

[Transcript] FYI - For Your Innovation / Big Ideas Monday Mini: Public Blockchains

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This annual research report seeks to highlight the technological breakthroughs evolving today and creating the potential for super-exponential growth tomorrow.

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Hello, everyone.

Welcome to Big Ideas 2023 Crypto Edition.

My name is Yacine Alondra.

I'm ARC's crypto lead and have the pleasure of being joined by Frank Downing, ARC's director of research for Next Generation Internet.

We're really excited to dive into this year's crypto big ideas research, especially in light of all of the turmoil that's happened this year.

I think there are a lot of silver linings that we want to highlight and reiterate that our long-term conviction has not wavered.

Without further ado, let's dive right in.

2022 was a year of turmoil and contagion that wiped out \$1.5 trillion of crypto market capitalization, really starting with the largest algorithmic stablecoin, UST, in the middle of the year around May, that broke its peg to the dollar and triggered a death spiral that led to the collapse of LUNA, the largest layer one blockchain failure in history.

Now, the LUNA Terra collapse catalyzed a massive unwinding of leverage across the entire ecosystem

that started with a bank run on Celsius and the insolvency of high-profile fund, Three Arrows Capital, and culminated in the bankruptcy of crypto exchange FTX, lending platform BlockFi, and broker dealer Genesis.

Now, FTX is insolvency in particular, really was one of the most damaging events in crypto history, potentially worse than the 2014 Mt. Gox Hex, and it was caused by one of the revered leaders of the industry, Sam Bankman-Fried, and really impacted crypto's reputation and many believe delayed adoption by at least a few years.

Now, since the creation of this slide, the market has recovered and we believe that the worst is behind us, but nonetheless was a testament to some of the risks that a lot of centralized counterparties took and some just gross negligence and mismanagement on behalf of the entire

industry.

Amidst the uncertainty and glue, there were a few silver linings.

The way that we kind of delineated that is red is we believe to be a bearish event and green a bullish event.

And we saw this year, despite some of the contagion, some positive notes, including Ethereum's successful transition to proof of stake after years of anticipation, a partnership that was announced between Coinbase and BlackRock to onboard institutions into crypto.

And as we'll get into in the Bitcoin section, many of Bitcoin's fundamentals have not skipped a beat with hash rate, a proxy for network security hitting an all-time high and really showing Bitcoin's ability to withstand uncertainty thanks to its openness, transparency, and unauditability.

Now, during these crises in particular, especially the one that we saw in 2022,

I think it's important to reiterate ARX's views on the long-term promise of public blockchains and that they have not wavered, and if anything, that they've strengthened.

2022, we believe, was a year that purged bad actors and ultimately will enhance the health of the crypto ecosystem with more transparency and decentralization in the long term.

And I think it's of particular importance to note that the very cause of much of this turmoil had little to do with the underlying public blockchains themselves and everything to do with really complete mismanagement and lack of transparency from the centralized operators.

And so the way that we delineate the opportunity in crypto, which was first introduced in our Big Ideas 2022, has not changed. The revolutions we believe are emerging across money, finance, and the internet, and as we'll get into, are very much still alive.

Now, beginning with the monetary revolution, Bitcoin has introduced a novel form of self-sovereign censorship-resistant money that's disrupting the world of fiat currencies and central banks.

And in the financial revolution, public blockchains like Ethereum are facilitating the coordination of financial services and contracts outside the purview of traditional financial institutions.

And finally, in the internet revolution, often referred to as Web3, public blockchains are facilitating the coordination of identity, reputation, and data outside the purview of traditional media, conglomerates, and big tech. Now, let's spend some time diving into each of these revolutions and starting with the monetary revolution, in this case,

Bitcoin leading that monetary revolution. I think the opportunity for Bitcoin has never been more compelling, especially the long-term opportunity. When you look at traditional centralized monetary systems that continue to fail to provide strong economic assurances with billions of people around the world still unable to freely and openly transfer and store and own their wealth and value, over 4 billion people live under authoritarian regimes, over 2 billion people suffer from double-digit inflation. Enter Bitcoin, which has fundamentally shifted how a system distributes trust by replacing the intermediary with decentralized open-source software. So in Bitcoin, anyone can transact with the only requirement being possession of a private key. It is censorship resistant as an asset. It's also a strictly scarce asset with a mathematically metered and predictable supply schedule that's capped at 21 million units. It ensures independent property rights through elliptic curve cryptography, making it a seizure-resistant asset, which is particularly important for individuals who live under authoritarian regimes where property rights might not be as strong. And most importantly, Bitcoin is auditable and transparent, where the rules of the network are clearly defined and available for all to scrutinize and understand.

And I think that in light of much of the contagion that we saw in 2022, which was a function of opaque operations, this property has just shown why it's so important and how important it is to Bitcoin's resilience overall. Now, it isn't until you really look at some of Bitcoin's network stats, which you'll see on the bottom left of this slide, that you can fully appreciate just how alive the network is. In 2022, in all of the turmoil and all of the selling pressure, Bitcoin settled nearly \$40 trillion of value on the base layer across 100 million transactions. When you compare that to Visa's annual settlement volume of approximately \$13 trillion, that really puts things into perspective. It's just how large of a settlement network Bitcoin has become. 147 million new addresses were created on this network this year, of which nearly 4 million had a balance, and miners generated roughly \$10 billion in revenue. So these are really just a few network stats, and we'll get into this more detail in the Bitcoin focus section, but often these stats get buried in the depths of the bear market when the media is often reporting on some of the short-term contagion ripple effects that we saw. So while Bitcoin and the monetary revolution do remain the most profound, both the financial and internet revolution have also proven to be highly resilient amidst this uncertainty. So to talk a little bit more about the financial revolution, I think this is another area where our conviction has only increased throughout last year. To set the context, more than 2 billion people lack access to basic banking services, and traditional financial institutions are filled with opaque practices. There are many intermediaries, and that causes high levels of counterparty risk. And when we look at what happened throughout 2022, particularly the collapses of Celsius, three-epochs capital, and FTX, we see no fault of the underlying blockchains in those collapses, but rather issues that look more like traditional financial crimes and risk mismanagement. On the side of Celsius, they were offering under collateralized loans, and that full risk was not disclosed to those providing capital into their lending markets. And when you look at FTX, that was a scenario where a central custodian in exchange was committing fraud and not holding user balances one-to-one. We think DeFi, financial services that are deployed directly on public blockchains and enabled through smart contracts, can actually provide a solution here. These smart contracts are automated and rules-based. They cannot be overridden. All balances and rules are auditable and transparent and can be monitored in real time. And DeFi is global by default, and we think has the ability to increase access to financial services broadly. And we think the data supports some of this potential. If you look from 2020 to 2022, total trading volume in DeFi went up 12-fold, and this actually increased during events like the FTX collapse where decentralized trading volume as a percentage of total trading volume increased by 52%. And we think this is because traders looking at what DeFi offers, the ability to maintain self-custody and fully transparent holdings and visibility into liquidity pools, etc., actually was a safer place to trade than holding assets on a more risky international exchange like FTX. On a similar note, we saw \$9 trillion in stablecoin transfers throughout last year, which is more than Mastercard, AmEx, and Discover all combined, and getting close to that \$13 trillion of settlement volume that you've seen mentioned for Visa. And we think these trends are only going to continue in the years to come as DeFi broadens and scales. Looking at the next revolution, we're also excited about Web 3 and what it's doing to the internet at large. We think new technology enabled by public blockchains like NFTs is bringing ownership to the internet for the first time, and we think this could have

massive implications. If you look at the world of Web 2, data is controlled by large tech giants that own and monetize user data. With the invention of NFTs, users can own their data for the first time, and we think that will enable new monetization methods, new community creation methods that can really shake up how we use and interact with the internet every day. Well, this is the, I would say, the newest and least mature of these three revolutions. We think there's early signs of potential building here. If you look at online digital IDs, 5 million have been minted humanly across the Ethereum name service and unstoppable domains. Access to a decentralized

ID is really the building block for wider access to financial services and the creation of social graphs deployed directly on chains. NFT trading volume increased year on year in 2022, up 15%. While most of this happened in the front half of the year before markets really came crashing down, as you'll notice in our digital consumer section, the marginal NFT created shifted from speculative profile picture projects that were really just traded around speculation to utility-based projects like these digital IDs. And we're seeing major brands ranging from Starbucks to Nike and social networks like Instagram and Twitter all releasing NFT capabilities and initial NFT use cases. So we're really excited to see how this technology will evolve in the future and really disrupt the way that we approach and interact with the internet day to day. Fundamentally, we think public blockchains are enabling the creation of a new asset class in crypto assets that will both rival and redefine the traditional asset classes that we know today. All in, we think this is a \$25 trillion opportunity across cryptocurrencies and financial and internet services created around smart contracts. And we encourage you to check out our Bitcoin and smart contracts and digital consumer sections of Big Ideas to learn more about those individual forecasts. And with that, thank you for tuning into this public blockchain section of Big Ideas. If you'd like to learn more, see this deck and those others that I mentioned, you can check out our website, www.ark-invest.com.

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