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Cryptocurrency Research

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2022 Crypto Outlook
ETH Dominance to Decline, NFTs Poised for Further Adoption

2021 was a banner year for much of crypto, with many tokens soaring to all-time highs. Bitcoin continued to see adoption as an investment and as a currency, while Ethereum lost some of its limelight to competing Layer 1 blockchains. The year also marked the rise of NFTs and interest in the Metaverse. We lay out our thoughts for 2022, key of which is that Layer 1s will be poised to perform well as users continue to seek out blockchains with cheap fees and unique ecosystems. Moreover, we expect legacy DeFi tokens to remain pressured, in light of increased competition from similar protocols on other blockchains, a lack of utility from some DeFi coins that are merely governance tokens, and user metrics that haven't fully recovered. We also anticipate NFTs will continue to see significant demand and will find a new audience through more artists, brands, and platforms integrating them. One theme we expect to deflate in 2022 is the Metaverse, as we believe valuations for many Metaverse tokens have gotten far ahead of the stage of the products and platforms they are associated with. Finally, we remind investors that they ignore Bitcoin at their own risk, as we see it performing well on macro tailwinds in 2022.

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Multichain

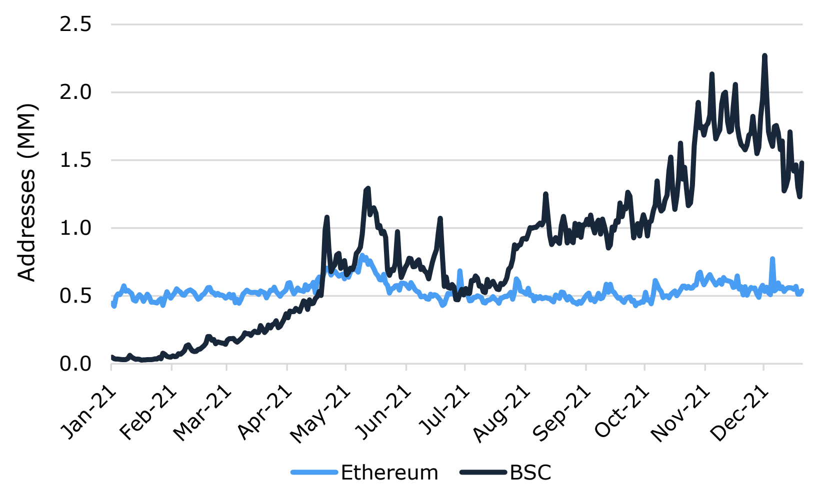
2021 truly proved the multichain thesis. As the crypto market heated up going into 2021, Ethereum remained expensive. DeFi was supposed to onboard millions of people to crypto, but with some smart contract interactions costing the hundreds of dollars equivalent of ETH, this was clearly not going to work. Consequently, we saw the rise of Binance Smart Chain (BSC) in Q1 2021, an Ethereum Virtual Machine (EVM)-compatible blockchain supported by crypto exchange Binance.

The user experience on BSC is very similar to Ethereum. You use your MetaMask and pay for fees in BNB, rather than ETH. The transaction/gas fees are also negligible (pennies or dollars versus tens or hundreds of dollars equivalent). Now, add copy-pasted versions of core DeFi primitives and you have a cheap version of Ethereum's ecosystem.

Thanks to Binance's vast global reach and userbase, it made it easy to onboard its retail users onto DeFi on BSC. BSC adoption data proved that users were hungry for DeFi without exorbitant fees. BSC was poised to further capitalize on this given its EVM-compatibility. It was simple for developers to port code over from already created Ethereum-based dapps. Moreover, BSC was able to attract tech talent and projects in part from Binance's $100 million BSC ecosystem fund, which it introduced in September 2020, and later announced a $1 billion fund in October 2021.

The numbers speak to themselves as to where we are headed, with total value locked (deposits in smart contracts) and daily active users rising on several blockchains. BSC's daily active addresses sits nearly 3x that of Ethereum's as of writing, reflecting the significant demand for cheaper blockchains.

Exhibit 1. Ethereum vs. Binance Smart Chain Daily Active Addresses

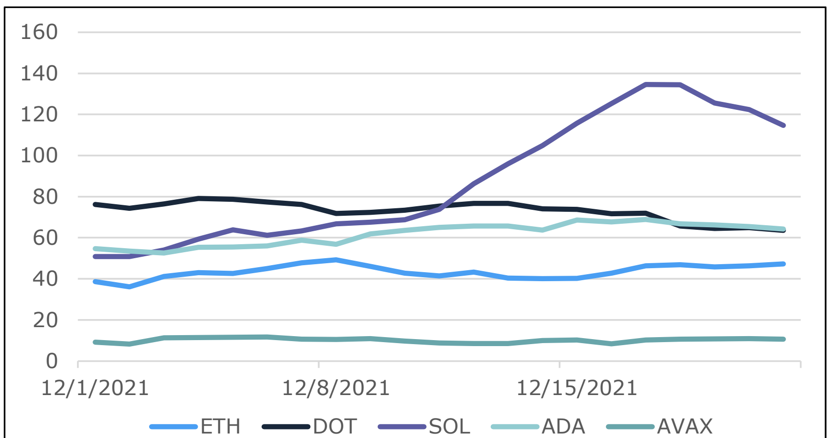


Source: Etherscan, Bscscan, and CrossTower Research

Other blockchains that are seeing notable usage include Polygon, Solana, Terra, Avalanche, and Fantom. So while the chart comparing Ethereum and BSC is telling by itself, there are hundreds of thousands of active users on these other blockchains, further underscoring demand for cheap blockspace and DeFi and NFT ecosystems.

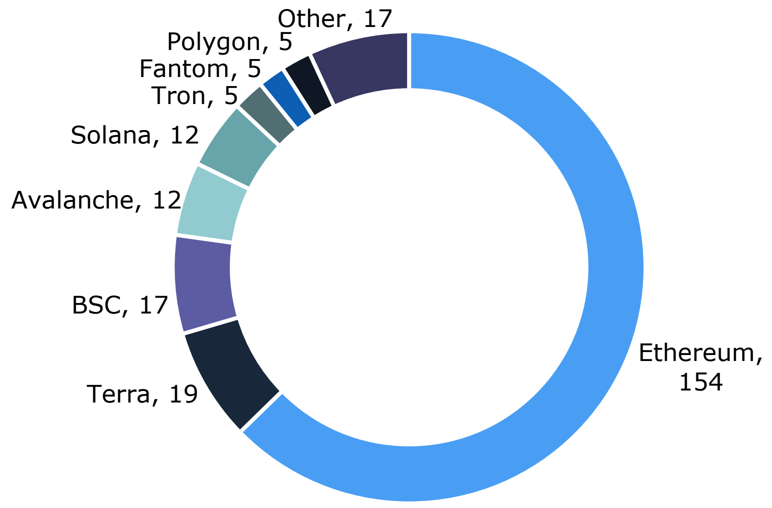
In 2022, we anticipate most, if not all, of these chains to strengthen fundamentally in terms of user growth and projects deployed on them. It is unlikely that there will be a winner take all scenario. Versus Ethereum, Solana could be very well positioned. We like that Solana has super fans, had strong traction in 2021, and now has rising developer activity. According to Santiment, as of December 21, 2021, Solana has the highest level of development activity relative to other top layer 1 chains.

Exhibit 2. Layer 1 Blockchain Developer Activity



Source: Santiment and CrossTower Research

Exhibit 3. TVL Across Top Blockchains ($, Bn) as of Dec. 21, 2021



Source: DeFi Llama and CrossTower Research

We ended 2020 with around $20 billion in total value locked (TVL), a measure of the value of cryptocurrencies locked up in blockchain smart contracts, according to data from DeFi Llama. Now, there is $246 billion. TVL is becoming a tale of the expansion of more blockchains than just Ethereum.

In 2020, DeFi was primarily on Ethereum, with Ethereum comprising over 95% of all TVL, according to DeFi Llama. Now, Ethereum's dominance of TVL is 63%, representing roughly $154 billion of assets, as chains such as BSC, Terra, and Solana have seen strong gains in TVL as their DeFi ecosystems developed.

While TVL partly represents the growth of asset prices, there is clear growth regardless. The crypto pie is increasing and is a result of new users and capital entering the system.

Given the traction and unique properties of each blockchain, we expect Ethereum's dominance to continue to decline. Avalanche offers fast finality, Solana has fast block times, and the Terra ecosystem primarily addresses utility for its decentralized stablecoin, UST. Nearly all of these Layer 1 blockchains have significant backing from top VC firms, offer ecosystem funds in the hundreds of millions of dollars or more to encourage developers to build on them, and have an army of enthusiastic users. So while Ethereum remains top dog with its decentralized application (dapp) ecosystem's composability and reach, other blockchains are poised to gain share while Ethereum grapples with its problem of high fees, and as investors understand there is significant innovation occurring on these other chains.

Bitcoin

2021 was a banner year for the coin, as it reached milestones that were just pipe dreams on the Bitcointalk forums a decade ago. Institutional adoption continued, with more notable investors addressing Bitcoin as a macro asset in 2021. Paul Tudor Jones said in October 2021 that crypto is his preferred hedge to gold and said in June that he likes a 5% portfolio allocation to Bitcoin. Moreover, rising institutional interest in Bitcoin is reflected via Bitcoin

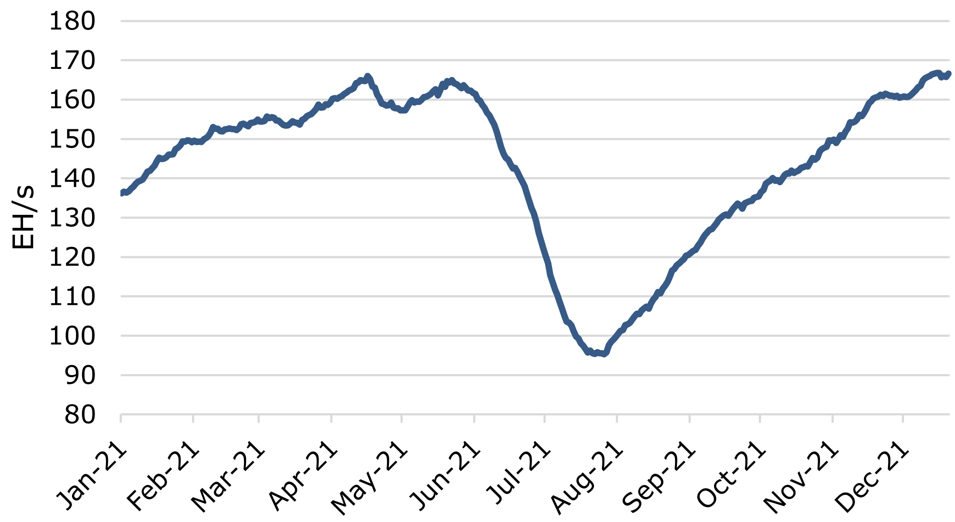
CME futures open interest, which hit an all-time high of over $5 billion in Q4 2021. Companies continued to purchase BTC, with MicroStrategy, Square, and Tesla revealing BTC positions throughout the year.

El Salvador also made a splash with its Bitcoin foray, adopting BTC as legal tender and also purchasing BTC throughout the year. Notably, it continues to buy the dip. We now have a nation state, in addition to Saylor, that is actively buying dips. El Salvador could also provide investors a glimpse at how well Bitcoin works as a medium of exchange. It's Chivo Bitcoin wallet leverages the Lightning Network (Bitcoin's Layer 2 scaling solution), which had over 2 million users as of October 2021.

2021 was also a landmark year as there were additional signs that Bitcoin is being further recognized as an inflation hedge. The best indication of this was Bitcoin's price action around the release of hot CPI prints in Q4 2021, surging on several occasions. Bitcoin offers a predictable supply schedule and provable scarcity, making it a compelling inflation hedge to a growing number of investors.

Bitcoin's model continues to be proven. The Bitcoin network has kept on humming despite regulatory headlines around crypto, endless concerns regarding Tether's solvency, China's crackdown on Bitcoin and crypto more broadly, and attempts from supporters of altcoins to frame it as a "boomer" coin. Bitcoin's hash rate plunged roughly 40% as Chinese Bitcoin miners were forced offline, but made a full recovery by year end, as miners relocated their machines to more crypto friendly countries such as the U.S. Fundamentally, the Bitcoin network is as secure as it has ever been, and the fully recovered hash rate reflects the billions of dollars' worth of capital spending that miners are investing in the security of the network.

Exhibit 4. Bitcoin Hash Rate, 30D SMA



Source: Glassnode and CrossTower Research

Bitcoin also had its first U.S. ETF approved in October 2021, a milestone for this emerging asset class. While a spot ETF seems a ways off given the SEC's repeated denial of such Bitcoin products, the current futures ETF are a net positive for Bitcoin given they allow investors broader exposure to Bitcoin, and further solidify Bitcoin's image as a legitimate asset class.

The November 2021 implementation of Taproot was also a major milestone for Bitcoin, which brought changes the community has discussed for years, such as privacy and scalability benefits. Notably, Taproot was the first soft fork since SegWit in 2017. This just demonstrates that Bitcoin's rules do not change often. It already works very well, especially as a settlement mechanism, so participants are careful to make changes. Bitcoin's unique governance mechanism that requires buy-in from both miners and users (node operators), makes it especially robust, and the smooth rollout of Taproot (voting via speedy trial earlier in year followed by implementation in November) is a good example of the careful procedures and methodology Bitcoiners have adopted when considering major changes to the network.

Looking ahead to 2022, we expect Bitcoin to continue to perform well. Tailwinds include sustained inflation and broader investor adoption from continued education as well as the broader macro environment. Moreover, further growth in the Lightning Network could drive the investment thesis that BTC can be used as a medium of exchange. The Lightning Network has seen profound growth in 2021, with network capacity, channels, and nodes ending the year at all-time highs.

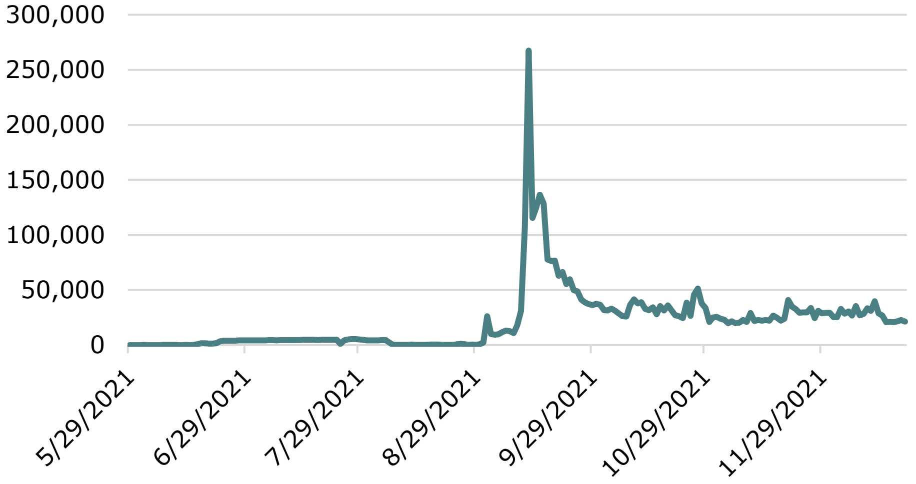
Investors are increasingly understanding the unique value-add of Bitcoin. As long as it continues humming, we believe the price will follow. 2021 demonstrated Bitcoin is resilient enough to overcome any challenges thrown at it thus far and is a testament to its devoted user base and vast number of supporters. Considering this, investors should not discount hyperbitcoinization. While Bitcoin's gains have diminished relative to altcoins, and likely will continue to do so, Bitcoin still has a lot of potential. Investors discount it at their own risk.

Ethereum (ETH)

Ethereum is still the king of decentralized smart contract platforms despite the impressive rise of many competing blockchains throughout the year. It is undeniably the hub of DeFi and NFT-related activity. Its high fees are something many onlookers or new crypto users don't immediately understand. The fees are variable, based on demand, and are high today due to appreciation in ETH and because it the network has hit its capacity, with users engaging in a bidding war for blockspace. At the end of the day, this is a good problem to have in that it validates Ethereum's unique value proposition and encourages innovation to solve this.

Ethereum has had relatively high fees since DeFi took off in 2020 and this worsened significantly in 2021 with fees going to stratospheric levels at times. The fact that developers still launch new protocols on Ethereum and users continue to use the platform despite the fees shows that the ecosystem on the chain is one of a kind. It has moats in its longevity, developer base, impressive DeFi ecosystem, and NFT culture. To further this, Ethereum is in the process of transitioning to Layer 2 scaling solutions, which promise to be cheaper and faster than Ethereum's base layer, which, like that of Bitcoin's, is being now pointed to as better for settlements of large transactions, rather than small day-to-day transactions. At the end of the day, it is all about the scalability trilemma (scalability, decentralization, security) – there will always be tradeoffs for any blockchain, including Ethereum or its peers.

Exhibit 5. Daily Transactions on Arbitrum



Source: Arbiscan and CrossTower Research

That being said, Ethereum's dominance is set to further fade in 2022 as disaffected users, and many new crypto users, turn to other blockchains as Ethereum's fees remain high. The rollout and adoption of key Ethereum Layer 2 solutions Optimism and Arbitrum in 2021 largely fell below expectations and we are not holding our breath for adoption of these to improve materially in early 2022. Exhibit 5 shows how Arbitrum transactions initially spiked following its mainnet release in September, but have since declined significantly. While scaling solutions like Arbitrum are taking their time to get their environment right for both users and developers, users that can't wait are going to cheaper chains.

Moreover, we are still waiting on the ETH 2.0 merge (shifting from proof of work chain to proof of stake) to occur, which will then pave the way for scalability enhancements via sharding. So, no scalability from ETH 2.0 just yet – we will need to see this via L2s first. There were high hopes in 2021 that the merge would happen in the back half of the year. That date has been pushed out to 1H 2022, according to Ethereum.org, although consensus seems to be for Q2 2022.

It is also important to point out a common misconception with the merge. Staked ETH will not be able to be withdrawn just yet, eliminating the concern that stakers will sell their ETH immediately upon the merge to lock in profits (ETH was around $500 when Beacon Chain, Ethereum's PoS chain, launched in late 2020). According to Bankless, stakers will not be able to withdraw their ETH until approximately 6 months post merge.

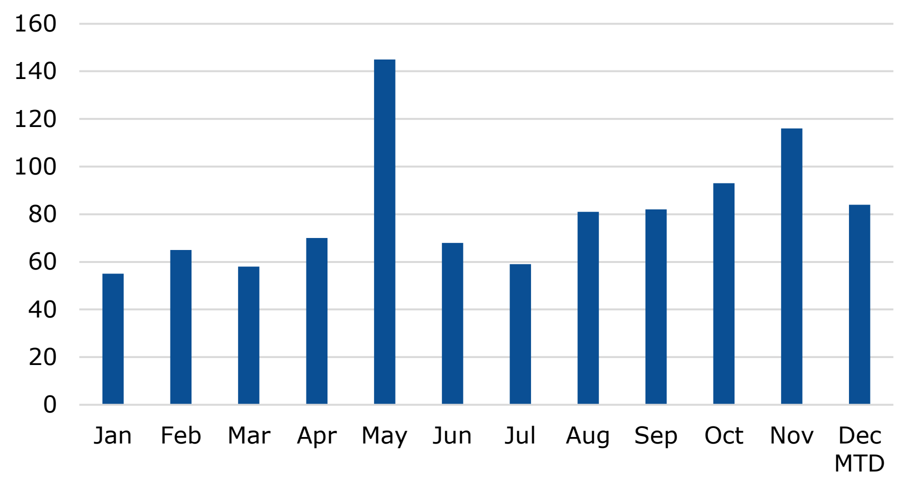
A core catalyst for ETH in 2022 is the potential for L2 solutions to finally take off, which will ease congestion on Ethereum's base layer and can help drive users back to the chain. We believe what is missing for broader L2 adoption is more exchanges integrating native support for deposits/withdrawals for L2 solutions. Otherwise, users need to manually bridge/deposit to these scaling solutions, which can be expensive and time consuming.

We also believe Ethereum is uniquely positioned for institutional defi considering its track record of security. For instance, competing blockchains such as Solana have suffered outages in 2021. And platforms like Polygon have found and patched potentially major security vulnerabilities repeatedly. We are not seeing calamities like this on Ethereum. So, while expensive, due to the demand it is seeing, it has proven itself far more than competing chains. The list of notable companies and brands building or becoming involved with it continues to grow and we do not see this changing materially in 2022, given Ethereum's vast NFT ecosystem that serves as yet another moat.

DeFi

DeFi, the darling crypto sector of 2020, had a turbulent 2021. In Q1 and early Q2 many DeFi protocols surged to levels unthinkable following the collapse in prices at the end of 2020's DeFi summer. What drove it? For one, fundamentals improved materially. There were record amounts of users interacting with DeFi and metrics such as TVL, loans outstanding, and DEX trading activity. This then pared following the market pullback in Q2 2021 and has not yet fully recovered. Consequently, blue-chip DeFi protocols have largely underperformed this year, as such DeFi protocols have not yielded as many major innovations in 2021, relative to 2020, and because the DeFi space has become more fragmented on the shift from Ethereum to multiple L1s.

Exhibit 6. Monthly Ethereum DEX Trading Volume ($, Bn), as of Dec. 21, 2021

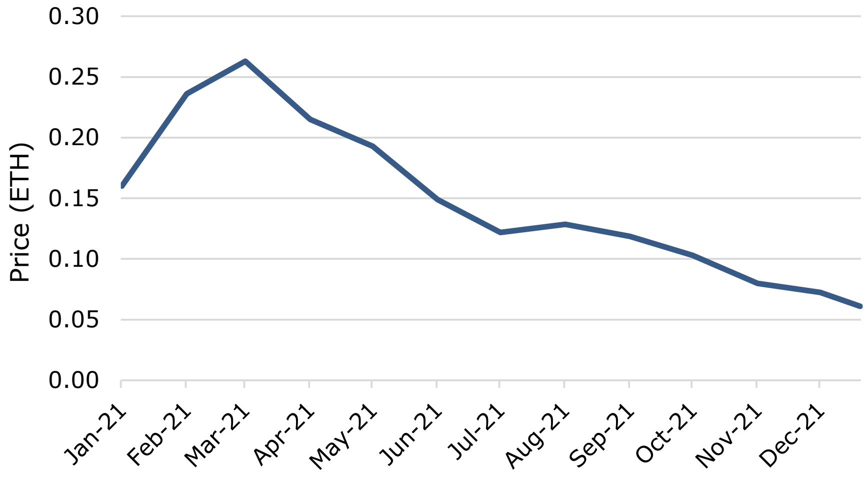


Source: Dune Analytics dashboard by @hagaetc, and CrossTower Research

While this just reflects ETH, it is unlikely DeFi retakes its all-time highs until these metrics surpass May levels. As shown in Exhibit 6, Ethereum DEX trading volume has still not overtaken the May highs. Moreover, we would favor protocols that are multichain, rather than those on a single-chain.

Given regulatory uncertainty, we are also seeing a shift to walled DeFi protocols that KYC customers. This allows them to comply with regulations, such as AML/KYC. Maple Finance, TrueFi, and Alkemi are some examples of this that have whitelisted certain institutions to utilize their protocols. DeFi stalwarts Aave, Compound, and 1inch have also indicated plans to service institutional customers, likely meaning KYC'd DeFi.

Exhibit 7. DPI 2021 Performance in ETH Terms



Source: CoinGecko and CrossTower Research

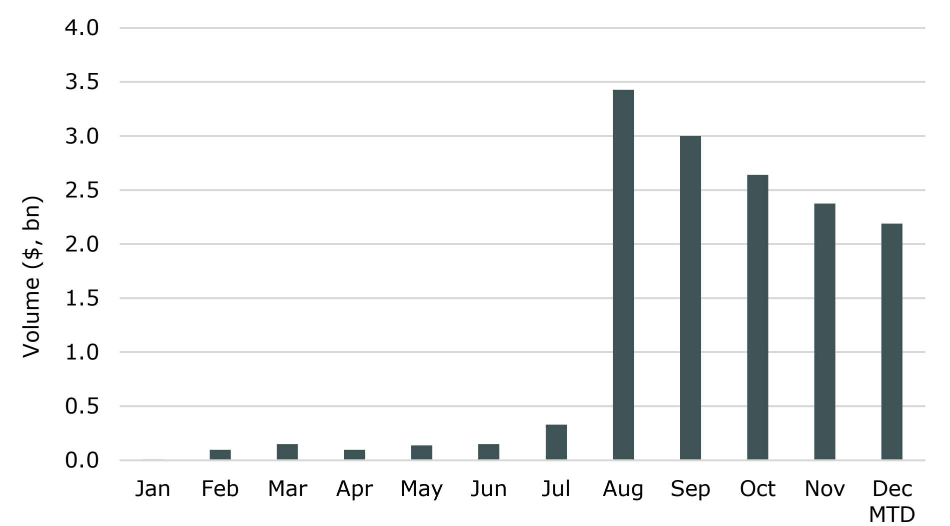
Exhibit 7 shows just how battered legacy DeFi has been, using the DeFi Pulse Index (DPI) as a proxy. DeFi 2.0, largely defined by the projects incorporating protocol-owned liquidity, versus legacy DeFi's renting of liquidity via liquidity mining campaigns, has fared better, but it is doubtful to us that DeFi 2.0 mechanics will continue to be appreciated by the market.

The reason behind DeFi's slump may be that investors are realizing that governance tokens have little value on their own – there must be some broader utility or value accrual from the token. So far, many DeFi tokens have not proved to have this. Consequently, we see DeFi to remain pressured in 2022 and favor Layer 1 tokens, considering their underlying utility of securing the network (via staking) and their utility as payment for transaction fees on their respective blockchains.

NFTs

NFTs had an astounding year, seeing two core waves of interest (Q1 and Q3) and entering into the mainstream. The NFT mania in Q1 still seemed rather cautionary as many participants were watching with bemusement as collections such as CryptoPunks were bid up and new NFT primitives were released, such as Hashmasks. Then, in the summer, it seemed like any and all NFT projects saw strong demand, with crypto investors fighting over each other to enter into new NFT launches as well. While prices for many NFTs have cooled off since then, we are still seeing countless NFT launches that sell out within minutes – a testament to the persistent demand for NFTs.

Exhibit 8. Monthly Volume on NFT Marketplace OpenSea, as of Dec. 21, 2021



Source: Dune Analytics dashboard by @rchen8, and CrossTower Research

We believe NFTs are poised to continue to flourish in 2022 given that people like the idea of owning things on the internet, an area where they already spend so much time. Driving mainstream acceptance of this are major artists, celebrities, and athletes issuing NFTs, enabling their fans to support them in return for a unique digital item they can then showcase online.

What will further drive the growth of the NFT ecosystem? Applications in real-world tools. For example, Instagram is looking into integrating NFTs, which could provide a major boost. There could always be the development of ways to showcase digital art without a tablet and a lot of wires. Then there are business applications for NFTs, which may only be in pilot stages in 2022, but could include ticketing, records, and identification. Regardless of the type of applications built around them, we think NFTs will remain popular and will be seen as fun and innovative mediums for digital art, objects, and community building (avatars, entry to DAOs, etc.)

We expect 2022 will shake up the current NFT marketplace landscape, which is dominated today by OpenSea, which charges a whopping 2.5% fee on all NFT sales. In the near-term, the anticipated launch of Coinbase's NFT marketplace should add more competition, and ideally lower prices for consumers. In the longer-term, we anticipate many more NFT marketplaces will come to market, possibly as protocols, and will ultimately result in fees for NFT sales to match that of trading most cryptocurrencies (30 bps or less).

Metaverse

NFTs have driven the vision for the Metaverse and now everyone is talking about it, with analysts at Morgan Stanley going as far as calling it an $8 trillion addressable market. The concept of the Metaverse has always been there, but it seems like it has taken COVID and NFTs to really drive home the reality of a virtual world.

In our view, a viable Metaverse is still far away and many of the Metaverse tokens today seem grossly overvalued. The Sandbox (SAND) and Decentraland (MANA) have been around for years and are considered some of the top Metaverse platforms/tokens. They both look just like Minecraft, whose 3D block graphics do not feel very immersive or believable compared to other games today. The market cap of SAND and MANA is over $5 billion, which seems like a stretch when considering the state of the products.

GALA is another example of a trending Metaverse token and is behind the Gala Game platform that promises blockchain games that are owned by players. Its market cap is around $3 billion as of writing, with a fully diluted valuation of $22 billion, while nearly all of its games are still in development. Investors are clearly bidding up future growth with such tokens, but we think these are signs of the Metaverse froth.

In 2022, we will be looking for real-world use cases of the Metaverse to drive this sector. We are keen to see products from Meta (Horizon Worlds) and Microsoft (Altspace Vr) and whether they integrate Web 3.0 technologies such as NFTs. It seems that right now many tokens focused on the Metaverse are gaming-related, which may not be the surest path to the growth of the Metaverse, rather than more commercially related activities (working and shopping, for example).

Summary

2022 is bound to be marked by further development of multiple smart contract blockchains as users remain fee conscious. An increase in adoption of Layer 2s could prove a much-needed catalyst for Ethereum. The successful completion of Ethereum's merge could also prove to investors that Ethereum is not falling behind relative to peers and remains on track to deliver further much anticipated upgrades such as sharding. Regardless, 2021 has proved the multichain thesis, and other Layer 1s will likely further dent Ethereum's dominance in TVL and DeFi in 2022.

Bitcoin is also one to watch next year. It has truly been validated as a macro asset with many institutional investors endorsing its role as a store of value and inflation hedge, and nation states such as El Salvador purchasing it. There are a bevy of tailwinds that can propel Bitcoin in 2022, such as sustained inflation. We point out that although its returns may not be as impressive as those of smaller tokens, Bitcoin still leads the crypto market and has been a key beneficiary of broader crypto adoption, however fast or slow that may be.

While we see blue-chip DeFi tokens as remaining under pressure, we are excited for any new DeFi paradigms that come to market, especially ones unique to certain Layer 1s, or Layer 2s.

The NFT space is also poised to continue to grow. People want to own a part of their digital identities, which NFTs enable, and this will only become more important as NFTs see more integrations with applications and platforms.

Meanwhile, we believe the Metaverse and the blockchain gaming space may see a correction, given that many of the tokens and platforms represent only ideas at this point and already command steep valuations. Seeing real, immersive products that use blockchain technology would change our mind in 2022.

Regardless of which crypto sector outperforms in the year, we expect crypto adoption to continue as investors seek out cryptocurrencies and smart contract applications. Consumer finance applications, NFT applications, and any blockchain gaming products could all help boost crypto adoption in 2022.

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