Hashdex

Crypto Investment Outlook

Accelerating adoption, scaling solutions, and a greener future.

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Introduction

Themes

Lessons from a turbulent year

Marcelo Sampaio, CEO - *December 13, 2022*

Exactly thirteen months ago, bitcoin was trading above $65,000, the Nasdaq Crypto Index was at its all time high, and laser eyes were all over Twitter.

Yes, that seems like another lifetime.

Today, with crypto prices over 70% off all-time highs and ongoing uncertain market conditions, it might seem natural for a reflective letter like this to focus on persevering in difficult times.

But 2022 was anything but a negative for crypto. In fact, this year may have been the most consequential for this emerging asset class since I entered this space a decade ago: infrastructure advancements like Ethereum's Merge, regulatory developments like President Biden's Executive Order, progress on scaling solutions, and the acceleration of institutional adoption are just some of this year's major advancements propelling this space forward.

So many of these developments were unfathomable in this space even just a few years ago. Now, they are driving crypto's long-term investment case — and we remain as committed to this investment case as ever. This year, we expanded our global footprint to Europe with the Hashdex Nasdaq Crypto Index Europe ETP and the Hashdex Crypto Momentum Factor ETP. We launched three thematic ETFs in Brazil, and a first-of-its-kind Bitcoin Futures ETF in the US.

All of this isn't to say this year's challenges weren't dramatic and at times painful. The macro environment for risk assets steamrolled crypto assets as events like the Terra/LUNA implosion, 3AC's failure, and the Celsius bankruptcy exacerbated already difficult crypto markets.

And just when things looked to be stabilizing, the demise of FTX sent the crypto world spinning once again. The FTX disaster has sent shockwaves through the crypto community and — rightly so — drawn attention to the centralized institutions that dominate the exchange landscape.

Hashdex avoided exposure to all these major blow-ups this year for one reason: **we obsess over operational and risk controls**. For crypto investment to thrive, our industry must set the highest bar when it comes to standards for trading counterparties, custodians, and other service providers.

Yes, this is a fast-moving space with great aspirations. But we are trusted with investors' assets and our industry needs security of these assets to be a top priority. Operational controls matter. Risk management matters. And transparency matters. We do not take these things lightly.

Despite a rocky year, crypto continues to hold tremendous promise for the future. We're sharing the **Hashdex 2023 Crypto Investment Outlook** to provide our best thinking around what investors should be watching for in the coming year. Trying to predict what will happen in crypto is a fool's errand — anyone invested in these markets for even a short period of time knows this well — but as crypto evolves and patterns emerge, there are informative trends developing for specific crypto assets as well as for segments like DeFi, Web3, and Digital Culture.

This report is focused on the future, not the past. While there are valuable lessons from 2022 we will carry into 2023, crypto moves too fast to focus on the past.

Early in the new year we'll celebrate our firm's fifth anniversary. Hashdex has the same core mission today as we did in 2018 — giving investors simple and secure access to the crypto ecosystem. In the current environment this mission seems more important than ever.

We hope you find our perspectives useful.

Marcelo

The crypto end game remains unfazed

Despite macro headwinds and high-profile implosions, blockchain and crypto technology is developing at a fast pace.

Pedro Lapenta, Head of Research

In the 14 years since Bitcoin's inception, crypto has provided a roller coaster ride of high highs, low lows, and everything in between. Such volatility has been a driving factor for a fair share of criticism, and this year's blow-up of several centralized crypto players isn't doing the industry any favors.

But what can't be denied is the steady march of progress and acceptance this emerging industry has demonstrated. The number of global crypto users has reached hundreds of millions, there is a flood of institutional adoption, participation and investments continue, and regulators—even those skeptical of crypto's promise—are no longer able to ignore the enormous impact this transformational technology is sparking worldwide.

Source: Gary Gensler, Chair of U.S. Securities and Exchanges Commission, October 21, 2022

To put things in perspective, 2022 may have been the most important in this industry's history—or at least the most memorable. Amid the challenging economic environment and the implosion of a number of bad actors, it has been interesting to witness the way that crypto continues to gain momentum and become more ingrained into our regular lives, day after day.

So—despite the turbulence causing pain throughout the ecosystem**—yes, the crypto revolution is happening.**

Bold take? Perhaps. But there are reasons for this confidence. This year has been an intense period of bad **and** good news, so it's important to distinguish them:

> The good: **There was diverse news and activity that strengthened crypto fundamentals.** Regarding **infrastructure**, there was the successful Ethereum Merge, which is preparing the network for a much more robust ecosystem in the future. On the **scaling solutions** side, many developments are emerging to solve the "blockchain trilemma" with zkEVM technology leading the pack that will help onboard millions of more users. When it comes to **utility**, Bitcoin's investment case, for example, improved as there were several game-changing technological developments in its ecosystem making it a network with more use cases under development. On **regulation**, the US made important advancements proposing a comprehensive framework for digital assets and acknowledging the importance of the technology. Meanwhile, autonomous, auditable, and transparent DeFi protocols showed tremendous **resilience** and demonstrated their strongest attributes as centralized models struggled. And in parallel, several global and large institutions such as Google, Goldman Sachs, Fidelity, BlackRock, Meta/Instagram, Disney, FIFA, Starbucks, Apple, JP Morgan, and BNY Mellon (just to name a few) announced or launched relevant projects in the space, showing a very strong sign of **institutional adoptio**n. Not to mention a record deployment (~US$30 billion year to date) of fresh VC capital into hundreds of blockchain projects in 2022. **In other words**, not only did the technology work as it was designed, but it is also getting more robust while drawing real interest worldwide.

The bad: **The year's news and activity was monothematic**. In a nutshell, all the major bad news of the year was concentrated on unregulated (mostly offshore) centralized finance (CeFi) entities that failed due to their opaqueness, excessive leverage, lack of appropriate risk-management controls and recklessness in some cases. While these collapses do hurt the industry in the short term, these are issues that can all be fixed, likely involving proper regulation. In this mess, however, it should be highlighted that nothing related to the technology and its fundamentals has failed. This was true even in the case of Terra/LUNA, an event that wasn't a technological problem, but rather a mixture of bad incentives and bad design of architecture embedded into the code of the algorithmic stablecoin.

In other words, the failure of these institutions were serious problems and unfortunately lots of people got hurt, but **they are not case killers**. Now that the roots of the problems are mapped, more regulatory clarity in major markets is expected in the near future.

So, the main point: We are not downplaying what happened in 2022. These events have raised fears and doubts in the minds of many investors. However, good news is coming on several fronts and we believe investors shouldn't let this be washed away as they have meaningful impacts on the long-term sustainability and attractiveness of the crypto ecosystem. Despite the turbulence, **the technology is intact and improving.**

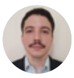
And, at the same time, the ultimate goal of crypto still lies ahead—to develop a global, neutral, social and economic infrastructure for the instant transfer of information and value devoid of trusted parties that can be used by anyone in the world. **This is no small thing!**

With this backdrop, we've selected the **seven most important themes** we believe investors should pay attention to in 2023.

Also, we know crypto can be a dense subject, so we've included in the appendix a glossary that defines key terms covered throughout this report. We encourage readers to visit our Research Center, which has dozens of articles, market commentaries, and other insights that help provide clarity around these concepts and how they relate to investing in this asset class.

We hope you find this to be useful. As always, our team is here to answer any questions about the evolving crypto investment landscape.

Bitcoin's investment case strengthens



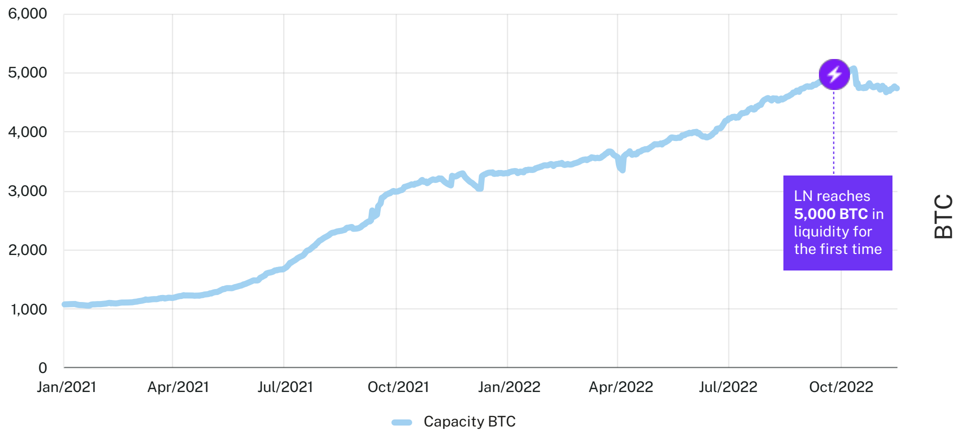
Lucas Santana, Research Analyst

For the first time since its 2009 inception, bitcoin[1] found itself amidst a challenging macro environment in 2022, with a mixture of widespread higher inflation, a war, and a pivot to higher interest rates in all major economies. These factors together created an ideal test for the most prominent bitcoin thesis today: an emerging digital store of value. But with the realization of the ongoing crypto winter, bitcoin followed the drawdown in the overall digital asset space, a clear demonstration that it currently doesn't behave as an inflation hedge. Rather, similar to other risk assets, bitcoin benefits from the monetary expansion of fiat currencies and struggles in a hawkish environment.

However, despite its poor price performance, we believe 2022 was a year of strengthening bitcoin fundamentals. For one, this year marked a significant milestone for the adoption of the Lightning Network—Bitcoin's leading scaling solution—which amassed 5,000 bitcoin in capacity in October (a year-to-date increase of ~48%), followed by the release of Lightning payments through CashApp, opening the streams for over 40 million users to start using bitcoin as means of exchange. We also saw the announcement of Taro in early April and its alpha release in September, a protocol that will enable the issuance of assets natively on Bitcoin.

[1] Bitcoin with an uppercase "B" refers to the network while bitcoin with a lowercase "b" refers to the native token.

Lightning Network Capacity



Elaborated by Hashdex Research with data from Glassnode (12/01/2022)

The past year also brought new all-time-highs in Bitcoin's hash rate and mining difficulty, with the network currently being as secure as ever, despite reduced miner revenues. In regard to mining, governments have continued their scrutiny on the impacts of Proof-of-Work blockchains. In September, the White House released a study on the climate and energy implications of crypto assets in the US, and a month later the European Commission announced that EU member states may halt crypto mining in the winter to help with the current energy crisis in Europe. And regarding institutional adoption, the number of gateways providing access to bitcoin continued to grow in 2022: Fidelity started to allow retirement plans to invest in bitcoin in April, BlackRock launched the first spot bitcoin private trust for institutional clients in August, and Google partnered with Coinbase to enable crypto payments in cloud services. Currently, ~1.45M bitcoins are held by exchange-traded products, sovereign states, and public/private companies.[2]

For 2023, we believe Bitcoin will continue to evolve on all of these fronts. The Lightning Network is very likely to reach higher levels of bitcoin liquidity, and the first few Taro assets—such as stablecoins—should start popping up on Bitcoin. Progress in environmental discussions is also expected, with guidelines that bring together governmental agendas and the mining industry, allowing Bitcoin's security to strengthen, while mining aids the transition to a greener energy mix, helps to stabilize the electrical grid, and mitigates the impacts of oil extraction while monetizing gas flares. We are confident that bitcoin's regulatory clarity relative to other crypto assets—particularly in the US—will keep nurturing its adoption by

[2] As of September 8, 2022

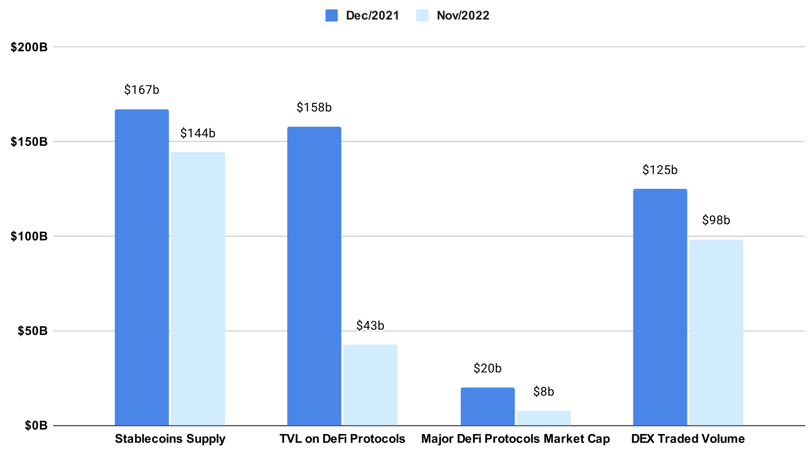
institutional investors, reassuring bitcoin's position as the ideal entry point to the digital asset space. And as markets settle in the wake of this year's monetary policy shift by central banks, bitcoin may lead the bounce back in risk assets as market participants weigh bitcoin's optionality as a non-sovereign form of money with a completely predictable monetary policy. This may flip the perception of bitcoin from a risk asset to a portfolio insurance tool for a modern era of continuous monetary debasement and high debt-to-GDP. But regardless of short-term macro factors, we believe Bitcoin's long-term investment case remains as strong as ever going into 2023.

Blue chip DeFi fundamentals grow stronger

Pedro Lapenta, Head of Research

This year will be remembered as a "stress-test" moment for Decentralized Finance (DeFi). After DeFi had its best year in 2021—with record high operational and financial metrics such as decentralized exchange (DEX) trading volumes, protocol revenues, Total Value Locked (TVL), market capitalization, stablecoin supply and others—the sector went through its moment of truth in 2022. At its December 2021 peak, DeFi had garnered a whopping US$158 billion in TVL across multiple blockchain ecosystems and applications. By the end of november 2022, its TVL had shrinked to $43 billion, a 72% decline.[3]

DeFi KPI Comparison



Elaborated by Hashdex Research with data from The Block (12/01/2022)

[3] As of November 2022.

The crypto markets, including DeFi, were dragged down by the very challenging macro environment as well as crypto-specific factors such as the US$60 billion collapse of Terra/LUNA, FTX and its domino effects, and the blow-ups of other centralized finance institutions that lacked transparency, accountability, and risk management—including 3AC, Voyager Digital, Celsius Network and more recently, FTX.

As these events unfolded, a major question was raised: Is DeFi dead? We believe the answer is a resounding **no**. The failing actors this year have been CeFi (centralized finance) institutions. In contrast, Aave, Compound, Uniswap, MakerDao, and many other blue chip DeFi protocols functioned extremely well. They processed and liquidated every single transaction and did not require any outside support, proving that transparent, auditable, and highly predictable smart contracts can be much more efficient during stressful times.

DeFi has exemplified the Lindy Effect - a theorized phenomenon in technology: the longer something has survived, the more likely it will exist in the future. But there were three important DeFi developments in 2022 that we believe help inform what investors should expect from the sector in 2023. First, stablecoin activity. The market concluded that the uncollateralized stablecoins experiment did not work well and the opportunity for new stablecoins arose. AAVE's GHO and Curve crvUSD stablecoins are two examples worthy of investors' attention, a sign that there is room in the market for decentralized and *overcollateralized* stablecoins. Also, Tether has converted most of its reserves from commercial paper to US Treasury Bills, providing more transparency and credibility to the collateral backing USDT, crypto's main USD stablecoin.

The second key development this year is the growth of liquid staking, a new solution that offers liquidity to an illiquid asset (staked ETH) by issuing a separate, tradable token that tracks the price of the staked token. Lido, a decentralized liquid staking solution, gained market dominance over centralized solutions (e.g., Coinbase and Binance) in another sign that there is market demand for decentralized and transparent solutions.

The third major development is the importance of economic sustainability. The unfortunate blow-up of the Terra ecosystem highlighted the fragility of uncollateralized stablecoin models as well as the need for more robust and transparent tokenomics within the DeFi ecosystem.

Which brings us to what to watch for in 2023. We believe DeFi solutions will get more fully integrated into traditional finance (TradFi), as we have already seen with JP Morgan, SWIFT, and ATMs in Brazil. Blue chip DeFi protocols with strong revenue (e.g., Aave, Compound, Uniswap) will get stronger on the back of their well-designed tokenomics, as many of them seek out new business models, such as Uniswap is doing with its "fee switch" initiative.

Other areas where we expect growth in 2023 include the deployment of DeFi services in scaling solutions like Polygon and zkRollups, greater diversification of liquid staking alternatives to help the sector expand on many networks, and a growing role for Bitcoin as more DeFi solutions on its blockchain gain traction and interoperability becomes increasingly important.

The lessons of 2022 mean that DeFi protocols will no longer be printing stablecoins out of thin air or offering unsustainable high yields to attract deposits. We expect a more rational and sustainable DeFi landscape going forward, with "real yields" being one of the main themes for 2023. And, of course, regulation will continue to be one of the most important factors in DeFi's development. The establishment of a framework for regulating stablecoins in the US and EU is expected for 2023 and we can't stress how important this will be for the space.

Strategic partnerships may push NFTs to a broader mainstream audience

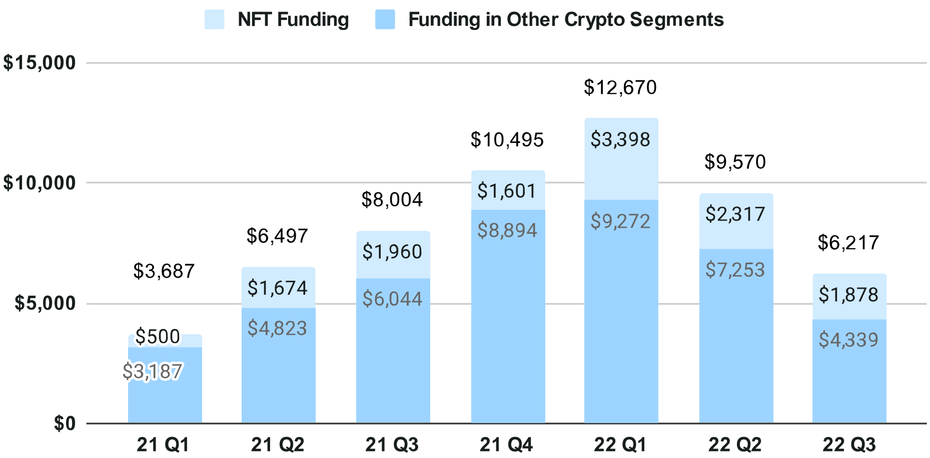
Yuri Alter, Research Analyst

The year in Digital Culture, much like in the Layer-1 segment, has disrupted expectations. Many believed blockchain gaming would be the killer use case to drive mainstream crypto adoption throughout the year, but this was not the case. The euphoria over the price action of gaming-related tokens at the end of 2021 was progressively replaced by disillusionment over the lack of fundamentals and bad tokenomics in most projects.

Axie Infinity—the top prospect in the NFT gaming segment—is in the midst of delivering on its roadmap, with an actual game with a fanbase to show, but its token price and network security struggled in 2022. In contrast, it was refreshing to witness Yuga Labs' multiple storylines throughout the year: Bored Ape Yacht Club, Otherside lands, and ApeCoin were just a few of the company's many successful projects. The development of Yuga Labs' suite of initiatives took place as interest in NFTs remained quite erratic. It's notable that, in a year in which the crypto winter cooled many NFT projects, the company has managed to implement many relevant milestones. We believe Yuga Labs' focus on delivering value to its community has set the bar for NFT collections, and this has been perhaps the greatest lesson of the bear market in the Digital Culture segment: collections that do not generate value tend to have their price crumble in moments of stress and the search for liquidity.

Furthermore, and in a more positive context, we observed a robust flow of partnerships between traditional companies and Web3 players: FIFA with Algorand, Google Cloud and Coinbase, and multiple Polygon deals (e.g., Reddit and Disney) are some of the many closed in 2022, which leads us to believe the use of blockchain technology by large companies will become commonplace. Even Instagram announced it would begin allowing users to mint and sell NFTs directly from its platform, in another Polygon partnership. Finally, the surge of other use cases for NFTs, such as for MLB ticketing, created an encouraging newsflow for the industry.

The evolution of Venture deals in crypto (USD in millions)



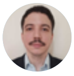
Elaborated by Hashdex Research “with data from Defi Llama (01/12/2022)”

NFT’s have been increasing their dominance in venture funding in crypto.

In 2023, we believe the main trends to watch with greater attention are (i) traditional gaming companies delivering blockchain-based blockbuster products—a prominent factor for optimism around adoption—and (ii) the birth of social media platforms that can use decentralized infrastructure and NFT technology to challenge the current business models displayed by Meta and other big tech companies. The involvement of traditional Web2 top-flight gaming studios in the last two years may finally start to yield results, with better UX and UI and improved gaming mechanics and economic incentives. These are important drivers for potentially propelling blockchain games to stardom.

Additionally, we believe another segment to watch is decentralized social media infrastructure and applications. While the technology required to deliver proper UX to decentralized Web3 experiences is lacking, traditional social media and entertainment companies are also struggling with user experience. Unequivocally, a clash is imminent. In our Digital Culture Primer, we cover in detail the reasons we believe decentralization is a crucial factor for every player-owned ecosystem in Web3. However, the truth is that—at least for now—there isn't empirical evidence to suggest people care about decentralized approaches. Whether or not the mainstream cares about decentralization applications is a question we believe may be answered in part in 2023, as the next wave of Digital Culture experiences and applications take shape.

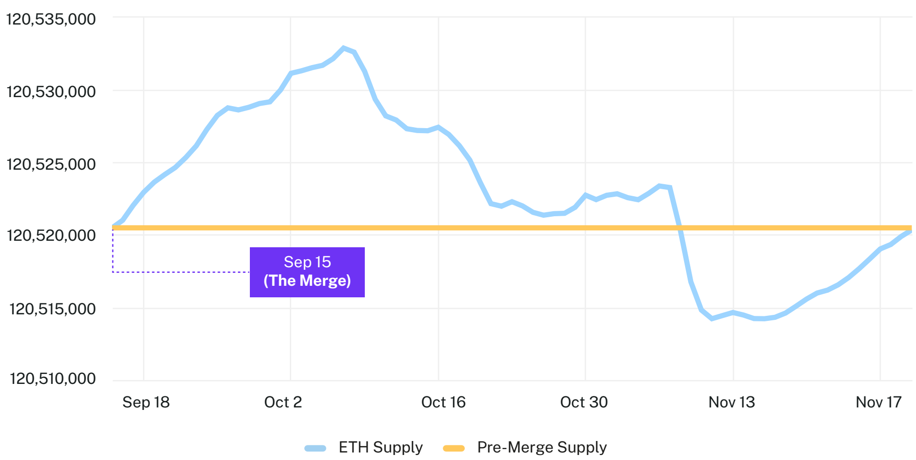
Ethereum: an emerging crypto-native risk-free rate



Lucas Santana, Research Analyst

In a year of risk aversion, ether—the native token of Ethereum—also experienced a significant price drawdown. However, 2022 was one of the most important years in Ethereum's history. After seven years of development, the transition to Proof-of-Stake occurred without a hitch, in one of the most anticipated events in crypto, The Merge. This transition was a remarkable feat, switching gears to a new security mechanism that dramatically decreased the network's energy use (most estimates point to over 99% reduction in annual electricity consumption).

Ether supply post-Merge



Elaborated by Hashdex Research with data from Etherscan (12/01/2022)

The switch to Proof-of-Stake brought a significant decrease in the operational expenses of validators, allowing for a decline in on-chain incentives through ether issuance: post-Merge, there was an issuance reduction of ~87% in comparison to the Proof-of-Work era. And as ether is burned (i.e., taken out of circulation) for every new validated block, the likelihood for its supply to decrease in periods of high network activity has increased significantly after the transition to Proof-of-Stake. The first signs of this new era started to be seen only a few weeks following the upgrade. This year was also marked by the continued rise of access to liquid staking services, with Lido as leader of the pack, followed by centralized exchanges Coinbase, Binance, and Kraken. While this convenience opened the floodgates for far more people to engage in staking, these services currently account for a significant part of the total ether staked, which, even before the Merge, raised concerns regarding validator concentration and the likelihood of network centralization.

The Shanghai hard fork is one the most anticipated Ethereum upgrades in 2023, making it possible for stakers to rotate ether holdings among validators or take profits on staking rewards. This points to a future where Ethereum might become much more decentralized. Furthermore, according to official estimates, 2023 might be the year of shipping for the initial functionalities of sharding, increasing the overall throughput of its base layer and further democratizing the access to network validation.

We are also keeping an eye on how the demand for ether will be influenced by new developments in Layer-2 solutions such as rollups, particularly zkEVM. Likewise, we believe it's worth paying attention to the matter of network censorship on Ethereum, which has been under a thorough examination since the US Office of Foreign Assets Control (OFAC) blacklisted Tornado Cash—an intermediary providing on-chain privacy to Ethereum users—sanctioning a smart contract for the first time in history.

As the data regarding Ethereum's energy consumption post-Merge start to become more widely available, we'll see whether ether will experience increase in interest from institutional investors, since it now powers a vibrant ecosystem built atop an ESG-aligned network. And given the yield-bearing nature of staked ether, 2023 will allow us to track how investors absorb Ethereum's new "risk-free rate" in the midst of macroeconomic uncertainty, as ether's differences to conventional assets are narrowed and more traditional finance tools are used to probe its fundamental value. All in all, there are plenty of things to be excited about with Ethereum, and its outlook looks very promising.

Scalability strengthens old guard blockchains

Yuri Alter, Research Analyst

This year's challenges haven't slowed developments in the smart contract platform niche. Not only did we have one of the major updates in the main blockchain in this space, Ethereum's Merge, but we were also able to observe the rise and development of several Ethereum competitors. Many investors wondered in 2021 whether the Layer-1 market was "winner-takes-all" or if there was space for multiple players (multi-chain). Although much has been promised regarding Ethereum's competitors being able to deliver better scalability, recurring blockchain security issues throughout the year kept these networks on the defensive. There were bridges that faced relentless hacker attacks, impacting Solana, Avalanche, and the BNB Chain. So, at least for now, the "blockchain trilemma" of scalability, security, and decentralization is unsolved.

On a more technical level, it is also worth noting that most of these thefts took place on bridges between blockchains. This compels us to revisit a popular topic at the end of last year: interoperability. The emergence of applications deployed across different blockchains has been a concept that cooled this year. Ethereum co-founder Vitalik Buterin has publicly argued that—while he supports a multi-chain future for Web3—he is not particularly bullish on cross-chain applications due to security fears. According to Vitalik, the incidence of attacks increases as more bridges and cross-chain DeFi protocols are used, so it makes sense that we've had Layer-2s become more relevant given that they seem to deliver the much-desired scalability promised by Ethereum's rival networks but without demanding the use of bridges and compromising base-layer security integrity. While there is much debate around the best scalability solutions, there is significant progress being made. This was on display at the main Ethereum conference in Bogotá, as it was clear many different scalability solutions have been captivating and winning over a considerable part of the crypto community.

So what does all of this mean for investors in 2023? The Merge's aftermath is really the driving force propelling the investment case for Ethereum going into the new year. If 2022 was all about alternative Layer-1s attempting to deliver higher settlement throughput thresholds and without concern for security, 2023 promises to be the year in which the "old guard" of blockchains—namely Bitcoin and Ethereum—become increasingly modular[4] and scale without compromising security, thanks to rollup-based solutions.

State of Rollups by the end of 2022

	SCROLL	Polygon zkEVM	zkSync	StarkNet
Testing Phase	**Private pre-alpha testnet**	**Public testnet**	**Public testnet**	**Alpha mainnet**
Testnet Launch	Q4 2022	Q4 2022	Q1 2022	Q2 2021
Mainnet Launch	2023	2023	Q4 2022	Q4 2021
Open-Source License	Yes	Yes	No	No
Language Support	Solidity	Solidity	Solidity | Vyper	Solidity | Cairo
EVM Compability	Bytecode-Level	Bytecode-Level	Language-Level	Language-Level
SNARK or STARK	SNARK	SNARK	SNARK	STARK

Elaborated by Hashdex Research (12/01/2022)

[4] In a modular structure, the execution layer of a blockchain is independent from both consensus and data availability layers.

Digging a bit deeper into specifics, it's also worth mentioning that the very first zkEVM[5] rollups are starting to release their alpha-versions. This is particularly disruptive given that they will be able to scale up settlements in the most dominant smart contract platform there is (i.e., Ethereum) in its native programming language, Solidity. Ultimately, although new architectures and governance models for bridges are not beyond consideration, the tone for 2023 has to revolve around the development and deployment of these scaling solutions, with their incentive models being one of many questions that need to be answered. Despite this uncertainty, scalability is most certainly strengthening the investment case for Ethereum and Bitcoin.

[5] A zkEVM rollup is a zk-Rollup fully compatible with the Ethereum Virtual Machine (EVM).

Regulatory clarity will accelerate in the wake of FTX

Nicole Dyskant, Global Head of Legal & Compliance

At the start of 2022, crypto investors were pleasantly surprised by the tone of a White House Executive Order seeking to promote the "Responsible Development of Digital Assets." President Joe Biden had published a set of sweeping directives instructing the US federal entities to address the growing relevance of digital assets.

This call to action did little to increase regulatory clarity in of itself. Nevertheless, the order's positive language helped legitimize the digital assets industry and stood in direct contrast with 2021's most relevant regulatory development, China's all-encompassing crypto ban.

The executive order gave way to a framework that was quietly released in September and brought little in the way of concrete changes. Despite this underwhelming result, the White House's clear acknowledgement of crypto's potential was a significant development.

But the collapse of FTX in November is the event that will matter most in 2023. It's unclear exactly how regulators will respond, but given the active role of the FTX founder with US policymakers in particular, there is certainly a new level of skepticism and increased calls for more onerous regulations.

The FTX storm shows, once again, that crypto is a global asset class that needs global regulatory coordination. Regulators were caught flat-footed with FTX's meltdown, and there will be a new push for the regulation of exchanges in particular. We hope the focus is on regulation that requires the segregation of trading and custody service providers, as well as increased market transparency.

With this in mind, we highlighted three developing narratives—each impacted by the FTX fallout—that crypto investors should keep a close eye on in 2023: the classification of cryptocurrencies in the US, the SEC's continued reluctance to approve a spot bitcoin exchange-traded fund (ETF), and the European Union's (EU) Markets in Crypto Assets regulation (MiCA).

The debate surrounding the classification of cryptocurrencies as securities or commodities remains largely undefined in the US. Implications include a series of rules, such as pre-clearance and reporting requirements, as well as whether the SEC or Commodity Futures Trading Commission (CFTC) will wield regulatory power over crypto markets in the US.

Two bipartisan bills of note in the Senate directly address this issue. The Responsible Financial Innovation Act, sponsored by Cynthia Lummis (R-WY) and Kirsten Gillibrand (D-NY), is the more comprehensive of these efforts. The Digital Commodities Consumer Protection Act, sponsored by Debbie Stabenow (D-MI) and John Boozman (R-AR), has a more limited scope. The latter had SBF as its greatest industry proponent and could, as result of his tarnished reputation, face greater levels of scrutiny and resistance going forward. More importantly, both bills put forward frameworks that would classify most crypto assets as commodities and place them under the supervision of the CFTC.

Neither initiative has made meaningful progress through Congress since being introduced earlier this year. The results of the US midterm elections, coincidently falling on the same week as the FTX implosion, could give these bills new life and hope remains high that a bill providing greater regulatory clarity for the US crypto market will be signed into law in 2023.

Beyond Congress and the debate about the classification of crypto assets, the SEC's repeated rejections of applications seeking to create a spot bitcoin ETF is likely to be a focal point for crypto investors. Many analysts believe the launch of a spot bitcoin ETF would represent a watershed moment for crypto adoption. However, SEC Chair Gary Gensler remains steadfast in his opposition to the creation of such an investment vehicle.

According to the SEC, all spot applications have thus far failed to demonstrate that a significant amount of bitcoin trading occurs on a regulated market, among other requirements. The Wall Street Journal published an opinion piece in July describing Gensler's refusal to approve a spot bitcoin ETF as "taking investors hostage," explaining that "until crypto exchanges register with the SEC, he (Gensler) won't authorize spot bitcoin ETPs."

Pressure is likely to continue to mount on the SEC and its chair in 2023, as the regulator may be forced to justify his uniquely prohibitive stance on spot ETFs in court. With Republicans taking control of committees of jurisdiction in the US House of Representatives, this pressure will grow.

In Europe, investors spent the better part of 2022 monitoring the progress of the Markets in Crypto Assets regulation (MiCA), the EU's landmark regulation for crypto assets. The initiative's scope includes rules for the issuance and offering of crypto assets, rules for stablecoins, and requirements for crypto asset service providers.

MICA's Goals

- Legal Security
- Support Innovation
- Consumer and Investor Protection
- Financial System Stability

The initiative strikes an appropriate balance between necessary regulation and the regulatory breathing room needed for innovation. In June, a provisional agreement was reached between the European Parliament and Council. A final draft of MiCA was published in October, but the definitive vote on the matter is likely to occur in early 2023. Regardless of the exact date of MiCA's signing, most points of dispute initially found in the bill have been ironed out, opening the way for greater regulatory clarity for a jurisdiction with nearly 450 million citizens.

Many other positive regulatory initiatives, from Latin America to Asia, are likely to progress in 2023. These may have a more limited impact on adoption and the demand for crypto assets, but also contribute to positive global regulatory outlook for 2023.

Crypto has matured into the mainstream and evolved from a niche investment to an asset class that can't be ignored—in good times or bad. In 2023, we believe regulatory strides will be made to reflect the reality that crypto assets are here to stay, and solid public policy is needed to ensure that investors are protected from bad actors.

Regardless of how regulators respond to the FTX situation, crypto is a space that will continue to develop in an uncertain regulatory environment. We believe this is natural for an emerging asset class in its early days of adoption, and believe investors should not look for regulation providing a silver bullet that will allow the industry to grow unabated. To that end, we continue to engage with policymakers globally to educate them on this asset class and will continue to encourage a dialogue between the industry and policymakers into 2023.

Crypto will benefit from more “ordinary” macro conditions

João Marco Cunha, Portfolio Manager

To understand what crypto investors should expect from the macro environment in 2023, we must launch ourselves into the dark science of futurology. But before doing this, we need to understand the main events of 2022. And, to understand what led us to this unusual year, we have to rewind the tape a little more to 2020.

After nearly a decade of low (or negative) interest rates, strong economic growth, and controlled inflation in developed countries, a new paradigm shook the globe in March 2020. The COVID-19 pandemic triggered several economic consequences: lockdowns and other health-focused measures, global supply chain disruptions, and rising protectionism created a huge negative supply shock as governments and monetary authorities launched unprecedented fiscal and monetary expansionist policies.

By mid-2020, some prominent financial market professionals, including Paul Tudor Jones, were calling attention to the possibility of an impending major inflationary outbreak—and then it happened in 2021. Fueled by a surge in commodity prices, inflation around the globe started climbing while central bankers from developed economies kept their weapons down.

Then 2022 arrived and proved that nothing is so bad that it can't get worse. The war between Russia and Ukraine exploded, commodity prices skyrocketed, and new lockdowns in China due to its zero-COVID policy created an additional burden on global supply chains. The inflation acceleration forced central bankers to react by raising interest rates and using other monetary tightening tools. But, on the other hand, there were some concerns about the possibility of recession.

This severe macroeconomic situation led to a terrible year for most financial assets. The S&P 500 and Nasdaq 100 were down over 15% and 27%, respectively, through December 2. In Europe, the only country where the main stock index didn't experience a double-digit drop was the UK (FTSE -7.6%). The main indices in Asia also struggled, with the Nikkei 225 down 18.5% and the CSI 300 down more than 27% this year.

The damage also reached other asset classes. Bonds, which usually perform well when stocks are down, had a very negative year. The same happened to real estate and even gold.

In this scorched-earth scenario, crypto assets had a very hard time. Bitcoin plunged more than 60% and many smaller coins fell even more. As we explained in our May Monthly Letter, the correlation between crypto and traditional assets has been positive since the COVID-19 crisis, but it reached record levels in 2022. In an article I wrote for Cointelegraph, I used a simple econometric model to show that the vast majority of crypto´s drawdown was caused by the macro crisis, either directly or indirectly. "Don't cross the river if you can't swim the tide," as the band America sang in their hit song. This year's tide was too much for crypto assets.

NCI Performance (USD) YTD -64.7%

Elaborated by Hashdex Research. As of November 2022.

So, what exactly can we prophesize about 2023? I think there are four credible considerations:

1. There are some major threats ahead, especially on the geopolitical front, but we can expect 2023 to be a more ordinary year when compared to 2022.

2. Inflation will continue to play a significant role in asset prices. Although inflation is expected to decline over the next year, divergences between expectation and reality can have a huge impact over the markets.

3. Crypto won't decouple from traditional risk assets. It is unlikely that correlation returns to the high levels (above 0.8) recorded in mid-2022, just as it is not reasonable to expect the uncorrelated behavior observed before the pandemic. The most likely scenario is a moderate positive correlation.

4. It would be natural that crypto recovers faster than traditional assets, as it did in 2020, but a scenario where crypto climbs while traditional assets slip is not plausible.

Growing is a painful process. And crypto is no longer a tiny, niche investment. It's a "teenager" asset class with a significant portion of institutional investors exposed. For better or for worse, crypto will react to the same shocks in risk aversion or preference for liquidity as traditional risk assets. In the long term, we are confident that the promising investment thesis presented in this report will mature and reward early investors generously. Nevertheless, in short periods like one year we can't neglect the influence of the macro environment.

Ultimately, we anticipate that 2023 will be a remarkable year for crypto assets, as long as macro conditions stop weighing down the asset class.

Glossary

Algorand - A Layer-1 smart contract platform that focuses on decentralization. This blockchain platform uses a variant of the Proof-of-Stake (PoS) consensus mechanism known as Delegated Proof-of-Stake (DPoS), that uses random validator selection to ensure the process is decentralized. Its native token is called ALGO.

ApeCoin - A cryptocurrency associated with the NFT project Bored Ape Yacht Club (BAYC). ApeCoin owners can join the ApeCoin decentralized autonomous organization (DAO) and vote on proposals about future projects.

Avalanche - A Layer-1 smart contract platform that focuses on transaction speeds and scalability. This blockchain platform uses a PoS variant and its native token is called AVAX.

Blockchain Trilemma - The long-held belief that decentralized networks cannot provide all three of their main benefits (decentralization, scalability, and security) simultaneously.

BNB Chain - A Layer-1 smart contract platform created by Binance, the largest crypto asset exchange in the world. Its native token, BNB, is used to pay for transaction fees on Binance.com, Binance DEX, and Binance Chain.

Bored Ape Yacht Club (BAYC) - A collection of NFTs launched by Yuga Labs on the Ethereum blockchain. BAYC owners have access to a private online club, exclusive in-person events, and intellectual property rights. BAYC is one of the most valuable and widely known NFT collections.

Bridge - An interoperability tool that links two distinct blockchains and allows the transfer of information and tokens between the networks.

Cross-chain - The term that describes the movement of information and tokens between two distinct blockchains.

Decentralized exchange (DEX) - A peer-to-peer marketplace where users directly trade one token for another and provide liquidity in exchange for transaction fees independently of an intermediary.

Digital Culture - The digitization and tokenization of cultural experiences and artifacts including the metaverse, NFTs, gaming, and music.

Layer-1 - A blockchain that serves as the base layer for a crypto ecosystem and is responsible for on-chain transactions.

Layer-2 - A parallel network that serves as a secondary set of off-chain solutions built on top of an existing blockchain system to reduce bottlenecks and offer greater scalability.

Lightning Network - The network built on top of Bitcoin's blockchain that allows off-chain transactions with increased transaction speeds and lower transaction costs.

Liquid staking - The form of staking where depositors receive a token which can be used to redeem the original deposited asset, locking up funds without losing access to the value of these funds, and having a liquid asset that can be used in other applications such as DeFi.

Multi-chain - The term that describes projects that span multiple networks.

On-chain incentives - The incentives provided to miners (validators) who mine (validate) blocks.

Otherside - A gamified, interoperable metaverse currently under development by Yuga Labs. This NFT-based game aims to blend mechanics from multiplayer online role playing games and Web3-enabled virtual worlds.

Polygon - A suite of scalability solutions composed of a sidechain and multiple Layer-2s built on top of the Ethereum blockchain in order to increase transaction processing speeds and reduce transaction costs to end-users.

Proof-of-Stake (PoS) - A blockchain consensus mechanism for processing transactions and creating new blocks. In this system, validators deposit tokens as a form of collateral to operate their own validator nodes.

Proof-of-Work (PoW) - A blockchain consensus mechanism for processing transactions and creating new blocks. In this system, miners compete to be the first to validate blocks of transactions by solving complex mathematical puzzles.

Protocol revenue - The revenue generated by crypto projects from fees that are returned to the protocol and holders of its related crypto asset.

Rollups - A blockchain scaling solution that increases throughput by "rolling up" transactions into a single piece of data that is then submitted for processing on the blockchain.

Shanghai hard fork - An Ethereum update expected in 2023 that will enable the withdrawal of staked tokens and intends to increase scalability, lower transaction costs, and make improvements to the Ethereum Virtual Machine.

Sharding - A scaling technique that separates large databases into smaller, more manageable parts to increase processing speeds.

Smart contract platform - A blockchain that serves as a framework for building decentralized applications and various types of tokens.

Solana - A Layer-1 smart contract platform that focuses on transaction speeds and lower fees. This blockchain platform uses a variant of PoS known as proof-of-history (PoH), which uses hashed timestamps to verify when transactions occur. Its native token is called SOL.

Solidity - The programming language created specifically for Ethereum that is used for constructing and designing smart contracts on the blockchain.

Staked ETH - A token that represents a staked ETH token.

Tether - A stablecoin with tokens (USDT) that are pegged 1-to-1 to the US dollar. Tether is the largest stablecoin by market capitalization.

The Merge - The upgrade to the Ethereum blockchain that changed its consensus mechanism from PoW to PoS, reducing the network's energy consumption and decreasing appreciably the issuance of ETH.

Tokenomics - The supply and demand characteristics of a crypto asset, including its utility, burn rate, distribution, and other factors.

Total Value Locked (TVL) - The total value of all assets locked into a decentralized finance (DeFi) protocol. It is a metric often used to measure a DeFi protocol's growth and adoption.

Validator - A node that processes and validates transaction blocks in blockchain networks.

Web2 - The current stage of the internet that is defined by interactivity, social connectivity, and user-generated content.

Web3 - A proposed evolution of the internet that will be defined by decentralization, open source software, the absence of a trusted intermediary, and permissionless participation.

zkEVM - A Layer-2 scaling solution fully compatible with the Ethereum Virtual Machine (EVM).

zkRollups (zero-knowledge rollups) - A Layer-2 scaling solution that proves off-chain computation without publicly disclosing sensitive or unnecessary information.

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