realised volatility of the mining companies is much higher than that of the underlying asset (one-month realised vol for Core Scientific has averaged 300 over the past 12 months, versus 50 for Bitcoin). While the same relationship holds in commodity markets, the vol spread is less dramatic – for example, realised vol for gold miner Agnico Eagle is 40 on this measure, versus 15 for gold).

What this means for BTC supply is that miners tend to sell when prices fall sharply, adding to downside pressure on prices. The most timely measure of this is when miners move BTC onto exchanges, where they tend to sell (Figure 8). Conceptually, this forced selling by miners should be a greater risk if BTC prices fall below the cost of mining. To estimate mining costs, we have created a weighted average of direct costs (excluding equipment depreciation) for the six largest listed BTC miners (Figure 9). Energy costs and/or hosting fees account for a majority of miners' direct costs; hence, overall mining costs tend to track average (US) electricity costs. While costs diverge widely between individual miners (mostly due to the varying energy efficiency of mining equipment), most currently fall within the USD 12,000-20,000 range per BTC mined. Forced selling by miners became a significant risk when Bitcoin traded down to USD 15,500 in November 2022, risking a larger self-fulfilling move lower.

Figure 8: BTC sent to exchanges by miners

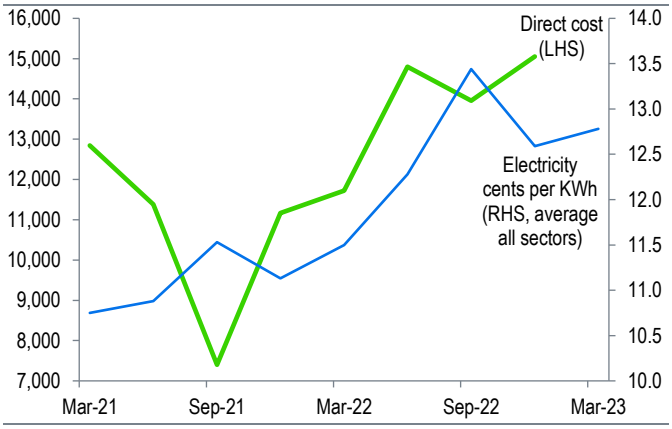
'000 BTC weekly (LHS, inverted), USD (RHS)



Source: Glassnode, Standard Chartered Research

Figure 9: Cost of BTC mining

USD per BTC (LHS), US cents (RHS)



Source: EIA, Company filings, Standard Chartered Research

The start of the supportive phase of the halving cycle

Halving cycles still matter

Halving is the mechanism for capping supply of BTC, whereby the reward to miners is cut in half every 210,000 blocks produced, or around every four years. The current reward, set in May 2020, is 6.25 bitcoins per block mined. This will be cut by half to 3.125 bitcoins after the next 210,000 blocks are added, which should be in April or May 2024. The high for the current (third) halving cycle to date – just shy of USD 69,000 in November 2021 – was reached 18 months after the May 2020 halving. In the first and second cycles, prices peaked 17 and 13 months, respectively, after the halvings (Figure 10). While halving cycles matter less now for BTC prices than they previously did, the halving event itself is still likely to be a positive driver. Indeed, as we approach the next halving, we expect cyclical drivers to become more constructive, as they have in previous cycles.

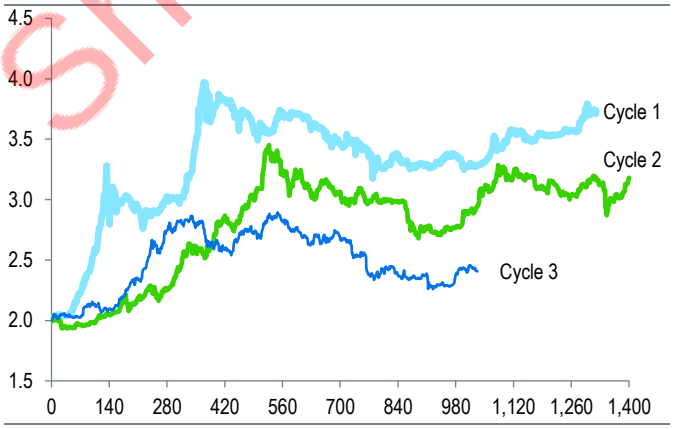
The cyclical impact of the halvings on BTC prices stems from two factors: (1) the impact on BTC's inflation rate, which has fallen to around 1.8% currently from 4.2% before the May 2020 halving; and (2) the impact on mining behaviour before and after the halving.

In theory, when the reward for mining activity is cut in half, some miners will exit the market due to a lack of profitability (other factors, like mining costs, being equal). This has the effect of lowering the amount of computational power on the network, or the hash rate. Assuming existing miners still need to process the same number of transactions as before, miners take longer to form each block – meaning that supply of newly minted BTC falls even further than the halved reward implies, at least for a period. Then, every two weeks, the BTC algorithm adjusts the difficultly of the computations required to verify new blocks, in order to ensure that the average processing time for each block remains approximately 10 minutes. If that time exceeds 10 minutes, the algorithm lowers the difficulty of computation in the next review period, reducing the amount of processing power (and, by extension, the electricity costs) required to produce each block. This should encourage miners to return to the system, and so balance is eventually restored.

In practice, this hash rate mechanism plays out via the rate of change in the overall hash rate rather than its level. Normally, the hash rate on the BTC network grows exponentially as computer power and efficiency increases. However, around the time of halvings, it tends to remain flat for a period as the above plays out (Figure 11).

Figure 10: Bitcoin price (log scale) during halving cycles

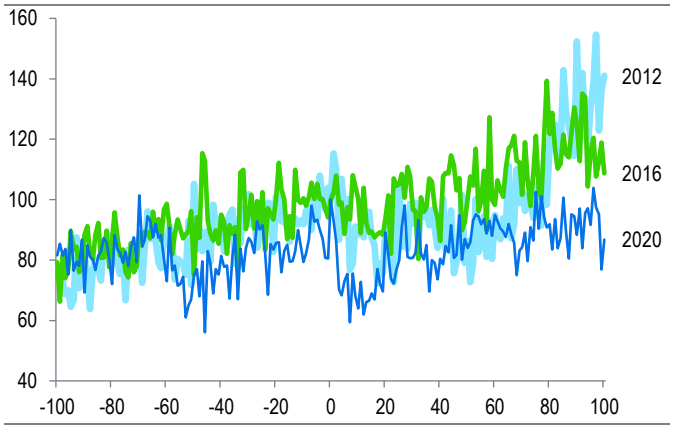
Log of index (number of days after halving days)



Source: Bloomberg, Standard Chartered Research

Figure 11: Bitcoin hash rate before and after halvings

Index = 100 on halving day (days before/after halving)



Source: Bloomberg, Standard Chartered Research

Positive steps on regulation

EU is leading on regulation; UK and US show positive signs

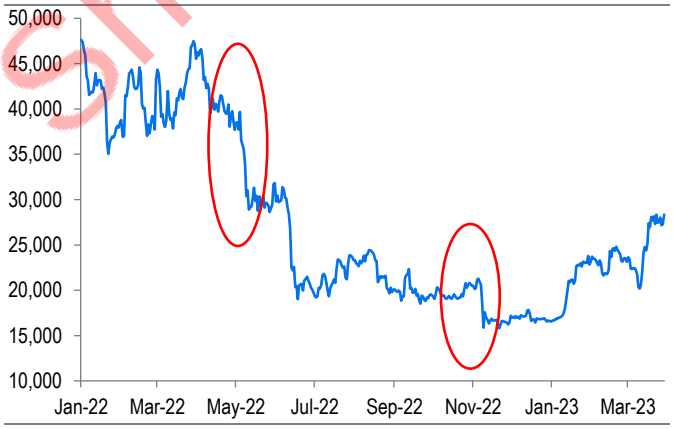
We have argued previously that regulation will be positive for digital asset prices (see *Regulation and CBDCs – Implications for crypto*). In our view, the most positive regulatory developments for BTC prices would be regulation of stablecoins, the introduction of central bank digital currencies (CBDCs), and the introduction of spot ETFs for digital assets in core markets like the US. Specifically, we think these developments would increase institutional investors' access to the asset class.

The US Treasury and the Bank of England (BoE) have shown constructive intent on both stablecoin regulation and CBDCs, but little on spot ETFs. Both the US and UK have identified stablecoins as an area of particular focus. In November 2021, the US Treasury flagged issues related to market integrity, investor protection, illicit finance and prudential concerns, and noted that stablecoins are acting like banks without being regulated. The BoE's recent consultation on CBDCs specifically mentioned that stablecoins issued by non-banks could be offered under a tailored regulatory regime proposed by the UK Treasury in the future. The BoE indicated that a potential digital pound could provide the basis for private-sector stablecoins and payment systems, noting that CBDCs and regulation would help to foster private-sector digital asset innovation.

EU regulation has now gone further, with the widely anticipated Markets in Crypto Assets (MiCA) regulation passed by the European Parliament on 20 April. Among other things, MiCA requires providers of digital asset-related services like wallets and exchanges to seek licences from national regulators, while the Transfer of Funds regulation requires identity checks for those making payments using digital assets.

However, coordinated action is still needed. Last year's Terra/Luna and FTX collapses could arguably have been avoided if CBDCs and regulation had already been in place. These instances have arguably resulted in lower digital asset prices by triggering sharp declines (as shown in Figures 12 and 13).

Figure 12: BTC price *(USD)*



Source: Glassnode, Standard Chartered Research

Figure 13: BTC 1-month implied vol *(%)*

Source: theblock.pro, Standard Chartered Research

Institutional investor interest

Institutional money remains small but is growing

The vast majority of digital assets (especially Bitcoin) are held long-term and are therefore effectively removed from active supply. Indeed, just 14% of all the bitcoins currently in existence have been traded in the past 90 days, and just 32% have been traded in the past year (source: theblock.pro). This limited active supply increases the importance of changes to the BTC investor mix – even a small increase in institutional investor participation could have a large impact in terms of increasing coin holding times and reducing leverage.

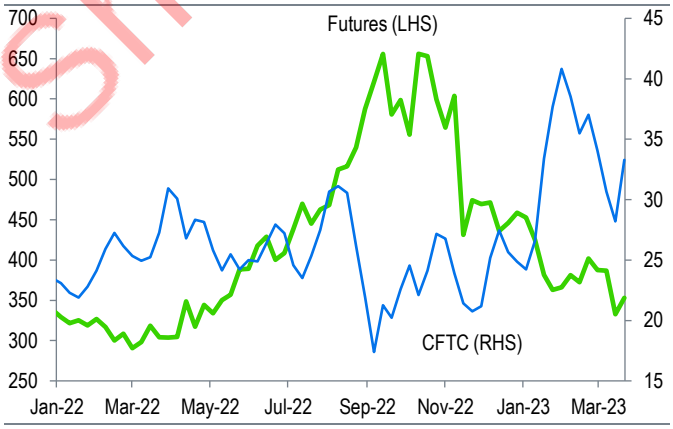
We have noted previously that the quality of inflows to Bitcoin is likely to improve over time, meaning a shift towards institutional flows from retail flows (see *Opportunity, not threat*). In our earlier report, we estimated institutional holdings of digital assets by using combined holdings in the Grayscale Bitcoin Trust (GBTC), the two sizeable global Bitcoin ETFs (BITO and Purpose Bitcoin), and CFTC institutional long positions as a proxy. Since we published that report in February 2022, however, there have been no new inflows to either ETF; in fact, their combined net assets in BTC terms are below the early 2022 level. And GBTC currently trades at a 43% discount to the underlying assets (source: theblock.pro).

As a result, we think CFTC positions may be a better proxy for institutional positioning in digital assets. We compare CFTC asset manager positioning against aggregated open interest in Bitcoin futures (a proxy for non-institutional holdings), in BTC terms. On this measure, although BTC futures positions still dwarf CFTC positions, they have clearly declined (and CFTC positions increased) over the past six months, indicating growing institutional investor participation in digital assets. We think the regulatory changes discussed above will be key to sustaining this trend.

The other large sticky (potential) cash pool is FX reserves, as we highlighted in *Russia-Ukraine crisis – Implications for crypto*. We think sanctions on Russia's reserves by the West have structurally increased the appeal of non-standard reserve assets for FX reserve managers. Gold and the CNY are the most obvious beneficiaries of this (as China did not impose sanctions on Russia), but digital assets could also benefit. If they do, we would expect the largest and most liquid assets – such as Bitcoin – to receive most of the inflows

Figure 14: CFTC asset manager position vs futures

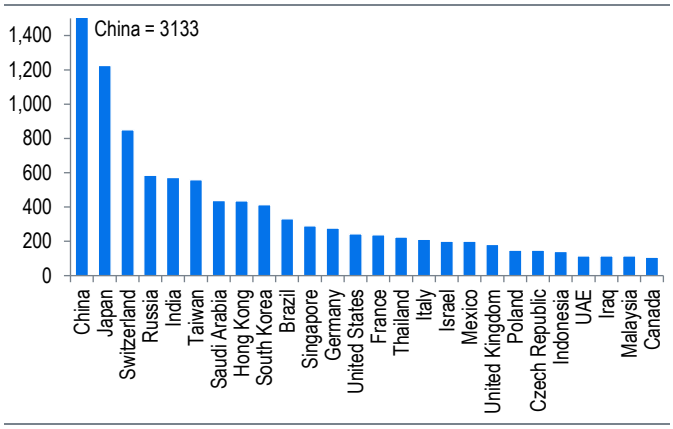
'000 BTC



Source: theblock.pro, Standard Chartered Research

Figure 15: FX reserves

USD bn



Source: Bloomberg, Standard Chartered Research

At current vol levels, BTC should be around USD 115,000 if investing in BTC was as safe and well-regulated as gold

A gradual decline in realised and implied vol

We update our BTC portfolio optimisation to demonstrate how lower vol levels may lead to higher shares of BTC in portfolios, and therefore higher BTC prices. In our original *Bitcoin investor guide*, we estimated 2% as the optimal allocation to digital assets within a broad portfolio (across asset classes). We used the previous BTC price peak (from December 2017) as the starting point of the optimisation. However, given the short time series for digital assets, their extreme volatility and at times extreme returns, this portfolio optimisation approach has its shortcomings.

We think a better optimisation may be achieved by comparing the optimal portfolio mix in a portfolio comprising two assets: BTC and gold. The logic here is that both serve the same portfolio purpose of hedging against fiat currency appreciation, overly loose monetary conditions, or concerns in the banking sector (as have arisen recently).

Using the same starting point (December 2017) as the previous optimisation gives a portfolio mix of 13% BTC and 87% gold; we chose this starting point to minimise BTC's positive returns, so the resulting BTC portfolio allocation should be viewed as relatively conservative. Total above-ground gold (209,000 tonnes) is worth USD 15tn. An 87%/13% mix would put BTC's market cap at USD 2.2tn, for a BTC price of around USD 115,000. At current BTC prices, the portfolio mix is only around 3.5% for BTC – well below the optimal level.

This tells us where the BTC price could go, in theory, at current vol levels – which have averaged 15% for gold and 70% for BTC over the past three years (Figure 16). In reality these portfolio optimisation inflows to BTC would require structural improvements on the regulatory front, a spot BTC ETF in the US, and significant institutional investor interest. We think all of these criteria could potentially be met by end-2024, increasing BTC's attractiveness further.

We also note that if BTC vol heads lower over the medium term (driven by improved regulation and institutional inflows), the optimal mix of BTC in a portfolio of gold and BTC portfolio would also increase. We show this in Figure 17. If BTC vol fell by half from the past-three-year average (to 35%), the optimal portfolio share of BTC would rise to 48% from 13%. At the current gold price, that would imply a BTC price of around USD 425,000 – which we think is a much more distant scenario.

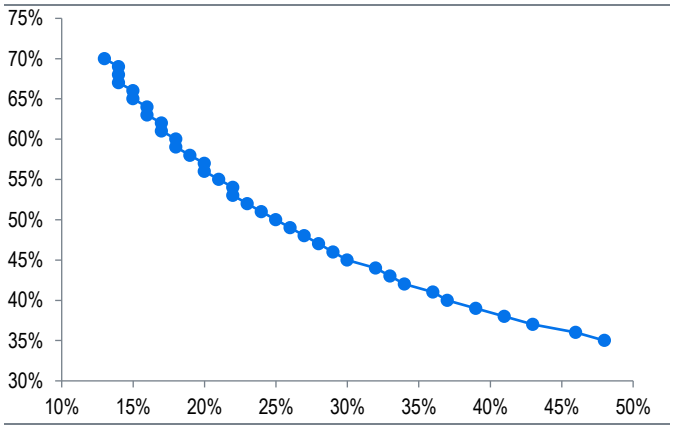
Figure 16: 1mth implied gold v BTC vol

%

Source: theblock.pro, Standard Chartered Research

Figure 17: BTC vol vs gold plus BTC portfolio

BTC vol, % (y-axis); BTC share of gold + BTC portfolio (x-axis)



Source: Bloomberg, Standard Chartered Research

Continued uptake on the Bitcoin Lightning Network

What is wrong with BTC?

Transactions on BTC are slow and costly, exposing BTC to competition

In traditional economics, a currency has three key functions: as a medium of exchange, a store of value and a unit of account. While Bitcoin can perform these functions in theory, it has not done so particularly well to date (except perhaps as a relative store of value). Despite this, we think that BTC's future potential to fulfil these criteria matters more than the current reality (at least for now); this helps to explain Bitcoin's current market cap of USD 559bn, which also partly reflects the network effects created by its first-mover advantage. The risk to Bitcoin is that during the time before it realises its potential, competitors will have space to flourish (see the appendix for a discussion of Bitcoin's largest competitors in what we term 'transactional' digital assets).

For now, Bitcoin's main disadvantage relative to competitors is related to the 'medium of exchange' function – more specifically, transaction cost, speed and throughput volume capacity (Figure 18, current transaction cost is USD3). No digital assets (except stablecoins) are good units of account as they are too volatile. As for the 'store of value' function, Bitcoin's maximum supply of 21mn coins and the four-year halving cycle are advantages. A number of scaling solutions are underway to help Bitcoin overcome these issues; for now, the Lightning Network is the most successful.

Lightning Network

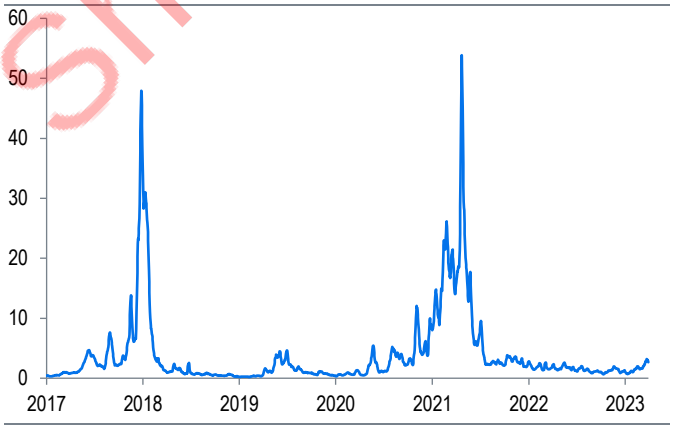
The Lightning Network is the best current solution to solve BTC's cost and scalability issues

The Lightning Network is a layer 2 solution designed to improve the speed and cost of using Bitcoin. It allows users to group transactions together off-chain and only record them on-chain once. Hence, only one transaction fee is payable for a number of transactions, and multiple transactions are recorded at once.

In practice, participants in the Lightning Network trade IOUs with each other off-chain on bilateral payment channels. This is useful if a number of transactions take place between two parties (as it allows them to benefit from lower transaction costs), but it also has a number of shortcomings. First, both parties' BTC will be locked up for as long as the payment channel is open (which is capital-inefficient). Second, the payment channels are bilateral, so a new one needs to be set up for each new counterparty. Third, after the payment channel is closed out by being recorded on the Bitcoin blockchain, a cooling-off period of is needed in case the transaction is disputed. This improves security and trust in the payment channel solution, but comes at a cost of time. Compared to other scaling solutions, the main advantage of the Lightning Network is that transactions are ultimately recorded on the Bitcoin blockchain, so it has all the security of the blockchain itself. However, as Figure 19 shows, the network is still small.

Figure 18: BTC transaction costs

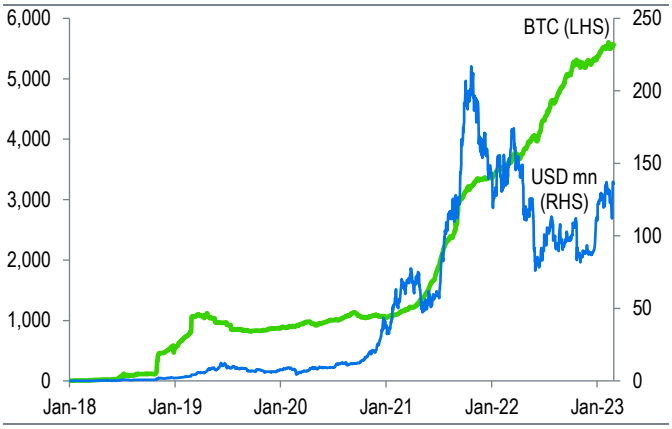
USD, daily, 7-day moving average



Source: theblock.pro, Standard Chartered Research

Figure 19: Lightning Network capacity

BTC (LHS), USD mn (RHS)



Source: theblock.pro, Standard Chartered Research

Appendix: Bitcoin's 'digital transaction' competitors

While BTC dominates the 'transaction coins and tokens' space, it has several competitors

In this appendix, we detail the pros and cons of each of Bitcoin's direct competitors in the investible universe of 'transaction coins and tokens'.

The first point to reiterate is that Bitcoin dominates the transaction universe in terms of market cap. BTC's market cap stood at USD 559bn as of 20 April 2023, compared to the combined market cap of USD 57bn of the competitors covered here (source: coingecko.com). We group the competitors into three categories: (1) direct competitors that are essentially the same as BTC but smaller, and that lack its first-mover advantages (Litecoin and Bitcoin Cash); (2) indirect competitors that offer transactions solutions but from a different vantage point (Ripple and Stellar); and (3) meme coins and tokens (Dogecoin and Shiba Inu).

Direct competitors

Litecoin (LTC)

LTC is very similar to BTC, but cheaper and quicker

Launched in 2011, Litecoin is designed to operate in much the same way as Bitcoin, but to be faster and cheaper. Its purpose is to be used for everyday payments, whereas BTC is (arguably) a store-of-value coin. Litecoin has been called the equivalent of silver to Bitcoin's gold.

In terms of relative speed, LTC has a block time of 2.5 minutes, much shorter than BTC's 10 minutes. LTC can handle 54 transactions per second, while BTC can handle five.

LTC was designed on the Script ASIC hashing algorithm, which was chosen in order to enable more miners, and hence to make LTC (theoretically) more decentralised. Although mining pools found a way around this (so the additional decentralisation does not really occur), Script ASIC hashing did give rise to something called merge mining, where miners can mine two different coins at once without using more computing power (for example, it is possible to mine LTC and Dogecoin at once).

Like BTC, LTC operates on the proof-of-work (PoW) model and the first LTC was mined (no pre-launch and no ICO). There are a maximum of 84mn LTC coins (currently 72mn), four times the maximum of 21mn BTC coins. LTC also has the same four-year halving schedule as BTC.

Bitcoin Cash (BCH)

BCH is the result of a hard fork from BTC, aimed at increasing block size rather than implementing SegWit

Bitcoin Cash is the result of a 'hard fork' with Bitcoin that occurred after a group of developers became dissatisfied with Bitcoin's development direction, specifically related to the implementation of Segregated Witness (SegWit) on BTC. SegWit was a protocol upgrade for the Bitcoin blockchain whereby signatures are separated from transaction data in order to store more transactions in a single block. Bitcoin went ahead with this (as did Litecoin), but Bitcoin Cash did not.

Rather than implement SegWit, BCH has increased its block size – initially to 8MB and now to 32MB – versus BTC's 1MB. Since then, Bitcoin Cash has also faced a number of hard forks itself, most notably Bitcoin SV (November 2018) and Bitcoin Cash ABC (November 2020).

There are currently 19mn BCH coins, of a total maximum supply of 21mn.

Indirect competitors

Ripple (XRP)

XRP competes in the international payments space

Ripple Labs is the company behind XRP. Its aim is to enable banks and payment providers to send money internationally quickly and cheaply. That is, it aims to be a faster and cheaper competitor to SWIFT (the international payment network that currently moves USD 6tn a day).

Ripple Labs has a network called RippleNet, which stands behind a product called XCurrent. XCurrent is a decentralised system using a consensus model called the unique node list.

It also has the digital asset XRP, which is powered by a blockchain. It can process 1,500 transactions per second at a very low cost of USD 0.0002. It does not use either a proof-of-work (PoW) or proof-of-stake (PoS) model, but rather a Byzantine consensus method that relies on a unique node list, which is essentially a centralised system where they choose the trusted nodes (based on node performance). The risk here is that, particularly as they are not rewarded for validating transactions, the chosen validators could collude and create fake transactions (low probability but higher risk than PoW or PoS).

There are a maximum of 100bn XRP coins. Of these 20bn went to the founders, 7bn to Ripple Labs, and 40bn were sold to companies and individual investors. The rest are given to Ripple Labs at around 1bn a month for a total of three months. Coins worth 25bn are currently in circulation.

The US Securities and Exchange Commission (SEC) has been arguing that XRP is a security, not a currency, and is therefore subject to more stringent securities rules. The SEC's lawsuit against Ripple Labs is expected to be decided soon.

Stellar (XLM)

XLM tokenises currency transactions

Stellar was co-founded in 2014 by Jed McCaleb (who previously founded Ripple) and Joyce Kim. Stellar enables currency transactions using blockchain technology. To do this, it tokenises what is being sent. For example, if someone wants to send US dollars, they send USD tokens on the blockchain, which are backed by fiat USD in a bank account (similar to stablecoins). Stellar offers tokens for all widely traded currencies. It also has a decentralised exchange built into the network.

Stellar uses the Byzantine consensus method that Ripple is based on. In a Byzantine consensus, nodes can reach consensus even if there are a small number of non-responsive or even malicious nodes. The Byzantine method relies on a centrally controlled list of approved nodes (similar to how Ripple works). Stellar does this but allows new nodes to be added; therefore, it is more decentralised than Ripple in practice.

The minimum fee on the network is 0.00001 XLM. 100bn XLM were created on launch with a 1% perpetual inflation rate. In October 2019, however, total supply of XLM was reduced to 50bn; no more will ever be produced. There are currently 26bn in circulation, with the remainder held by the Stellar foundation to develop and promote Stellar.

Meme coins and tokens

Dogecoin (DOGE)

DOGE is a meme token forked from LTC

Dogecoin was created in December 2013 as a fork of Litecoin. Its key differences with Bitcoin are branding (it brands itself as the fun version of Bitcoin) and its high initial inflation rate. There are currently 137bn DOGE coins and an additional 5.256bn are mined every year. There is no set maximum.

DOGE was introduced as a joke but quickly generated an online fan base, which has legitimised the coin to a degree. Its primary transactional use has been for small payments on Reddit and Twitter.

However, the developers of DOGE have not made any changes since 2015, providing an opening for other meme coins/tokens to take market share.

Shiba Inu (SHIB)

SHIB is another meme token, but it continues to be developed

Shiba Inu was launched as a meme token in August 2020 as a token on the Ethereum network (it is therefore technically a token, as a coin has its own blockchain). As such, it is the only competitor on this list that does not have its own blockchain.

During the initial launch, 50% of SHIB tokens were deposited in Vitalik Buterin's Ethereum wallet (as a marketing stunt). After a surge in the price in the first eight months, he donated 10% of his holdings (USD 1bn at the time) to a COVID-19 relief fund in India and his remaining holdings were burnt.

Unlike DOGE, SHIB is active on the development side. For example, it has developed a decentralised exchange called Shibaswap with two new tokens, LEASH (which is used to offer incentives on Shibaswap) and BONE, a governance token. (For details on how decentralised exchanges work, see our *Defi protocol investor guide*.)

There are currently 590tn tokens, out of a maximum supply of 1,000tn.

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