



# CRYPTO THESES



KEY TRENDS, PEOPLE, COMPANIES, AND  
PROJECTS TO WATCH ACROSS THE CRYPTO  
LANDSCAPE, WITH PREDICTIONS FOR 2023.



0.0

## WELCOME

Hello frens!

It's been a year. I was masochistic enough to write another annual report. It is my pleasure and pain to present for the sixth year in a row, the Messari Theses for the year ahead.

This report started as a tweet thread on New Year's Day in 2018. Along with the rest of the crypto industry, the Theses has exploded in size and complexity ever since. I write it because it highlights the amazing work the Messari team has done throughout the year, and it helps me update my own mental models for crypto. And I write it for our customers, new and old. Whether you are a crypto novice or a multi-cycle veteran, I hope you can glean some interesting tidbits from this 201-level crypto crash course.

As usual, a couple of disclaimers before diving in:

1. This report is free, but nothing herein is investment advice (for all the legal yada yada my lawyers made me include, see the disclaimers section of the Bonus chapter).
2. I stand on the shoulders of giants. I borrow liberally from other authors when they write something more insightful than I can deliver. I link and cite others frequently, but any accidental plagiarism is unintentional and will be corrected promptly. The price of speed is a looser edit, but I work hard to link to primary sources and get this polished.
3. Transparency matters. I have made angel investments in some private projects discussed in this report. **Any personal investments in public tokens that are referenced are marked with a star** ✨. My core public holdings have been confined to BTC and ETH this year (and lots of USDC).

You'll notice a couple of important differences between this report and last year's.

For starters, this one is (slightly) shorter. The crypto markets have consolidated, and I have concentrated on the themes of greatest – and at times, existential – importance. There's still plenty of content on the new, exciting toys, but I will assume some prior knowledge and link frequently to last year's report or our analysts' [excellent research](#) when it comes to explainers.



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The macro and political backdrops are much different today than they were twelve months ago. I wrapped up the 2022 report when interest rates were near zero, and crypto markets and the S&P sat at all-time highs. We didn't have a single proxy war with a nuclear-armed adversary! And we had Democratic leadership in both chambers of Congress.

Portfolios are down 80% since then. Crypto startups are (sometimes) required to have business models before VCs cut checks, and nine figure checks might (maybe) begin to include board oversight. The separation of money and state feels inevitable as countries are getting canceled. Real policy is taking shape in DC, and the outlook for regulatory progress is somewhat rosier.

Is this the dark before the dawn, or the beginning of a long Arctic winter?

I believe in crypto.

Bitcoin and Ethereum seem to be on long-term stable ground. DeFi will take major strides forward next year. Privacy tech will be promoted as an integral part of the future of public blockchains (or get de facto banned on dystopian and vague "national security" grounds). Infrastructure investments around code security, decentralized hardware, virtual worlds, custody, protocol governance, and blockchain scalability are all in vogue. There will be less NFT speculation. Fewer moon fumes.

I will probably spend more time in this report deconstructing crypto policy than you would like, but I'll make fun of important people along the way to keep it zippy.

Once again, this beast took me 200 hours to write. That's a lot, but it's also down about 20% from last year. I thank the Messari analyst team for those cost savings. They write good stuff daily for Messari Pro subscribers, and [you should sign up](#). If you're an institution or crypto startup, stop missing key insights: our Enterprise-level offering give your company the research and data tools you need to save more time, energy, and long-term compliance costs on day-to-day crypto work.

In 2022, Messari tripled our team size and revenue in a down market. We closed a Series B, launched several new products ([Asset Intelligence](#), [Protocol Metrics](#), [Data Apps](#)), and doubled the size of Mainnet 2022 in NYC. We're still hiring. Come with me if you want to live.

Every year, people ask me how I write all this stuff in such a short amount of time. Mostly, it's a labor of love. I am grateful to have the opportunity to build in this industry, and we appreciate the builders who have supported us through thick and thin. This report is a token of appreciation.

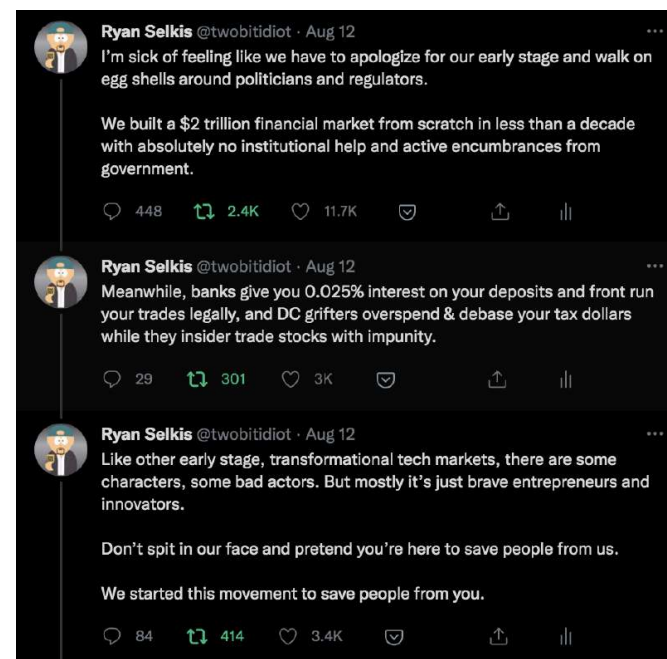
But if I'm being honest, there's also a certain amount of rage that fueled this report. The bad actors have gotten all of the oxygen this year, and set back the good actors and years of progress that they had made.

I hope The Theses shifts the focus away from the frauds and the tourists, and back to the pioneers. I wrote this in the pioneers' defense.

Cheers,  
Ryan (aka TBI)

P.S. Here's a good thread that synthesizes how I feel about crypto today. For your friends that don't have the attention span for this book. Or if you prefer a single screenshot:

## 0.1 War Time



(This was written in five minutes one summer night in 2021. It remains my North Star.)



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BOOK ONE

# WHAT H-A-P-P-E-N-E-D IN 2022

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## 1.0

### TOP 10 NARRATIVES & INVESTMENT THEMES

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## 1.0 Intro

Last year, I thought “Web3” was a good all-encompassing term that captured cryptocurrencies (bitcoin and stablecoins), smart contract computing (Ethereum and other “Layer-1’s”), decentralized infrastructure networks (video, storage, sensors), non-fungible tokens (digital identity and property rights), decentralized finance (financial services to swap and collateralize crypto assets), the metaverse (the digital commons built in game-like environments), and community governance constructs (decentralized autonomous organizations).

We’re down 80% since then. Ever since we pivoted to the Web3 moniker, there’s been industry-wide carnage. So I recommend we retire the term.

We need to get “Back to Crypto” in 2023.

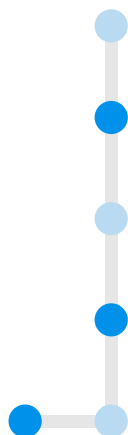
- More personal wallets (from my cold dead hands) than exchange margin accounts (bad)
- More privacy (none of your business what I do) than institutional adoption (slowww down)
- Permissionless financial & social applications (live and let live) vs. ponzinomics (fraud)

If you’re new to crypto, I also recommend you check out *Bloomberg* Reporter Matt Levine’s recent Crypto 101 masterpiece (that was recently published [as an entire BusinessWeek issue](#)). Building off of Matt and the prior Messari works has freed up my headspace for more new, original content, without leaving newcomers in the dust.

It makes sense to start with a recap of last year’s introductory “Narratives & Investment Themes” chapter and see what held up. How did last year’s report do under the stress test of an 80% decline in prices and an absolute bloodbath for crypto startups?

Pretty, [pretty good](#), actually.

Here’s what happened in 2022, and what’s in store for 2023.



## 1.1 Winter is Here: It's Time to Build

Last year, I started out with a bang:

*“My first prediction for 2022: things will get worse before they get better in the “real” world. Inflation will remain above 5% throughout 2022 (70% confidence), while late year interest rate hikes stall the stock market’s momentum and hurt growth stocks (60% confidence the S&P dips next year)...Though I waffle on where we are in this particular cycle, the tail winds remain strong and the capital markets flush. So my probabilities are split among three scenarios: 1) most likely, we experience a blow off top before the end of Q1 2022, followed by a shallower, but still painful multi-year bear market...Ironically, the most bearish case here (Q1 blow-off top) may be the most bullish long-term.”*

That’s more or less what happened. And the speculative mania is now behind us.

A lot of people lost money in 2022. Some poorly managed companies went under (normal in capitalism, pre-2008). But many of the survivors are well capitalized and shipping product. The core theses generally remain unchanged, and now we’re left with true believers and long-term builders – fewer gamblers, scammers, and tourists.

I live for the build years.

We can focus on building life rafts for those worried about inflation and currency debasement; “exit” technology that helps people vote against two party systems and authoritarian rule alike; and decentralizing solutions that check the incumbent powers in tech, finance, and government.

The core substance of crypto hasn’t changed: in a world where few, if any, of these institutions are viewed as both competent and ethical ([a16z: How to Win the Future, slide 8](#)), crypto offers a third path that seems increasingly credible, despite its volatility.

Need a globally accepted asset that you can store in your head “just in case” you need to emigrate from a failing country? There’s Bitcoin. How about a platform that routes your app around Big Tech censors? There’s Ethereum and a multitude of emerging Layer-1 (“L1”) protocols. Can’t access credit? There’s DeFi. Hate 30-50% take rates for artists? NFTs. Trying to fund research for your own rare disease cure? DAOs.

This isn’t boosterism. Even *Bloomberg*’s [Matt Levine](#), a crypto skeptic, sees the potential:

*“Perhaps this is all a self-referential sinkhole for smart finance people, but honestly it would be weird if that’s all it ever turned out to be. If so many smart finance people have moved into the crypto financial system, if they find it so much more enjoyable and functional and productive than the traditional financial system, surely they’ll eventually figure out how to make it useful.”*

The debate doesn’t really center around whether crypto could be good these days.

Like most other areas of tech, crypto can be great or it can be abused. It all depends on the specific product, the ethos of the builders, and the rollout strategy.

If tokens help solve the “cold start” problem of network effects-reliant businesses in their battle to disrupt incumbents, that’s a good thing. Good token designs will look more like growth capital than seed funding. (My litmus test has always been: does this token create an early user base and improve the product, or does it primarily reward the founders and VCs?) Tokens only work in markets where network effects could exist. Otherwise, you’re transparently partaking in a multi-level marketing scheme.

Do the knives get better when Cutco sells more of them? No. Most people lose time and money getting sucked into the machine, and it’s annoying to friends.

Does a crypto product get better when more people are added, in terms of liquidity, user interactions, and/or application interoperability? Yes. If a token can accelerate a product’s time to usability, and reward its beta testers, it’s a powerful tool.

Let’s build more powerful and sustainable tools this winter.

## 1.2 Crypto is (Still) Inevitable

It’s easy to be bullish in times of euphoria. But you only see who’s got staying power when the tide goes out. It’s been a bad year in many respects, especially for the greedy, the levered, and the unethical.

The long-term builders may have been temporarily hurt by association, but they haven’t been the ones who perpetuated frauds or fleeced investors. These innovators (open-source software and infrastructure developers) will be here long after the trash (opaque lenders, trading bucket shops, ponzi-like promoters, “genius VCs,” and paid hype men) from this cycle are long gone.

And good riddance! (We’ll talk all about the crypto credit bust in Chapter 3 on CeFi.)

Beneath the wreckage is a stronger foundation than we’ve ever had before: \$10s of billions in capital, an influx of world-class talent, four years worth of demographic change towards digital natives, and dozens of “zero-to-one” innovations in crypto scalability and application primitives.



Crypto remains inevitable because we’ve made significant progress in the build-out of bitcoin, stablecoins, distributed computing, blockchain scalability, decentralized financial primitives (DEX, lending, asset issuance), and governance structures.

These innovations will not be uninvented.

Bitcoin has entered its “historic buy” range by several measures. Stablecoins now represent four of the top ten crypto assets. Their [volumes](#) rival global [card networks](#) and banks, and they can actually generate \*sustainable\* yield now that the true risk-free rate of return (U.S. Treasuries) is above zero. [The Merge](#), the software equivalent of the Moon Landing, went through without incident, and other Layer-1’s like Cosmos, Solana, and various rollup chains made significant breakthroughs as well. Fees are way down as a result!

We’re two years into a secular bear market for DeFi, which still faces technical headwinds (hacks) and



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regulatory challenges, but the core primitives (Automated Market Makers, Flash Loans, Protocol Controlled Value, etc.) are all here to stay. NFTs are data wrappers that open the door for secure sharing or transactions of any intellectual property, synthetic asset, consumer digital good, or identity token on-chain. They may look like toys to start, but they are almost unfathomably important as a technical primitive. We now have true DAOs, with on-chain voting, delegation, and community treasury management. These entities cross borders and allow for the rapid formation and wind down of online communities and collectively-managed property. We may be in crypto's 3rd inning, but DeFi, NFTs, and DAOs have barely stepped into the batter's box.

Don't get discouraged. The dream lives on.

### 1.3 Surviving Winter, Redux

You heeded my advice last year, right anon?

At the absolute height of the bull market, I wrote about what exactly would happen in a crypto winter, and warned that the medium-term concern for me was "From what height do we crash?" even if I was neutral in the short-term and mega-bullish in the long-term. I've lived through multiple crypto winters and warned that many would lose faith amidst a multi-year grind lower in asset prices, stark political and regulatory headwinds, and stagnating user enthusiasm and product demand.

I take no pleasure in saying I told you so, but...

*"In addition to eating big paper (or real) losses, you'll see people have breakdowns, go bankrupt due to over-leverage (or poor tax planning), quit otherwise promising projects, turn nasty, depressed, or apathetic, and generally lose sight of the longer-term potential of crypto. To make matters worse, the next bear market will be a regulatory nightmare, and we won't have the bull market vibes to help defend ourselves against all of the consumer protection, fraud and abuse, systemic risk, ESG, and illicit activity FUD that our enemies will throw at us. At the same time, the "grassroots" crypto herd will thin because it's tougher to wage war when you've lost 90% of your savings and need to go find a real job again."*

Do you still believe?

If you're reading this report there's a good chance that you do, but are now wondering how best to [navigate a prolonged winter](#). The answer is as simple as it is challenging and unglamorous:

Build!

In many respects, it's easier to build in bear markets than bull markets. There are fewer distractions, real product-market fit becomes easier to identify without the noise of a token, and the weak and flaky contributors wash out of the market.

There's also a big difference between this crypto winter and previous cycles: dry powder. In 2015, cash was hard to come by, and even some of today's industry leaders struggled to raise capital at the time

(Kraken and Chainalysis are two unicorns that come to mind). In 2018, there were a few crypto curious investors, but many of the projects who raised money via ICOs had squandered their balance sheets by holding ETH through a 90%+ decline.

There are bridges to build, standards to set, primitives to develop, users to onboard, infrastructure to stress test, and product stories to tell.

There's no rest for the weary, and if you played your cards right, you unwound levered bets, paid your taxes, didn't get greedy day trading, and parked some assets in cash for a rainy day. You're probably feeling ok right now, despite the market backdrop. We'll survive and advance and look back on this year with pride, because we survived.

What else would you do, anyway? [Go work in a bank?](#)

### 1.4 How Low Can We Go

Last year I asked, "doesn't it just *feel* a little topy?" and tried to show people just how far ahead of our skis we were getting when it came to crypto asset prices, and how close market caps were getting to what looked more like 10 year TAMs. The drivers of asset prices were blinking "sell" but many of us just couldn't help ourselves.

Let's flip the script this year, and ask, "how much lower can we go?"

**1. Bitcoin:** My favorite metric for BTC from cycle-to-cycle has been [Market Value to Realized Value \(MVRV\)](#). It has been nearly infallible as an indicator for how hot or cold the market has gotten. This simple ratio looks at current price times supply (market cap) versus the cumulative "realized" value of "free float" coins (those that have moved in <5 years) at the price at which they last moved on-chain. Market cap can stay the same when realized value spikes and vice versa. It's a dynamic measure that accounts for flow. An MVRV that hits 3 has meant "sell right now" and a MVRV below 1 has meant "start accumulating" for crypto's entire history for BTC.

Where are we now? January 2015. December 2018. i.e., Sell-a-kidney-to-buy-more territory.







(Source: [Look Into Bitcoin](#))

BTC is beginning to act more like a credible neutral reserve asset (we'll talk about this "outside money" concept more in the Bitcoin section). From both a MVRV and risk return standpoint, BTC seems a bit more attractive today. Bitcoin's parity with gold would yield a 25x return, so there's a lot to like in adding a 4% position in digital gold for every ounce of gold you buy. At today's prices, bitcoin-gold parity would bring us a \$500,000 bitcoin.

**2. Ethereum:** Is ETH a tech platform or distributed bank? A little bit of both, perhaps, but I'd argue the network is more comparable to the latter. The best comparisons to Ethereum on the tech side might be to AWS, Google, and Microsoft. After all, the protocol is a virtual machine and "world computer." But its economic drivers (MEV and transaction fees), and unit economics (financial services' basis points vs. cloud margins) make it look more like Visa or JPMorgan. There's nothing wrong with that! Ethereum is already a top five financial platform if you look at financial services, and ETH has become a [disinflationary asset](#) with its Merge to Proof-of-Stake, minimizing the dilutive impact holders will experience going forward.

The question is whether you think there is enough real value flowing through the Ethereum platform today and in the medium-term to justify a 5x in valuation that would catapult the asset beyond financial services and onto the "Big Tech" leaderboard. I grok the favorable post-Merge Ethereum economics, but I don't see a scenario where ETH leapfrogs Web1 giants any time soon. Too much of Ethereum's current transaction processing is finance and trading related, and DeFi's unit economics will face pressure in a high-inflation, high-interest rate environment.

Apple's P/E is 23 and growing. Microsoft's P/E is 24 and growing. Google's P/E is 16 and growing. Ethereum's "P/E" is 195, and its revenues are shrinking, with [protocol revenues near multi-year lows](#). The crypto market is still giving ETH simultaneous credit as a monetary asset (relative value to bitcoin), a computing platform (cloud startup multiples), and a yield generator (financial stock thanks to staking). If any of those three narratives cool, it will face headwinds. (Long Bitcoin dominance?)

**3. Other Layer-1's:** The other thing to consider in the ETH bull case is the network's potential substi-

tutes, of which there are now many, though none have yet emerged as true peers. ETH currently enjoys a 70%+ market share in what we'll call the "neutral" L1 space (netting out Binance's BNB token). In other words, there's about \$155 billion of ETH and \$57 billion of "other L1" assets. Whether you think that's right or not will largely depend on how excited you are by the various other L1 network's locked market caps and value capture mechanisms.

The "venture and insider" ownership of Solana, Avalanche, and Aptos 🌟 tokens, for example, are still quite high. Will selling pressure hit those networks once supply unlocks? Likewise, value capture for other alt-L1 chains, such as Cosmos, remain unclear (though [recent efforts have been made](#) to fix that). Will any other L1 developer ecosystem catch up? Will any rival Ethereum's unit economics as a high value settlement chain? The relative value trades all come down to business development wins (app distribution) and recruiting wins (can you attract developers to build on non-Ethereum blockchains). The "Ethereum killers" may have the money to compete aggressively, but as an investor your choices are to either pick winners, or buy the basket. (Short Ethereum L1 dominance?)

**4. DeFi:** The entire universe of free-floating DeFi tokens currently trades at less than \$15 billion. That [doesn't even crack the top 100 banks](#) by market cap. DeFi's market share of global financial services is a measly 0.2%. Meanwhile, Total Value Locked ("TVL," a measure of user assets deposited into a protocol's smart contracts) in DeFi is just \$40 billion, barely good enough to [crack the top 50 US banks](#) by assets, and a shade bigger than infamous Nashville juggernaut, Pinnacle Bank.

Perhaps we are finally nearing the bottom of DeFi's trough of disillusionment. It will be a long road back to DeFi Summer 2020, but positive regulatory developments, improvements in contract security and development best practices, and lower transaction fees thanks to scaling breakthroughs could make DeFi one of the best risk reward sectors of crypto for years to come. Remember, the core DeFi protocols were built [during the last bear market](#).

**5. NFTs:** Any given NFT project can go to zero, but NFTs as a data construct will eventually wrap around tens of trillions of dollars worth of assets. We're at [about \\$8 billion](#) today, so there's...uh... room to grow. But I'd rather be long picks and shovels infrastructure businesses vs. specific projects in the NFT space, as almost nothing I've seen has established a "fundamental" driver of value beyond art, and the jury is still out on which art will have staying power. You better like the jpeg enough to hold it forever vs. flip it.

**6. DePIN:** Decentralized physical infrastructure networks (DePIN, or "token-incentivized," TIPIN, which I don't like and refuse to use, since it sounds like a NSFW government agency) will be one of the most important areas of crypto investment for the next decade. Storage solutions like Filecoin 🌟 and Arweave, decentralized wireless networks like Helium, and other hardware networks are critical to the industry's long-term viability. They could also disrupt an absolutely ginormous set of monopolies. Legacy cloud infrastructure is a [\\$5 trillion global market cap](#) sector, while DePIN is just a \$3 billion market cap sector for crypto players. Not a bad sector to spend time in. We're tracking it [quarterly](#).





## 1.5 Bear Market Building

If bear markets are for building, it begs the question: what should we build?

For context, let's [start with some history](#). In 2015, the answer was bitcoin trading and custody infrastructure, and dozens of billion dollar companies were formed to provide the on-and-off ramps between the crypto economy and legacy financial system. In 2018, the answer was decentralized applications, and dozens of large DeFi (USDC, Uniswap, Aave), NFT (OpenSea 🌟, Punks, ENS 🌟), and decentralized infrastructure projects (Filecoin 🌟, Helium, The Graph 🌟) were incubated during the depths of winter, while Ethereum and an entire ecosystem of L1 and L2 blockchains emerged to satisfy demand for on-chain blockspace. Look at the biggest problem areas in 2022, and you'll likely spot the sectors that will spawn the next unicorn solutions.

- Want to solve systematic risks? We'll need investments in disclosures standards (hi, Messari!), proof-of-reserves and on-chain monitoring infrastructure, and crypto's GAAP accounting moment to discern fundamentals vs. greater fool investing.
- Want to solve the hacking problems? This year was a disaster for on-chain hacks, whether it was poor smart contract design, economic model exploits, governance deficiencies, key security issues, social engineering attacks, and more. Solving security issues at scale (with AI monitoring, algorithmic circuit breakers, etc.) will be huge.
- Want crypto financial markets to be competitive? Over-collateralized lending isn't too appealing vs. legacy finance. But you can't have undercollateralized lending without major default risk...unless you can leverage new identity and reputation primitives.
- Want to ensure Amazon or Google or Apple can't shut down crypto? We still need scalable decentralized hardware networks, jailbroken device app stores, and decentralized data marketplaces that begin to siphon data from our soon-to-be unstoppable AI overlords.
- If you aren't too creative, but you are entrepreneurial, you can always follow some of the biggest VCs in the space, and ask what they wish existed. A lot of them [publish requests for startups](#), which provide a great starting point to get your creative juices flowing and find areas of interest and potential founder-market fit.

How can you not be excited to build? The spoils are there for the taking. We just need the right teams to get going and create the markets.



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## 1.6 Decoupling of Cryptos: Back to the Basics

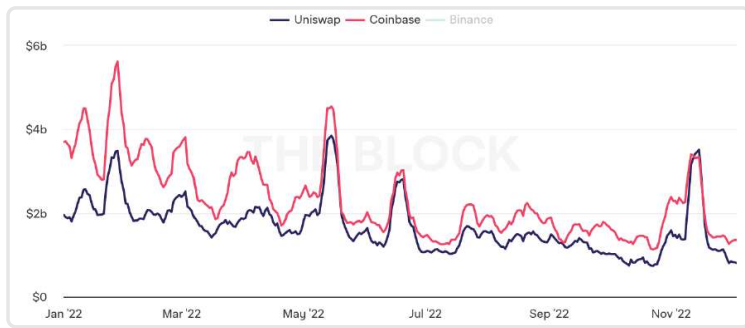
This has been a good year for the fundamentals enjoyoors. For years, Bitcoin and Ethereum investors have grappled with [how best to fairly value their ecosystems](#) without much financial precedent. But we actually have real data – and tools – to support today’s asset valuations today.

Did you know that you can track quarterly financial statements directly from the blockchain for 40 top protocols?

	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22
<b>Filecoin Network Quarterly Metrics</b>						
<b>Financials</b>						
Protocol Revenue (FIL)	6,342,439	1,388,185	852,565	445,606	1,622,072	1,760,604
% Growth	(40.6%)	(78.1%)	(38.6%)	(7.7%)	264.0%	8.5%
Protocol Revenue (USD)	\$866,220,305	\$95,258,720	\$49,656,704	\$9,476,149	\$19,406,240	\$11,067,735
% Growth	107.7%	(89.0%)	(47.9%)	(80.9%)	104.8%	(43.0%)
Supply-Side Revenue (FIL)	19,638,763	23,897,908	23,754,440	22,041,486	21,239,782	20,437,605
% Growth	57.2%	21.7%	(0.6%)	(7.2%)	(3.6%)	(3.8%)
Supply-Side Revenue (USD)	\$2,147,199,880	\$1,586,693,103	\$1,306,168,171	\$498,271,550	\$258,814,218	\$129,787,744
% Growth	246.0%	(26.1%)	(17.7%)	(61.9%)	(48.1%)	(49.9%)
<b>Network KPIs</b>						
Active Storage Deals (PiB)	19	28	24	51	116	211
% Growth	243.9%	44.4%	(13.8%)	110.4%	127.9%	82.3%
Storage Capacity (EiB)	6.9	11.7	14.5	15.6	16.7	16.7
% Growth	84.8%	68.9%	24.1%	7.9%	7.0%	(0.1%)
Storage Utilization (%)	0.3%	0.2%	0.2%	0.3%	0.7%	1.2%
Source: Filecoin, Starboard - ObservableHQ, Token Terminal, Santiment, Messari Note: 1 PiB = 1,125,900 GB; 1 EiB = 1,152,921,505 GB						

(Source: Messari's Q3 State of Filecoin)

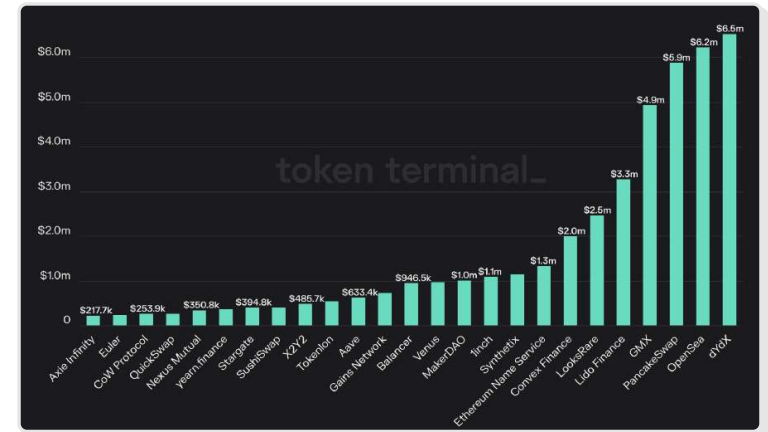
Or did you know that you can essentially front-run the SEC’s obsolete financial reporting process, and predict a confidence interval for Coinbase trading volumes simply by looking at Uniswap and adding 40-60%?



(Source: The Block)

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Or that you can confidently say that we’re now back down to just 13 decentralized applications with \$10 million in run rate revenue? (Ugh.)



(Source: Token Terminal)

The next cycle will be driven by real usage and sustainable protocol economic models. And the data above is freely available to anyone who knows where to look. In fact, we’re investing aggressively in the build-out of [better protocol metrics](#). We think it’s time for a GAAP or IFRS standard for crypto assets. (Learn more about the [on-chain apps](#) we’re building, and [join us!](#))

By the time the regulators figure out what disclosures should look like for the crypto economy, this will be a fully solved problem. Value investors and consumer protectors rejoice: next cycle’s rally just might reflect fundamental user adoption, and it will be free for all to investigate live.

## 1.7 VC: There’s (Still) Money in the Banana Stand

“It’s a seed round in a fruit protocol, Michael. How much could it possibly cost? \$10 million?”  
- (RIP Lucille)

In all of 2021, there were 247 investment rounds into Centralized Infrastructure startups, 500 investment rounds into Decentralized Infrastructure and NFT startups, and 218 rounds into “CeFi” startups, representing [\\$28.5 billion in total funding](#). In the first half of 2022 alone, there were 183 centralized Infrastructure investments, 596 in Decentralized Infrastructure and NFTs, and 186 in CeFi, representing another \$27.4 billion in total funding.

Only the DeFi sector total deal flow was slow (from 348 in 2021 to 226 in the first half of 2022), but there too, its total dollar funding eclipsed the 2021 full-year numbers (\$1.9 billion in 1H vs. \$1.7 billion in 2021).

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But the slowdown became real in the second half of the year:



Crypto venture markets have [come crashing back down](#) to earth in 2H, and we're on pace for a 70%+ reduction in investment dollars vs. the first half. The total investment pace has slowed as well, and there's less dry powder for later stage crypto deals. The companies that raised in 2021 and 2022 should have lengthy runways – if they're smart. That capital is fresh, which means it should last an average of another 1-2 years at minimum, but I'm not confident that many up only founders will make the adjustments necessary to survive beyond then.

The venture markets for more mature companies will likely get more ruthless in 2023. It's put up or shut up time for Series A+ companies to demonstrate their businesses are fundamentally sound in spite of the bear market and its pressures, and we expect to see a significant reduction in deal sizes and pace. We'll see if 2021's [Chad investors](#) stay Chads.

But the startup winners might be able to take advantage of some epic M&A opportunities. (Messari has completed several tuck-ins this year, including VC tracker, [Dove Metrics](#), which collects the fundraising data in the chart above, part of our [Enterprise package](#).)

2021's fund vintage – capital deployed at all-time highs at the tail-end of the zero interest rate environment – is unlikely to look very pretty. But now that reality has set back in, it might not be a bad time to deploy capital professionally.

## 1.8 The Macro Rebound vs. The Dumpening

Everything so far in this report has assumed that the bear market will continue for the foreseeable future, and there is no "V-shaped recovery" for the crypto markets. I think that's a fairly safe bet, but...

1. It's still all about macro (and regulation). The resting market sentiment is that we will have a recession in 2023, with some debate over its potential magnitude. The market also seems to trust

that central banks will continue to tighten until inflation is under control. Though contrarian, there are some investors who think it's more likely that the Fed will pivot once the recession really gets going and accept multi-year high inflation in lieu of a depression or global reserve currency crisis (Watch: [Luke Gromen](#)). If that's the case, then physical commodities like gold and oil would perform strongly. And digital gold and digital oil might follow suit. Macro forces led the 2020-2021 crypto bull market. It led to the 2022 collapse. Why not the 2023 recovery?

2. We don't usually predict the next major market catalyst in advance. But I'd keep a close eye on the [2022 developer report from Electric Capital](#) for a peek at where there might be kindling for the market recovery.

On the other hand, we still have a number of negative potential market shocks.

1. For Bitcoin, miners are puking just about everything they mine to cover operating costs and debt service. That's predictable weekly selling pressure that shows no signs of abating. It is likely that the Mt Gox bankruptcy proceeds (137,000 BTC) are distributed in early 2023. And although it wouldn't hit the bitcoin spot market directly, it's plausible that DCG and [Genesis might be forced to sell](#) up to ~\$60 million shares of GBTC per quarter for the foreseeable future.
2. Ethereum's post-Merge supply dynamics are disinflationary, though it's unclear whether the tax consequences of post-Merge staking rewards will lead to significant spot selling pressure in the market in order to cover liabilities incurred from staking income. Even though miner's selling pressure is a thing of the past for Ethereum, this new tax selling impact is new and difficult to predict.
3. Beyond BTC and ETH lies a [mess of project-specific selling](#). L1 and DeFi tokens with large token treasuries that unlock for founders or early investors; forced selling of positions held by bankrupt funds or collateral held by distressed lenders; poorly designed tokens that suffer from economic death spirals. We'll get into some specifics later in the report, but for now, know this: there is currently more than \$50 billion worth of supply that could theoretically hit the \$250 billion "long-tail" of assets.

## 1.9 Buyouts vs. Bankruptcies

It's hard to believe how bullish we were last year about the slate of upcoming crypto IPOs. BlockFi was a rocketship! Circle was going to SPAC! Blockchain, DCG, and Kraken looked like they might be next. GBTC seemed to have a fighting shot at approval given the SEC's approval of several inferior futures-based ETFs.

Instead, in the past few months, BlockFi [filed for bankruptcy](#), Circle [pulled its SPAC](#), Blockchain took an emergency down round, Kraken has laid off 30% of its staff, and even DCG might be on the brink due to levered share buybacks and a disastrous six months for its lending subsidiary Genesis. I mean, Coinbase debt is now yielding 15%.

None of this is great. BUT, it does present a compelling potential entry point for larger institutions who believe crypto will have a long-term role in the global economy. If you believe in crypto, doubt that you will be able to innovate your way into a market leadership role organically, and believe that

your compliance and regulatory cloak position you well to clean up a technically sound, but operationally inferior “crypto institution,” you might want to shoot your shot in 2023.

Fidelity or Blackrock might like DCG in a distressed buyout situation. JPMorgan might jump at the chance to lob in a hostile takeover bid for Coinbase at just 5% dilution. If the [institutions were, indeed, coming last year](#), then you have to wonder whether the barbarians are at the gates and Wall Street is ready to execute a slow takeover of crypto.

I’m not saying that I particularly like that future.

I’m just saying it could happen, and it’s looking more plausible by the day that this downturn could end up [proving to be the bridge](#) that institutions – on Wall Street and in Big Tech – needed to integrate crypto products at scale. Through M&A.

## 1.10 Copy-Paste Investing (Disclosures)

### TBI

**Biggest winner:** Messari Stock ([Series B](#))

**Biggest loser:** LUNA

**Holds:** BTC, ETH, \$GBTC

**Likes:** BTC, ETH, ZEC, DePIN (FIL ★/AR), GRT ★, DeSoc, Tuck-in M&A

### Maartje

**Biggest winner:** Adding more ETH on the cheap

**Biggest loser:** CRV (-90%)

**Holds:** BTC, ETH, RNDR

**Likes:** DePIN, taking the long view

### Tom

**Biggest winner:** American dollars (0%)

**Biggest loser:** ETH (-70%)

**Holds:** ETH, SNX, RNDR

**Likes:** Cash/USDC until late Q2 as the FED pauses, liquidity conditions improve and we hit peak recession, then up only for all risk assets for the rest of 2023. | **Tokens:** ETH, SNX, BTC, UNI, RNDR, \$COIN; **Themes:** TIPIN/PoPW, market capture > token cash flow, continued ETH dominance, the flipping in late 2023, institutional/nation state adoption of crypto in Q3/Q4, and undercollateralized lending.

### Ally

**Biggest winner:**

**Biggest loser:** ETH

**Holds:** ETH, MATIC, DOT, SOL

**Likes:** Ethereum’s rollup ecosystem, zk tech, NFT tech applications outside of PFPs

### Dustin

**Biggest winner:** USDC +0.00%

**Biggest loser:** RGT (-99%)

**Holds:** USDC, ETH, Aave, Matic, Pendle

**Likes:** Social (familiar consumer use cases with crypto complexities abstracted away), Eth-centric rollup ecosystems, Decentralized rendering and compute, Fuel for the winter (cash and lots of it)

### Chase

**Biggest winner:** Not being in Terra & FTX (+∞%)

**Biggest loser:** TOKE (-95%)

**Holds:** USDC, BTC, ETH, MATIC, SOL, PCN, RPL

**Likes:** ETH & BTC as bases for future network states, Ethereum core devs doing the Lord’s work, Protocols as public goods / utilities (i.e., no rent extraction), Decentralized social combined with DeFi, TIPIN experiments (humble Pollen garden), SNARKs and oracles for cross-chain communications, the friends we’ve made along the way.

### Kunal

**Biggest winner:** Knowledge, experience, conviction

**Biggest loser:** FTT (-100%)

**Holds:** RPL, LDO, ETH, MINA, BTC

**Likes:** Liquid staking protocols. Expect them to outperform ETH, which in turn outperforms BTC. Post the Merge, real yields for stakers are up to 6% from 0%; as soon as users return, they go up even more. With the right tokenomics, L2-coins could also have some potential.

### Sami

**Biggest winner:** USDC (+0.00%)

**Biggest loser:** HNT (-94%)

**Holds:** BTC, XMR, ETH, RNDR, AKT, AR, HNT

**Likes:** Physical infrastructure protocols (also known as TIPIN, PoPW, EdgeFi) that provide real-world value and tap into existing, non-speculative demand. This includes DeWi, compute/storage, energy, and sensor networks. Web2 adopting crypto infrastructure will bring on the next wave of crypto adoption.

### Kel

**Biggest winner:** Surviving my first cycle above where I started it.

**Biggest loser:** ETH (-70%)

**Holds:** ETH, JitoSOL, RNDR, AKT, RPL, SHDW, AURY, POLIS

**Likes:** Solana: best tech without introducing cross-chain risks, TIPIN & decentralized computing networks, Gaming: The model worked with worse games, what happens when you use it with better games? Liquid staking derivatives: muh free yield.

### Mihai

**Biggest winner:** CHF

**Biggest loser:** ETH

**Holds:** BTC, ETH

**Likes:** Zero-knowledge proof applications, Infrastructure as the backbone of the next wave of crypto social applications, Dry powder

### Chris

**Biggest winner:** Kayne Anderson Energy Infrastructure Fund [KYN] (+154.55%)

**Biggest loser:** GLMR (-80.62%)

**Holds:** BTC, ETH, DOT, LINK, FIL, ZEC, GLMR

**Likes:** Overweight LINK and FIL since 2023 will be the year of infrastructure protocols. DOT. Equities, crypto-adjacent equities, and real estate buys will be highly selective throughout 2023.

### Eshita

**Biggest winner:** USDC

**Biggest loser:** ETH

**Holds:** BTC, ETH, SOL

**Likes:** Boolish Ethereum ecosystem, ZK infra: namely for scaling + identity applications, Experimentation with emerging DAO governance frameworks, Lending w/ RWAs crucial in DeFi adoption

### Johnny\_TVL

**Biggest winner:** Messari

**Biggest loser:** STEP NFTs

**Holds:** BTC, ETH, SNX, AAVE, ATOM, MATIC

**Likes:** SNX staking is my favorite position (must be managed). A rare utility token in DeFi. Sleeper pick is BNT, hoping they make a practical decision around tail risks even if the models don’t call for it. AAVE adding GH0. dYdX punt for V4 success. ILV punt for gaming.

### Micah

**Biggest winner:** XMR (-42.4% YTD)

**Biggest loser:** AKT (-89.5% YTD)

**Holds:** AKT, AR, ALGO, ATOM, BTC, XMR, ETH, DOT, FLOW, MANA, SOL, UNI, ZRX, LYXe

**Likes:** Utility-based Blockspace, Financialization of Blockspace (e.g., Consensus Capital Markets), Perps, 5-year (minimum) investment time horizons (YTD, crypto down; since buying first-fifteenth crypto, portfolio is up)



### Sean

**Biggest winner:** BTC

**Biggest loser:** SOL

**Holds:** BTC, ETH, MATIC, MPL

**Likes:** Undercollateralized lending/RWA, ZKP, and cash money

### Nick

**Biggest winner:** USDC

**Biggest loser:** MOVR (-98%)

**Holds:** Aave, AKT, ETH, SYN

**Likes:** Cash in the near-term because of the FTX contagion; DeFi because of the FTX collapse; crypto infrastructure because of real utility; cross-chain infrastructure; ETH > BTC.

### Jerry

**Biggest winner:** USDC

**Biggest loser:** ETH

**Holds:** BTC, ETH, MATIC

**Likes:** zkEVM rollups (airdrops + L2 staking opportunities), On-chain credentialing, Decentralized computing and storage, Holding cash

### Red

**Biggest winner:** XMR

**Biggest loser:** Endogenous collateral (Terra Luna, FTX)

**Holds:** ETH, XMR

**Likes:** Privacy (L1 fungibility, zk-zk rollups, mix-nets), Middleware/ Interoperability (ZK light clients, ZK bridges, oracles), TIPIN (storage, wireless, compute), Modularity (Data Availability, L3s, zkEVMs), Ethereum Staking Ecosystem (Restaking, DVT, liquid staking)

### Ryan C.

**Biggest winner:** GMX, UNIDX

**Biggest loser:** CRV, ETH

**Holds:** stETH, GMX, CRV, AAVE, SNX

**Likes:** Perp protocols/Revenue generating protocols, All things Arbitrum DeFi, ETH and its L2s

### Peter

**Biggest winner:** USDC, Mfers

**Biggest loser:** ETHE (-80%, thx for the protection gary)

**Holds:** ETH, ETHE, RPL, MINA

**Likes:** Contrarian L1 plays (will be accumulating SOL), zk everything, liquid staking, and, most importantly, staying solvent

### Ashu

**Biggest winner:** US Dollar (+0%)

**Biggest loser:** BTC (-64.5%)

**Holds:** BTC, ETH, LDO, RNDR, SYN, VEGA

**Likes:** Liquid staking, Cosmos DeFi and for the time being, US Dollars

### Kentrell

**Biggest winner:** US Dollar (+0%)

**Biggest loser:** ETH (~-70%)

**Holds:** ETH, USDC

**Likes:** Infra- LINK, 2023 is the year Sergey and Ari take off the training wheels, DeFi - FXS, Uniswap, AAVE all expanding product offering and potential to eat market share from competitors

### Helen

**Biggest winner:** US Dollar (+0%)

**Biggest loser:** Everyone with inflated valuations and egos

**Holds:** USDC, ETH

**Likes:** Crypto infrastructure with real applications

### Seth

**Biggest winner:** USDC +0.00%

**Biggest loser:** ALCX -94.6% YTD

**Holds:** USDC, ETH, BTC, AAVE, ALCX

**Likes:** Boolish wallets as applications/superapps, USDC, Crypto Infra



## 2.0

## TOP 10 PEOPLE TO WATCH

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## 2.0 Intro

I'm sure people would pay good money to not end up on this list after some of last year's "People to Watch" struggled mightily in 2022.

Last year's number one on the list was "everyone" – as in "We're All Going to Make It." WAGMI, as we used to cry with glee back at the pico-top of 2021, did not really pan out as hoped.

And it didn't get much better at #2 (Three Arrows Capital's Su Zhu) or #10 (Terra's Do Kwon), both of whom went bankrupt. Coinbase slid 80% (Emilie Choi), NFTs are down even further (Devin Finzer), and Axie experienced a catastrophic hack and fell 90% (The Jiho).

On the other hand, a16z lost a high-profile partner, but Katie Haun did just fine with a fresh fund of her own. Twitter was bought out by Elon Musk, who might just fix it at the expense of other crypto social platforms, though it's unclear whether last year's Twitter peeps to watch are still gainfully employed at Elon Twitter.

Watchee beware, and I'm sorry...



## 2.1 Changpeng Zhao & Brian Armstrong

FTX's failure last month was damaging financially, politically, and reputationally. But its failure wasn't a systemic threat to the entire industry.

That designation is shared by only two entities in crypto today: Binance and Coinbase, who are #1 and #2 in global spot trading volumes and crypto assets under custody.

In November, Binance accounted for nearly [75% of all global spot volumes](#). The liquidity engine for the global crypto market operates in a jurisdictionally-fluid gray area of epic proportions. It would be a mischaracterization to call Binance "unregulated," but the legal and regulatory risks around its operations are hard to handicap. CZ has been subject to personal attacks by the media (who blame him for sparking a "bank run" on FTX), competitors (ill-advised), and other regulators, who would prefer Binance fit more cleanly under their collective thumbs.

Likewise, at the end of Q3, Coinbase counted [\\$101 billion in assets](#) on its platform, comprised of \$40 billion in bitcoin (11% of the total supply), \$25 billion in ether (16%), and \$30 billion of other non-stablecoin tokens (11% of the remaining crypto market cap). Coinbase assets include all of the [Grayscale Trusts' assets](#) (the largest publicly traded crypto securities). Like CZ, Brian Armstrong has attracted personal scrutiny from the media (who hate him for his "no politics at work" policy), competitors (again, ill-advised), and major U.S. regulators, who don't appreciate when their "sketchy" behavior gets thrown under a public microscope.

Try as we may to convince the masses to embrace personal wallets and decentralized finance and other applications, we will probably always have centralized financial services that offer account-based services for investors and users looking to access crypto without the hassle of shepherding their own private keys.

Binance and Coinbase, and their respective founders, will be integral to any industry rebuild. As their fortunes go, so goes crypto in 2023. (No pressure, fellas.)

## 2.2 Rep. Patrick McHenry

With the Republicans taking the House in the midterm elections, there's a stanche crypto proponent who's readying to helm the House Financial Services committee. North Carolina Rep. Patrick McHenry will have an outsized influence over crypto policy in the coming years regardless of whether the Digital Commodities Consumer Protection Act ("DCCPA") is passed into law in the next couple of weeks before a new Congress is sworn in (incredibly unlikely).

Even in a scenario in which DCCPA passes in 2023 without much Republican input, its primary impact will be on sending primary oversight of the major crypto exchanges and trading facilities to the CFTC. But it will still leave significant room for the interpretation of how the *underlying regulated crypto assets* are defined. What exactly constitutes a "Digital Commodity" vs. a "Digital Security"? McHenry himself has acknowledged that "a missing puzzle piece is the necessary role House Financial Services and Senate Banking Committees must play to provide the much-needed clarity these proposals seek





to accomplish," i.e., defining crypto assets.

McHenry has been an early leader on this front.

1. He promoted SEC Commissioner Hester Peirce's "Safe Harbor" proposal for token disclosures and sponsored a bill that would codify its approach to regulation.
2. He co-sponsored a bipartisan "ugly baby" bill that would clearly regulate stablecoins and establish ground rules for their integration into the broader financial system.
3. He and his close ally on House Financial Services, Rep. Tom Emmer, who is now the House Majority Whip (#3 in House leadership), are likely to provide a check on SEC Chair Gary Gensler and haul him in for questioning over his approach to regulation via enforcement and a cozy relationship with FTX.

If DCCPA does \*not\* pass, McHenry's role will likely become [even more expansive](#). The Agriculture Committees (which govern the CFTC and would see a boost in its authority and responsibilities under the DCCPA) will soon be consumed by the once-in-five years renewal of the expansive Farm Bill, and McHenry will likely want a version of the House's comprehensive DCEA Act back on the table.

Confused? Go on to Chapter 4. For now, know that McHenry is one of the most important politicians to watch in the new year. We have a lot of informed leaders in the next Congress. That's fortunate as the stakes are very high.

## 2.3 Sheila Warren

One of the reasons for optimism with this new Congress has to do with the fact that their familiarity with crypto has spiked due to the industry's education investments in D.C. Last year, we had the Blockchain Association's [Kristin Smith](#) and a16z's [Katie Haun](#) in our top 10 list because we knew this was a year when real legislative proposals would pick up steam. Their firms were at the forefront of public policy efforts in D.C. at the end of 2021.

Though she remains influential, Katie's departure from a16z to start her own firm, Haun Ventures, split the policy team between two firms. Meanwhile, the Blockchain Association (BA) performed admirably but had to grapple with a larger number of restless members even as several larger firms (Coinbase, Binance.US) defected.

Fortunately, a complementary trade organization emerged as another leader in D.C. [The Crypto Council for Innovation](#) (CCI), which counts a smaller, but higher maintenance group of member companies (Coinbase, a16z, Paradigm, Fidelity, Block). [Sheila Warren](#), a former World Economic Forum executive, has assembled a killer staff and positioned CCI at the center of the critical DCCPA discussions.

BA's Kristin manages a larger and noisier 100+ company membership, but Sheila's group has more firepower. The stakes couldn't be much higher for CCI going into 2023 given the potential rifts that exist between the major exchanges and investors among its member organizations. If CCI can maintain a united front on behalf of its members, and continue to thread the needle to get good crypto legislation passed, it could lead to an industry boom.

Tighter regulation is coming. New laws are likely in 2023. And as the US goes, many other countries will follow. The success of CCI (and BA) will influence the next decade of industry development. Now that FTX is out of the picture, I am optimistic about the results.

## 2.4 Citizen Journalists: From Molly White to Autism Capital

*"Web3 is Going Just Great...and is definitely not an enormous grift that's pouring lighter fluid on our already smoldering planet."* So reads researcher Molly White's [blog header](#). *"What if all this is about who gets Gisele now that they took out Tom Brady?"* So read an early shitpost from the most unlikely authoritative source of information through the FTX bankruptcy, [Autism Capital](#).

Molly is an informed and savvy crypto skeptic. Autism Capital was literally a self-proclaimed "simp account" for FTX's founder before pivoting to investigative journalism. Both have outperformed the legacy media by a country mile in reporting on important stories within the crypto sphere this year. And both point to continued outperformance of citizen journalists in an information landscape that's heavy on narrative and light on truth.

*Web3 Is Going Just Great* tracks the daily [dumpster fires](#) that have plagued crypto this year, and there might not be a [more savage reality checker](#) on crypto. It's effective because it's simple, highlighting myriad startup failures, hacks, and frauds day to day. It's easy to dismiss "FUD" from industry critics who ignore the benefits and potential of crypto, but the reality is that critics get more oxygen and attention when the markets are down than when things are up. It's not fun to get dragged on the internet, but a discerning entrepreneur might parse feeds like Molly's and create solutions to the most pernicious problems and embarrassing weaknesses in crypto infrastructure. That's been the path to unicorn status for a decade now: solve hard problems.

On the other hand, I did not have Autism Capital on my draft list of people to watch in 2023 (I know that may surprise you). It turns out that consistency, audience, and information flow are a helluva drug, though. Pseudonymous crypto Twitter troll accounts have, at times in the past, gone from breaking big bankruptcy stories to running leading media and data businesses. I'm with [Mike Solana](#): give Autism Capital the Pulitzer. Many of the most meaningful parts of the FTX saga, including [CZ's movement of funds to dump FTX's FTT token](#), were broken by Autism Capital and similar accounts. Meanwhile, the legacy media kissed the ass of a benefactor that just happened to [defraud millions of his users](#).



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## 2.5 Anatoly Yakovenko

[The Merge](#) was a watershed moment for developers and investors in the Ethereum ecosystem. The Ethereum Virtual Machine (EVM) is likely entrenched as a foundational piece of industry infrastructure, the only L1 that seems certain to be a long-term fixture in the industry.

When it comes to blockchain scalability beyond the EVM, you can basically narrow down four complements to Ethereum: EVM-compatible blockchains (including rollups like Arbitrum, Optimism, and zkSync), Cosmos-style “app chains,” Aptos/Sui “Move” chains, and Solana.

All four groups will be covered in detail later, but the person to watch most closely in the “battle for second” to the EVM, is Anatoly Yakovenko, Solana’s co-founder.

Anatoly’s famous quip about the culture at Solana (“we eat glass”) will be useful going into a vicious down-trending market. Solana may yet face more significant headwinds from the unwinding of FTX-Alameda’s sizable SOL position. It will have to work harder to retain its momentum with developers. A lot is riding on the [Solana phone](#), too. Solana is making a big bet that a proprietary hardware solution will help siphon off crypto users who wish to break from the Android and iOS devices that hold them hostage and prevent them from accessing crypto services that violate their parent companies’ sweeping terms of service.

I saw firsthand how hard it was to kill Anatoly and his team in the last bear market. In my eyes, that’s the leading predictor of long-term success in crypto. As such, I’d expect the Solana core team and ecosystem to persevere once again. But can they ascend to new heights?

## 2.6 Barry Silbert & The Winklevii

Everything seems to come full circle in crypto. In a throwback to 2013, Digital Currency Group Founder & CEO, [Barry Silbert](#), and Gemini founders, [Cameron](#) and [Tyler](#) Winklevoss, will be three of the people to watch closest in the new year.

Back in 2013, it was all sunshine and rainbows. A mere month after Fred Wilson led Coinbase’s Series A, the Winklevii announced their plans to create the first bitcoin ETF. Months later Barry’s SecondMarket followed up with the launch of its Bitcoin Investment Trust. (SecondMarket became DCG, the SecondMarket broker-dealer became Genesis Trading, and the parent and sponsor of the Bitcoin Investment Trust became Grayscale Investments in 2015.)

This year, things are decidedly different. Barry’s Genesis Capital [reportedly owes \\$900 million to Gemini’s Earn customers](#), and the twins are leading the largest Genesis creditor group that’s looking to recoup their funds. A sizable percentage of Genesis Capital’s outstanding loans (assets) are with Genesis’s parent company DCG, so [absent a recapitalization of DCG](#) and/or speedy out-of-court settlement with creditors, these industry OGs may very well become embroiled in enormous, high-stakes litigation. The fate of DCG and Gemini, not to mention ongoing industry contagion, hang in the balance.

## 2.7 Stani Kulechov

[Stani Kulechov](#) is one of crypto’s top innovators, having founded the top crypto lending protocol, [Aave](#), and one of the most promising early decentralized social protocols, [Lens](#).

Despite its price decline this year (in line with the broader crypto markets), Aave remains a pioneer and stalwart in DeFi. It is second by market cap (to Uniswap), second in TVL (to MakerDAO), and ubiquitous across EVM-compatible chains.

Among other things, Aave pioneered the flash loan, which allows users to borrow large amounts of crypto for specific transactions without providing upfront collateral. These have generally been useful financial primitives for improving efficiencies in DeFi markets, as arbitrage opportunities have been made available to any developer who can afford to pay network gas fees, not just institutional-sized market makers.

Aave performed exceptionally well during moments of peak fear in the centralized crypto markets this year. In July, distressed lender Celsius [paid down its Aave loans](#) to avoid programmatic liquidation during its bankruptcy preparations. In November, Aave users were able to earn [73% on their Gemini USD deposits](#) amidst the fear surrounding Gemini’s delayed Earn withdrawals, a risk-adjusted return that acted as an open prediction market when a centralized service was offline.

Lens Protocol might be even more exciting. It’s one of crypto’s first decentralized social graph protocols and has [seen strong growth](#) (and [hackathon interest](#)) since its launch in May. We’ll talk more about them later, but composable social protocols like Lens present a vast array of new high-potential creator benefits, and their intersection with identity and DeFi will be profound.

If I had to bet on a “last man standing” in DeFi, it would be Stani.

*(Stani also happens to count one of the top in-house DeFi policy people in Europe or D.C., Rebecca Rettig, on his team. If crypto protocols avoid a regulatory crackdown and are successfully carved out of centralized exchange legislation (as they should be), it will be in no small part thanks to Rebecca and the Aave team she represents.)*

## 2.8 Alexey Pertsev & Tornado Cash Devs

[Tornado Cash](#), the DeFi mixing service that uses zero-knowledge proofs to help users execute fully private transactions on Ethereum, may have been too successful for its own good. Although it counted just [12,000 unique protocol users](#), investigators believe it may have been used to help launder over \$1 billion worth of crypto, some of which supported hacking groups in rogue states such as North Korea. Indeed, an analysis by Nansen showed that [usage of the Tornado Cash contracts spiked this spring](#) following the \$600 million hack of Axie Infinity’s Ronin bridge. Not great!

But bigger questions surround whether Tornado Cash’s usefulness to criminals makes it a de facto accessory for illicit activity or whether the developers that prop up the protocol bear any responsibility for its misuse.

That brings us to Alexey Pertsev, the Dutch co-founder (and Russian expat) who has been jailed since August and [will remain jailed until February without official charges](#) on suspicion of money laundering. It is unclear whether Dutch prosecutors plan to argue that the mere act of writing Tornado Cash code to process private transactions will be punished as an act of money laundering under European law around transaction surveillance, or if private chats that have allegedly been obtained between the Tornado Cash founders demonstrate that there was knowledge or explicit assistance of specific illicit schemes.

I would usually say this is a tough case to weigh in on without all the relevant facts. I believe software is protected speech, and individuals have the right to transaction privacy, but I also don't want my stolen crypto seamlessly funding North Korean nuclear programs.

That said, it's maddening that authorities have failed to outline formal charges, and the impression you are left with is that this detention is designed to deter similar development efforts, not punish specific illegality. The line is blurry, and after the prosecution and plea bargain of Virgil Griffith last year, I am not optimistic this will end well for Alexey in the short term. I hope I am wrong!

## 2.9 DAO Members

One of the best parts of running a company is dealing with all of the legal stuff (said no one ever). Employment contracts, customer terms of service, incorporation filings, taxes, IP registration, and corporate governance negotiations are some of the glorious upshots of starting a company that no one ever tells you about.

Sounds exciting?

Well, what if I told you it was possible to take on all of the headache and expense of a startup with none of the upside or limitations of liability? Welcome to DAO governance!

It is admirable that various protocol communities have been experimenting with new models of governance, delegation, and financial management. We certainly support that innovation (at least indirectly) through our [Governor platform](#), and we engage frequently with various DAOs during procurement for various projects under our [Protocol Reporting](#) segment. But the waters out there are murky and uncharted. Whenever a DAO gets into murky legal waters, voting members would do well to keep in mind their "joint and several" liability under what are legally considered unincorporated associations.

Serving as a DAO delegate or voting with your tokens is often a thankless job. And now some regulatory agencies are starting to test the boundaries of their authorities and are more aggressively targeting DAOs as entities subject to potential enforcement actions or other legal liabilities related to problems within their communities. (See the "Ooki DAO" section later on in this report.) If DAOs are going to have a fighting chance at innovating safely, we'll need better safeguards for their contributors. Quickly. My guess is that will happen most readily at various state levels in 2023, but rules remain ambiguous beyond that for some time.

## 2.10 IRS Agent Smith

Policymakers worldwide are looking at crypto and licking their chops. Never mind this year's market collapse, the boom of 2021 minted millionaires by the thousands, and odds are good that some of the retail day traders and NFT flippers had "difficulty" accurately reporting their tax liabilities. A negative consequence of last year's infamous infrastructure bill was its inclusion of crypto as a "pay-for" – the U.S. government claimed that better tax collections from crypto investors would yield a \$28 billion increase in receipts or 5% of the total bill's expenditures.

Now there are [87,000 new IRS agents](#) on the prowl. (Thousands of them [are armed](#).) And under civil asset forfeiture law, which is essentially [state-sanctioned theft](#), it may [become easier for authorities to seize crypto assets](#) without any conviction or filing of criminal charges. The IRS Criminal Investigation unit has [already seized \\$3.8 billion in crypto between 2018 and 2021](#). I'd expect that number to rise considerably.

In truth, tax reporting for crypto is pure nightmare fuel. Tracking cost basis accurately is nearly impossible. Accounting for fees, trading slippage, and multiple wallets and exchange accounts is hard enough. Throw in NFTs, hacks, token farms, and more exotica, and the authorities will come for their pound of flesh in some way, shape, or form in the U.S., [Europe](#), and everywhere else that crypto is traded.



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## 3.0

### TOP 10 TRENDS IN CEFI

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### 3.0 Intro

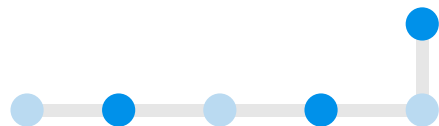
This year was a sh\*tshow for centralized crypto financial services, aka CeFi.

FTX self-immolated spectacularly. Coinbase, the largest public crypto company, saw its stock decline 80% as crypto trading volumes evaporated and U.S. regulators remained hostile towards token markets. Western crypto infrastructure giants laid off hundreds of employees. And the crypto lenders born in 2018-2020 are pretty much all dead, or mostly dead.

Here's a partial list of "unicorn" lenders and prop desks, who ate nine-figure losses this year and/or went bankrupt: Alameda, [Babel Finance](#), [Blockchain.com](#), [BlockFi](#), Celsius, [FTX](#), Genesis Capital, Jump Capital, Three Arrows Capital, and [Voyager](#). I'm sure there are others; I just got tired of looking them up.

It's been a classic credit boom and bust, with a crypto twist. Many of our problems this year stemmed from an over-reliance on unsustainable DeFi yields and synthetic trades. A [daisy chain](#), if you will, of poor risk management and compounding bad bets.

Amidst the wreckage, what remains? How can we build more sustainable infrastructure? Who will lead us back from the brink?



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### 3.1 The Exchanges

We covered Binance's and Coinbase's dominance in the crypto exchange market in the "People to Watch" chapter. These giants are hardly the only important exchanges worth keeping an eye on in 2023, though. In fact, it's the mid-market services that we'll be tracking most closely for signs of stress. Here are the biggest risks we're monitoring in the wake of the FTX fallout.

**Binance:** Global regulatory risk? They operate internationally in a "jurisdiction-light" manner that ultimately may get them into hot water with various policymakers around the globe. Whether they're deemed to be operating outside of the boundaries of different countries' existing financial laws or simply make for good political targets, there's reason for concern. With a 75% share in global crypto trading volumes, the industry desperately needs a Binance rival to emerge. And I could make the argument that Binance itself would be healthier with a stronger trading rival.

**Coinbase:** Hostile public markets? Coinbase avoided the crypto lending markets, and it sits atop the leaderboard as the top global custodian of crypto assets (about 10% of the crypto market cap sits at Coinbase), the top USD exchange, and the first major crypto IPO. Still, the markets have punished the company's stock: Coinbase's \$3.5 billion debt yields 15%, and its market cap has fallen below \$10 billion. A clean bill of regulatory health and U.S. market leadership could raise eyebrows at PE shops and strategic suitors alike, but Coinbase has dual class shares, and Brian Armstrong retains voting control, so hostile takeover attempts seem unlikely to succeed.

**Bitstamp, Kraken:** Regional (European) regulatory risk? I don't know enough about the various regulatory constructs facing the big EU-dominant exchanges. We'll cover MiCA in the next chapter on crypto policy, but I'd expect Bitstamp and Kraken to be disproportionate winners (not losers) with better regulatory clarity in Europe.

**OKX, Huobi, KuCoin, Upbit:** Regional (Asian) regulatory risk? Same thing with the largest Asia-based exchanges. I don't know enough about the various regulatory constructs in Asia, and the region doesn't benefit from a common legal and financial regulatory standard like we see in the EU. In general, Korea and Japan are good places for business, China and Hong Kong are iffy, and India is a bit of a wild card (but trending negative).

**Bitfinex:** Tether risk? Bitfinex's close historical affiliation with the stablecoin giant Tether opens the company up to multiple regulatory risks. Bitfinex [reached a joint settlement with Tether in 2021](#) in which the CFTC asserted (among other things) that Tether had "commingled reserve funds with Bitfinex's operational and customer funds, and held reserves in non-fiat financial products." Bitfinex and Tether share several core team members, including CTO [Paolo Ardoino](#), and it's hard to imagine that issues at one entity would be completely isolated from the other.

**Gemini:** Contagion risk? (Read the sections below.)

All of these major exchanges carry operational risks as well – market declines can lead to financial stress, and hacks and customer deposit losses have been a pervasive component of crypto for a decade.

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But at least one silver lining to the FTX crisis was its catalyzing effect on the “[proof-of-reserves](#)” movement. For years, [many have clamored](#) for on-chain evidence of major exchange reserve assets in order to ensure top platforms were solvent and willing to prove they weren’t going fractional or otherwise misappropriating user assets. FTX proved – too late – that those concerns were absolutely warranted, even for the “smartest guys in the room.”

There is still work to be done on the “[proof-of-liabilities](#)” side of the ledger, but we now at least have unprecedented transparency around exchange assets. The days and weeks following FTX’s collapse were record-setting in terms of asset withdrawals from the top crypto exchanges. “Bank runs” were everywhere for those running lending books, but for those who weren’t breaking their own rules, and gambling with customer deposits, things were fine. Nansen killed it [in quickly assembling](#) a public repository of exchange reserve data. Kraken and others [publish proofs-of-reserves](#) without publicly divulging info, and Coinbase is audited quarterly as a public company. Some \$200 billion in crypto assets held on exchanges are now fully accounted for and trackable quarter to quarter.

### 3.2 The Institutions are Coming

Despite the market slowdown, there was surprising and meaningful crypto adoption by a number of legacy institutions.

*[This is the part of the report where I pretend to care for a minute about institutional crypto efforts. Insert something about [awesome legacy Wall Street firms and Big Tech pioneers], and how this time they really will continue to invest in crypto during a lengthy bear market.]*

*Or leave this in brackets and “forget” that you didn’t update this section, blame a late night editing oversight, and say “Oh damn, I had a whole spiel about how awesome your [insert recent press release from the crypto team at the institution] was. I’m kicking myself for that process error!” then make up for it next year with no consequence via another vague update about how, for the 11th year in a row, the “institutions are coming” after one of the banks or asset managers buys one of the exchanges listed above.*

*In case this accidentally doesn’t get cut via a process error, write that you love the companies listed above and this is just a very funny draft joke and misunderstanding, so the sales team can honestly tell them “Selkis said he loves you guys” and then some of them may forgive you for writing 140 pages for free, but not spending an incremental day gouging your eyes out reading up on corporate blockchain initiatives. Maybe one of the esteemed institutions that I really love quite a lot will have a sense of humor and respond by commissioning a report on corporate blockchains because “they REALLY DO care about crypto” and “this deserves a look.”]*

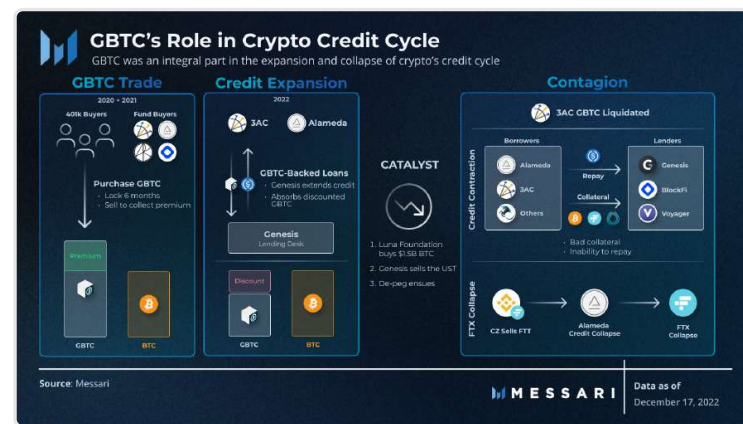
### 3.3 Anatomy of a Crypto Credit Crisis

The Grayscale Trade, aka crypto’s “[Widowmaker](#),” was integral in helping create much of the crypto contagion we saw this year.

It was a root cause of the Three Arrows Capital (3AC) and BlockFi bankruptcies, and its potential rip-

ple effects on its distressed sister company Genesis Capital – and Genesis counterparties like Gemini – remain unresolved and could cause further damage still. The Grayscale products themselves continue to deteriorate for their investors as the discount to their fair value (the underlying assets held in the trusts) have widened to 40%, with no fee reductions or ETF conversion on the horizon. This spring’s Terra/Luna failure was simply a haymaker that followed years of body shots from the slow-bleeding bad bet on GBTC. Yield-hungry investors, forced further out onto the risk curve as Ethereum-based DeFi remained mired in a multi-year recession, gobbled up 20% teaser yields on an emerging algorithmic stablecoin (UST) and its rising star lending protocol (Anchor), not realizing it was laced with arsenic. It was a good reminder to use common sense in investing. If you don’t understand the yield, you are the yield.

Let’s set the stage for this section on CeFi with a speed run through crypto’s first credit crisis. CMS [wrote up the cliff notes in just five tweets](#) that explain how this all went down, but I will also attempt to summarize here:



1. It started with the Grayscale Trusts. These vehicles allowed investors to buy GBTC in their 401ks through OTC traded securities. But they weren’t ETFs, so they didn’t have typical creation and redemption mechanisms. Instead, accredited investors could create Trust shares with bitcoin, hold the shares for a six-month “seasoning” period, then flip them for what was a [hefty GBTC Premium](#) for quite a while pre-2021.
2. Flipping and rolling the GBTC Premium ballooned in popularity and [The Grayscale Trade](#) got crowded in 2020 hitting \$40 billion in AUM at its peak due to stimulus, bitcoin halving, and zero interest rate COVID policies of 2020. 3AC and BlockFi accumulated 10% of the Trust’s shares with \$4 billion in exposure at the peak in February 2021. But then 3AC started offloading some of its exposure during the great [GBTC Premium Crash](#).
3. Now a good chunk of the seasoning - GBTC is trapped and underwater with [3AC](#) and [BlockFi](#) still subject to six months holding restrictions. They eat the unrealized losses and instead lean on lend-

ing desks to allow them to borrow against the GBTC collateral. Genesis Capital, a sister company to Grayscale, is one of the only lenders incentivized to treat the GBTC at good money, given its affiliate technically controls the share's redemption mechanism (that would make whole the principal of the collateral), and Genesis can milk the big borrowers for interest in the interim.

- Exposed lending desks (BlockFi) and funds (3AC) let GBTC ride, but now they have to push further out the risk curve. This isn't a big deal in 2021 because everyone is making money hand over fist. The markets have come down from their tops in November, so the tide begins to go out. But Luna is still growing massively and raises a [\\$1 billion round in Feb 2022](#) to diversify their treasury. 3AC is a big Luna investor.
- The Luna Foundation buys [\\$1.5 billion of BTC](#) with UST (their collateralized stablecoin) from Genesis, who [proceeds to sell off UST and knock off the peg](#). Other funds and trading desks see the peg break, and a bank run ensues on UST. Luna experiences a death spiral ([great explainer piece from King Arthur](#)). 3AC is now underwater on two mega trades ([King Arthur part two](#)) in size (UST/LUNA and GBTC) and becomes [insolvent](#). Their GBTC gets liquidated, and [Genesis takes possession of 35 million GBTC shares](#).
- The contagion hits full swing, as multiple funds and trading desks with ties to 3AC go under ([Defiance](#)) or get bailed out temporarily by FTX, who is also a lending counterparty(???) ([BlockFi](#), [Voyager](#)). All duration bets in the crypto lending markets sour and die, and Genesis' active loans drop from \$14.6 billion at the end of March to \$2.8 billion [at the end of September](#). As active deposits shrink, lending desks also call collateral and yank borrow from funds wherever they can. Credit seizes as everyone accelerates their derisking. This includes Alameda in August, who has external borrow called after Genesis realizes they don't care much for [FTT as collateral anymore](#).
- Coindesk gets the [scoop of the year](#) and publishes details on Alameda's financials and token reserves. They are loaded with illiquid crap like FTX's own trading token FTT and several low-float DeFi tokens like Serum that FTX had backed and hyped in 2021. An analyst notices that Binance moves \$2 billion worth of FTT on-chain, and speculates that CZ is preparing to dump the position. CZ confirms that he plans to sell FTT and fully sever ties with FTX days later. Uh oh. That's [\\$2 billion of an illiquid token](#). FTT crashes, as do other major FTX / Alameda positions despite their [best efforts at damage control](#). The entities go massively underwater as their collateral is now worthless and have no liquid accounts or access to other credit (all of their counterparties are already dead or distressed). Even CZ says yuck, I'm not buying this.
- No liquidity at FTX/Alameda and commingled customer funds (thanks to [mislabelled accounts](#) or some nonsense) causes customer funds to be at risk, there's a "bank run" on FTX that isn't really a bank run because FTX was not authorized to lend against customer deposits according to its terms of service. FTX dies and, as CMS sums up, "[Margaritaville at risk](#)."

That's the synopsis so far (as of December 21, 2022), and the lessons are fairly straightforward: don't commingle customer assets, cut losses early on bad trades vs. lever them up and pray, maintain internal controls and a fortress balance sheet, split assets across different custodians and counterparties, and of course, only keep on exchange what you can afford to lose.

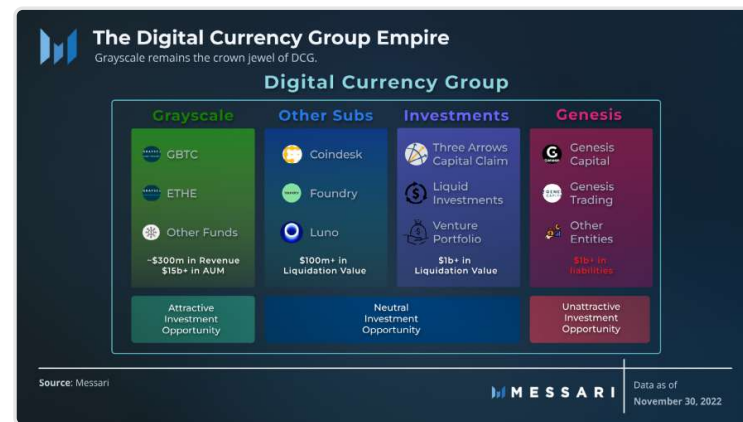
But there's potentially more to work out still...

### 3.4 DCG & Genesis Contagion Risk

The most important trend to keep an eye on in early 2023 will be the evolving situation over at investment giant, Digital Currency Group ("DCG") and its lending arm Genesis Capital, which was a large counterparty to 3AC, FTX, and most other large lending and trading desks.

DCG is now one of the most systemically important companies in the crypto ecosystem, as the liquidity crisis at its subsidiary and \$1 billion capital infusion requirement present further contagion risks for the industry. Gemini, and at least one other large European exchange, and dozens of high net worth creditors apparently have more than \$2 billion in frozen deposits stuck at Genesis, whose primary borrower is its DCG parent.

The options look pretty bleak. Creditors could strike an out-of-court settlement with Genesis and agree to a haircut on their withdrawable deposits in exchange for other DCG debt or equity instruments. Genesis could file for bankruptcy protection, and potentially drag their parent and their deep-pocketed external creditors through a lengthy and expensive reorganization process. Or DCG could identify recapitalization options at the holding company level, in order to make whole Genesis Creditors and limit their liability, but leveraging its other "good" assets.



I wrote a full-length Enterprise research report on why a [DCG recapitalization is a good idea](#) and likely necessary to restore some stability to the crypto markets. (Laura Shin also hosted a [good podcast](#) on the subject.) But much of the viability of that plan ties back to the details regarding what's in the black box of lending agreements between DCG and Genesis.

Here are the five open questions I'd be diligencing if I were looking at the deal, and determining whether there can be a resolution, or this is now an untouchable business.

- Where's the Beef:** Does DCG or Genesis hold the majority of the combined companies' \$700 million worth of GBTC and ETHE shares? If DCG, that's a big slug of assets to borrow against. If



already spoken for at Genesis, and Genesis still has a billion dollar hole to fill in its balance sheet, we might yet see a further rippling out of contagion.

- The Promissory Note:** On a recent episode of Unchained’s “The Chopping Block” podcast, Dragonfly partner [Haseeb Qureshi said that the \\$1.1 billion “promissory note”](#) that DCG extended to Genesis following the 3AC bankruptcy may have been structured as “callable” in the event of a Genesis liquidation. If true, Genesis could have treated the promissory note as a “current asset” (less than one year duration) even though it was nominally a ten year note, something that would have been a material part of current assets Genesis showed subsequent creditors. Again, if true, that might reduce DCG’s ability to limit liability from a Genesis bankruptcy. A callable note would mean that a Genesis liquidation process would put DCG on the hook to repay the full \$1.1 billion immediately. DCG doesn’t have that cash yet, so Genesis might not feel the urgency to rush into bankruptcy as they “have the assets” from DCG, if DCG can refinance.
- Alameda Lending:** Given the fact that Alameda and Genesis were two of the world’s largest borrower-lender counterparties, it’s likely they had loans together. From Genesis’s quarterly reports, it appears that they were responsibly winding down many of their positions and yanking borrow. From the FTX bankruptcy filings, it also doesn’t appear that FTX or Alameda are Genesis Capital creditors today. If that’s true, then the two giants either had no relationship (unlikely) or they closed their positions. The precise dates of any closed positions with Alameda might end up being critical to the resolution for DCG-Genesis due to the 90 day clawback period that most bankruptcy cases contain. If Alameda had loans with Genesis that were repaid after August 13, they might \*potentially\* be subject to the clawbacks. If there was a big number that changed hands after August 13, I’m not sure how someone new to DCG assesses the risk of a clawback, which would be a \*long-term liability\* that hinges on the results of a multi-year, incredibly complex FTX bankruptcy process.
- The Grayscale-GBTC Tie Up:** Some of the details in [Fir Tree Capital Management’s lawsuit vs. Grayscale](#) look pretty alarming. They point to the related party levered transactions with 3AC, the repeated tightening of Grayscale’s control over the Trusts’ redemption mechanisms (at the expense of shareholders), and Grayscale’s ability, but “self-interested” refusal to pursue Reg M redemptions outside of an ETF conversion. That will take a long time to play out, but the one thing you should have your eye on as a GBTC shareholder is whether DCG’s GBTC shares and Grayscale stay under common control for the foreseeable future. The alternative would not be good.

Grayscale throws off \$200 million+ in annualized cash flow even at today’s distressed prices. Those assets under management are permanent capital given the trusts’ structure (see below). So the question for a new DCG investor or creditor regarding what Grayscale is worth as a business revolves around your forward outlook for bitcoin. Grayscale may do \$400 million in EBITDA this year, but only half of that on a run rate based on current prices. If DCG explores a sale of Grayscale, they’ll NEED to put the 67 million GBTC shares they own into the deal, too.

A buyer without a large GBTC bag would have every incentive to shut down ETF conversion discussions and run the business as an annuity that’s openly hostile to GBTC shareholders. DCG’s \$550 million of GBTC acts as an “ETF approval hedge” since they are financially incentivized to push for an ETF. Even though an ETF would open the door for redemptions and lower fees, DCG would notch a one time gain of \$450 million from the closure of the GBTC discount to NAV. The

incentives of the trust sponsor get ugly without that share hedge. A new buyer could be exploitative.

- The Eldridge Revolver:** The irony in all of this is that the smallest creditor could hypothetically become the most troublesome. Connecticut-based lender Eldridge had a \$350 million revolving line of credit with DCG that they could have considered to be in [cross default](#) the moment that Genesis halted withdrawals in November. Since they are senior creditors at DCG and Genesis, their incentives are materially different from the Genesis credit holders, who seem much more inclined to strike a deal.

In my mind, nothing else really matters in the markets right now.

Until we see a bit more color around the DCG-Genesis resolution, it’s tough to say the credit crisis has fully resolved. [It’s 50-50](#), at best.

### 3.5 Grayscale: Reflexivity up. Reflexivity down.

There’s a good case to be made that Grayscale was the entity most responsible for Bitcoin’s ascent in late 2020. GBTC and ETHE assets under management exploded thanks to the Grayscale trade, and now the asset manager generates ~\$300 million/year in high-margin, sticky annualized revenue, even at today’s crypto prices.

Grayscale’s large AUM base and its Hotel California structure make it an attractive target for DCG’s suitors. But it’s DCG’s ownership of underlying GBTC and ETHE that I’m watching most closely in February. That’s when Grayscale’s 10-K drops, which includes notes on affiliate ownership of shares in its Trust.

DCG and Genesis (Grayscale affiliates) spent the better part of the past two years absorbing all of the sell pressure from the top GBTC trust shareholders.

Assets (in millions)	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022
Three Arrows Capital Shares	38.89	38.89	38.89	38.89	38.89	3.89	0.00
BlockFi Shares	36.16	19.85	19.85	19.85	0.00	0.00	0.00
ARK Invest Shares	8.68	9.56	8.82	7.91	6.92	6.79	6.49
Digital Currency Group Shares	12.01	16.57	16.53	25.33	30.15	66.98	66.97
DCG Change in Shares	-	4.56	(0.04)	8.89	4.82	36.83	-
Cash Paid	-	\$181.05	-	\$439.17	\$131.10	\$21.70	-
DCG Price Per Share Paid (Estimated)	-	\$39.73	\$34.60	\$49.93	\$27.71	\$20.37	-
DCG Collateral Received (Shares)	-	-	-	-	-	-	35.00
Total Shares Outstanding	692.37	692.37	692.37	692.37	692.37	692.37	692.37
Top 3 Shares %	13%	11%	11%	12%	11%	11%	11%

Source: Messari, SEC Filings, Whale Wisdom  
 Notes: A share change in Q2 2021 highlights a purchase of DCG but the dollar value was not disclosed. Purchase assumed to be at average GBTC price. The share change in Q3 2021 was assumed to give 100% back to DCG at average share price for the quarter.  
 MESSARI | Data as of November 30, 2022



But that \$700 million in collateral (including ETHE, too) could be subject to forced selling in the event DCG and Genesis need it in the short-term to make their creditors whole. I personally think the GBTC is better held as collateral that can be used to help refinance DCG's current debt load. (See the "ETF Approval Hedge" above.) It comes down to who holds the GBTC.

The maximum amount that DCG and Genesis would be allowed to sell per quarter in the markets (under [Rule 144 restrictions](#)) would be 6.9 million shares, or about \$80 million if they had sold during the first six weeks of the quarter when GBTC's discount to net asset value widened from 35% to 45%. (It would take the combined companies 2.5 years to unload the full position if that was their ultimate wish, as I explain [here](#).)

The nuclear scenario (which I think is unlikely) would be for Grayscale to dissolve the trusts. That's something that would likely only happen if 1) Genesis went bankrupt, 2) DCG was pulled into Genesis's bankruptcy and also went bankrupt, 3) DCG was unable to spin off Grayscale to a buyer and exhausted all other financing options, and 4) the Trusts themselves were unable to find another financially stable sponsor. Like I said, unlikely.

This whole thing is a bad look for crypto, but it's also a worse look for the SEC.

GBTC was allowed to become toxic collateral because of the SEC's obstinance and dereliction of its duty to the American investing public. In a parallel universe in which the SEC prioritized investor protection, fair and efficient markets, and capital formation (its mandates), we might have escaped a great deal of the crypto credit carnage. GBTC investors wouldn't be billions of dollars underwater, institutions could begin to treat digital gold as a complement to their physical gold hedges via titled securities, and we wouldn't be staring down the barrel of a dozen crypto lending bankruptcies.

Instead, the SEC is taking a [victory lap](#) over the carnage that they created after being played for fools and inviting the [fox into the henhouse](#). It's utterly despicable.

### 3.6 Custody, Security, Stability

The problems with crypto lending turn out to be pretty obvious: crypto assets are volatile, and many are illiquid, which makes them bad collateral. There are no free lunches when it comes to interest rates (you pay for returns through higher risks), and there are no lenders of last resort or deposit insurance.

For now, there are three things to note about the crypto lending industry moving forward:

1. Centralized lending is now mostly dead, and will be for a while. It will likely take years, and likely comprehensive legislation and regulation before the crypto lending markets reopen and look anything like they did at their peak in late 2021 and early 2022. That's arguably a good thing.
2. Centralized crypto lenders will behave [more like Anchorage](#) and stodgy old banks in the future, [taking full custody of secured collateral](#), setting market rate terms, and at least pretending to take risk management seriously. All of the lending cowboys are now dead.
3. A credit collapse isn't necessarily a bad thing for the long-term health of the crypto markets. One concern of mine that has grown with the prevalence of lending and margin within crypto is that [re-hypothecation would eventually create systemic risks](#) in the market (and suppress prices) by allowing entities to go fractional with their crypto reserves. That's less likely to happen any time soon.

I probably won't touch centralized crypto lending with a ten-foot pole ever again. (I used BlockFi to help with my home purchase a few years ago because no banks would underwrite my mortgage at the time, lol.) Give me DeFi and its transparent collateral pools and mathematical liquidation functions from now on, or nothing. (More on that in the DeFi chapter.)

On the other hand, we could start to see more stablecoin lending services emerge, now that Treasury rates are above zero, and fully-reserved custodians are incentivized to make a [vig on those customer deposits](#) if they can. Long BitGo, Anchorage, Coinbase, and FireBlocks. Short lenders who don't also own the underlying custody solution.

### 3.7 Cloud Infrastructure and Developer Tools

Decentralized Physical Infrastructure Networks are still immature (more on DePIN in Chapter 9). In the meantime, we're building on the same centralized cloud as everyone else in tech.

Technical complexity and economic barriers prevent the average crypto user from solo staking or mining; instead, they usually delegate to a professional validator or mining service. [Over half of all staked Ether](#) is controlled by three entities: including exchange giants Kraken and Coinbase. [Over half of Bitcoin's hashrate](#) is supplied by three mining pools: Foundry USA, AntPool, and F2Pool.

Centralized RPC providers are currently the lowest cost and easiest to use solution for reading blockchain data – Infura and Alchemy are the default solution for popular tools like MetaMask and OpenZeppelin. Worse, cloud providers AWS, Hetzner, and OVH represent nearly [70% of hosted nodes](#) on both [ETH](#) and [SQL](#) as of Sept. 2022. In fact, Hetzner's terms of service don't even allow [PoW mining](#) or



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PoS validating-related activities. Users are at perpetual risk of being deplatformed.



Geographic concentration of validators could expose networks to geopolitical risks, regulations, or acts of nature. As of Sept. 2022, ~50% of Solana validators and ~60% of Ethereum validators were located in either Germany or the U.S., even if the broader networks were distributed more widely across 25 and 60 countries, respectively.

We also expect to see redoubled efforts to alleviate some of today's pressing software-driven centralization pain points.

Expect meaningful upgrades to [account abstraction](#) (streamlines user management of accounts and assets), [Proposer Builder Separation](#) (delegates computationally intensive work to specialized block proposers, lowering node requirements for solo validators), and "Light Clients" (allows users on laptops and phones to connect directly to networks rather than through third-party hosted nodes or centralized RPC providers thanks to [improved data compression](#)).

### 3.8 On-Chain Forensics

On-Chain forensics has been big business for a while. Chainalysis [was the first crypto data unicorn](#), and its counterparts [Elliptic](#) and [TRM Labs](#) don't appear to be far behind. The primary thrust of these businesses has been transaction monitoring for compliance teams and forensic tools for regulators and investigators. Demand for these tools follows market cap on the way up (more firms need the tools, more fraud gets committed, and more taxes are evaded), and stays somewhat sticky on the way down (investigations take years, compliance needs are permanent, and taxes due from a bull run are still due in full even if your bags get slashed the next year).

On the other hand, I would argue that on-chain analytics as a standalone market intelligence product only really became viable in the past year. Glassnode is bootstrapped, but [Dune](#), [Nansen](#), [AmberData](#), [Flipside](#), and [Coin Metrics](#) all provided a glimpse of investor expectations for the segment as all raised

big rounds on sky-high revenue multiples within the past year. On-chain fundamentals are getting sexier and more integral to professional traders' risk scoring (and copy-trading).

Nansen seems to be one of two analytics companies that have figured out how to combine a market intelligence product and a compliance product. (I'll give you a wild guess as to who the other under-the-radar company is.) It was a brilliant and non-intuitive bootstrapping strategy: tag public wallets, analyze them on a best-efforts basis, and leverage Cunningham's law into iteratively better aggregated data sets ("if our data is wrong, then give us the right data"). That allowed them to hide a robust forensics tool under an NFT flipper's front end. Then low and behold they came fastest out the door with a [proof-of-reserves dashboard](#) post-FTX failure and deconstructed multiple high profile [protocol](#) and fund failures using their own dogfood in Q2. Credit where it's due. Killer year.

And then there's Messari.

The company that many people are calling the "greatest on earth" only really entered the on-chain data game in the past year. But we've been building open APIs and data standards for 100+ protocols, and are getting iteratively closer to developing the equivalent of GAAP or IFRS reporting standards for crypto protocols. Who needs the SEC and a quarterly lag. These metrics are [available in quarterly reports](#), or [real-time](#). Dealer's choice:

**Balancer Key Performance Indicators**

	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22	YoY
<b>DEX Metrics</b>							
Number of Swaps (Thousands)	463	1,904	2,547	2,198	2,689	2,307	21.2%
% Growth		310.9%	33.7%	-13.1%	22.4%	-14.3%	
Volume (USD Millions)	8,322	5,535	10,217	8,058	11,534	5,546	7.4%
% Growth		-33.5%	84.6%	-21.1%	47.1%	-61.4%	
End of Period Liquidity (USD Millions)	2,588	2,325	2,454	2,325	738	1,208	-48.0%
% Growth		-10.2%	5.9%	-5.2%	-68.3%	63.7%	
Aggregate New Pools	3,293	3,525	4,077	4,823	5,621	6,125	73.8%
% Growth		7.0%	15.7%	18.3%	15.5%	8.0%	
<b>LP Financial Metrics</b>							
LP Trading Fee Revenues (USD Millions)	22.4	13.3	27.3	8.6	6.7	3.2	-76.0%
% Growth		-42.7%	105.0%	-68.0%	-31.5%	-52.5%	
Annualized LP Fee Yield	3.99%	2.27%	4.08%	1.58%	1.69%	1.13%	-50.4%
LP Liquidity Mining Revenues (USD Millions)	80.2	44.9	39.4	28.7	14.6	11.3	-73.7%
% Growth		-44.0%	-12.2%	-27.1%	-49.1%	-19.4%	
Total LP Revenues (USD Millions)	102.6	58.1	66.7	37.3	21.3	15.0	-74.3%
% Growth		-43.3%	14.7%	-44.1%	-42.8%	-29.3%	
Annualized Total LP Yield	13.60%	10.34%	10.26%	7.06%	4.80%	5.40%	4.9%

Source: Dune (@Messari), Messari Subgraph  
Note: LP Liquidity Mining Revenues measured using daily USD value of BAL rewards.  
MESSARI | Data as of September 30, 2022

Pool	Network	TVL Current	Trading Volume 30D	Swaps 30D	APR 30D
wstETH / WETH 0.04%	Ethereum	\$205M	\$149M	896	0.18%
BAL / WETH 1%	Ethereum	\$186M	\$29.60M	1,452	0.93%
bb-a-USDT / bb-a-USDC / bb-a-DAI 0.001%	Ethereum	\$73.92M	\$580M	59	0.10%
rETH / WETH 0.04%	Ethereum	\$44.49M	\$42.84M	748	0.22%
wstETH / bb-a-USD 0.05%	Ethereum	\$33.06M	\$13.57M	310	0.97%
OHM / DAI 0.3%	Ethereum	\$30.31M	\$8.24M	435	0.92%
OHM / WETH 0.3%	Ethereum	\$29.84M	\$10.43M	626	1.14%
sDAI / DAI 0.001%	Ethereum	\$26.39M	\$209M	354	0.20%
USDC / aUSDC 0.001%	Ethereum	\$26.01M	\$467M	1,079	0.67%

### 3.9 Tax & Compliance

My base case for 2023 is that the IRS is going to create hell for crypto investors. What happens when a) the IRS is directed through legislation to extract higher taxes from crypto investors, b) we have a record year (2021) followed by a deep correction (2022), and c) compliance and tax monitoring tools have to take down rounds and scramble for new customers as winter arrives?

[Pain.](#)

Compliance solutions are fairly sticky, and they'll sell wherever they are most welcome. It would not surprise me to see some crypto accounting and forensics companies go full Big Brother in the new year, and proactively search for and report suspicious accounts for tax non-compliance.

I am in favor of tax compliance, and using every tool at our disposal to catch hackers, rogue states, and criminals who leverage crypto and use it for money laundering or tax fraud. But I am very much against dragnet surveillance and taxpayer harassment. And unfortunately, I think crypto investors will make appealing political scapegoats. After all, the IRS has to give those [25,000 new agents](#) something to do!

I stand by my comment last year that crypto tax reporting violates Eighth Amendment protections against cruel and unusual punishment. But at least this year we all lost so much money that we'll all get refunds.

You've got a week to harvest those losses, baby. Get going!

### 3.10 Research & Data Upgrades

While I'm sure there are other good research and data companies out there, I don't make a habit of giving my competitors air-time in down-trending markets. I write to win (this report), and firmly believe that there is no second best when it comes to [crypto research](#).

You want [market data](#), [protocol metrics](#), curated [news & analysis](#), [corporate actions](#) & [governance analysis](#), protocol specific [diligence reports](#), [quarterly reporting](#) and [thematic research](#), [venture capital data](#), [charts](#) or [screeners](#), and we've got you covered.

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If you're an engineer, analyst or data scientist, we're also keeping a close eye out for products that [parse smart contracts](#) and flag [network](#) or [token economic risks](#), provide better [developer tracking methodologies](#), and provide [predictive pricing models](#) for NFTs.



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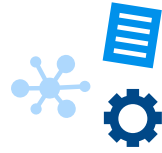
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# 4.0

## TOP 10 TRENDS IN CRYPTO POLICY

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### 4.0 Intro

In last year's report, I covered a lot of ground regarding the state of crypto policy in the West ([pp. 51-73](#)). This year, I'll recap some of the players and major issues that made headlines, and focus on the new legislative updates and regulatory challenges.

Many of last year's issues are still relevant and ongoing, so if you think I've missed something, go back and re-read the old stuff (law moves slower than crypto).

This year, Congress and the regulatory state have been busy in both the U.S. and Europe. I continue to believe that the U.S. is the most important battleground for crypto policy in the world (thank you First, Fourth, Fifth, and Tenth Amendments!), so while we'll take a short detour into Europe in one section of this chapter, most of the focus will stay right here at my homebase.

I believe 2023 could very well end up being transformational for crypto in terms of permanent law. We should get exchange oversight clarity and stablecoin regulation by law, not regulatory turf wars. And we should make progress on setting standards for disclosures and consumer protections in an ecosystem that desperately needs to fix its trust deficit with the general public.

The OGs of the [exchange](#) and [stablecoin](#) sectors want common sense regulation. Even some DeFi cowboys [see the merits of good policy](#) these days. We can't stand by idly and watch people get hurt by these inventions. Otherwise, crypto will deserve to wither.

If you don't want to read 25 pages of my political thriller, [here's a thread I wrote](#) that covers the basics. It's going to be a big year.

Let's go.



## 4.1 How a Bill Almost Became a Law

My experience digging into the most front and center bill, [the Digital Commodities and Consumer Protection Act](#) (DCCPA), these past few months may provide some helpful perspective on where crypto policy is heading next year.

Before we talk about where DCCPA (and other crypto legislation) is heading, we have to talk about where we've been and what happened this fall.

Given the high-stakes moment crypto now faces and the significant policy and regulatory headwinds, I'll avoid divulging nitty-gritty details shared with me in confidence (and good faith) and will try not to over-editorialize. With one caveat: I'll break my "no SBF" rule in this section. His actions provide critical (and lasting) context to any analysis, so I'll share details about my interactions with him and the FTX team to give you a full readout. Just the facts.

Then we can talk about my impression of what's coming next for crypto policy.

I also want to set the record straight with respect to my brief, limited relationship with Sam. I want to highlight how cunning I suspected him to be, lest anyone be tempted to fall prey to his media-fueled, carefully crafted, and totally bogus post-bankruptcy redemption narrative.

What I saw in my interactions with Sam was not someone who missed nuance or critical details. Or delegated control to his subordinates. Or chose his words without caution and precision. He's brilliant and – I think – manipulative. He is not "negligent" or "incompetent," as his crisis PR team seems to be positioning him these days, but rather "strategic," "calculating," and "self-pitying."

Like most other people in crypto, I had no idea Sam might be a criminal (though that [now is clear](#)). But I had been suspicious of him and his motives [for many months privately](#) before getting more deeply involved in crypto policy conversations this fall in D.C. My misgivings deepened when I began actively working to understand just what the hell he was thinking in slamming the DCCPA down the rest of the industry's throat.

I'll acknowledge upfront that I know there will be suspicion, misdirected anger, and [baseless accusations](#) thrown around towards anyone who steps foot in D.C. and engages with policymakers on matters related to crypto regulation. You can choose whether to believe anything I claim in this section (though I did keep the receipts), and I won't hold it against you. Criticism and skepticism are healthy antibodies for crypto.

No one should (or could) pretend to speak on behalf of the entire crypto industry on issues of existential importance. But engagement in D.C. is essential, and there are experts whose full-time jobs are to pound the pavement in D.C. to help our industry. We shouldn't abdicate responsibility for crypto policy to hired guns, but we also shouldn't drown the lifeguards we have on staff.

I personally chose to invest time and learn more about the levers at work in D.C. starting this fall. Here's what I saw...

## Context

I won't play the hindsight game and pretend I knew the extent of what was going on with FTX and Alameda financially and operationally. But for a while, I was getting increasingly negative impressions of both.

1. By early 2022, it was clear that Alameda had made a lot of its money through a number of...dubious...trading schemes. They invested in tokens early and farmed them as mercenaries, then appeared to offload them to unwitting buyers at warp speed. They were notorious for backing low-float, high FDV projects, and keeping a ton of the tokens for themselves (which now [seems to have been part of an allegedly fraudulent collateral shell game](#)). A lot of people farmed tokens and played the pon(z)ies in 2020 and 2021. But running a retail-facing business (FTX) joined at the hip of a retail-fleeing investment vehicle (Alameda) reeked to me.
2. Too many people may have given Sam a pass because they thought he was a savvy trading savant (and he was also helping many of them get rich). I'm also sure a number of skeptics believed it would be dangerous professionally to rock the boat in calling him out. Both were reasonable thoughts. I've never seen anyone in crypto develop such a powerful network of friends at such a breakneck pace. Across politics, legacy finance, and crypto, Sam seemed to be operating at a different level from mere mortals. He was a formidable mercenary.

And he even said the quiet part out loud: [his ends justified his means](#).

3. Sam had explicitly stated in the past that he didn't care about crypto, but for the fact that it was a market to be exploited.
  - The [shoelaces](#), the hair, the cargo shorts, etc. reminded me of [Boris Johnson's act](#): he was going for the weird but lovable wunderkind of crypto. The [billboards](#) were the "jump the shark" moment when I was personally 99% sure something wasn't right with FTX.
  - FTX's seemingly limitless resources just didn't add up, and whenever I met an investor after 3AC's collapse in Q2 – and Sam's multiple bailout bids for 3AC counterparties like [BlockFi](#) and [Voyager](#) and pitch to [invest billions of dollars into Twitter](#) – I asked the same question: how is it mathematically possible for Sam to have made this much money this quickly and gotten liquidity on so much of it?
  - I began to quip in recent months (including on stage at Mainnet) that I was an effective altruist. After all, I also wanted to accumulate enough money and power to bend the world to my iron will.

FTX was expanding at a torrid pace, and Sam had a lot of smart backers and mutual friends who were betting on him and putting their reputations behind the company. Given Messari's mission to drive data standards and transparency in crypto, it was important to work with market leaders like FTX.

In fact, I believe we are the only company in crypto to count every single major U.S. exchange and custodian as investors. That's intentional, and I actively worked to get closer to Sam and FTX these past two years to ensure they weren't a glaring omission from our investor network.

That didn't mean my spidey senses weren't tingling. But worst case scenario, I thought it would be a "keep your enemies closer" type of situation.

We took on Alameda for a <1% stake in [Messari's 2021 Series A](#) and FTX Ventures for a <1% stake in our Series B (We intend to buy back both investments). I didn't re-engage Alameda over the summer for our [Series B](#), but I did want to work with an investor that FTX Ventures had recently brought on from another major venture capital firm. I viewed her hiring as a sign that the FTX investing apparatus was maturing, and we signed them up.

As they say, "Yikes, dumb f\*cking take."

We announced our Series B and the new syndicate of investors (including FTX) the morning of September 21 at our [Mainnet summit](#) in New York. That evening Messari hosted a dinner with many of the policy leaders who were in town speaking at the event and fighting the good fight for us all in D.C.

We didn't even get to the damn monkfish before the Blockchain Association's Executive Director dropped a bomb.

"Can we talk about the elephant in the room?" [she said](#). "Sam is selling out the industry to get a monopoly for FTX."

The rest of the dinner was pretty buzzy. I had invited a room full of seasoned pros, and it was the first time that many of them became aware of just how far along the DCCPA had gotten in D.C., in large part because of FTX's aggressive lobbying. Behind closed doors, the legislation was moving at Mach 1.

**"I'm concerned."**

After digesting the monkfish and wrapping up Mainnet, I emailed Sam and his policy team on the train ride home that Friday. Two days after we had announced their participation in our round I wrote: "I'm concerned with what I've heard about the bills FTX is supporting, and would love to understand - if not align - on strategy. A lack of communication and coordination in D.C. will kill us as an industry, and I want to be sure Messari's customers/users aren't collateral damage of bad policy." I spoke with his team that Monday.

I can only surmise that Sam's initial reaction to my email was, "Why is this guy emailing me, and what does he have to do with policy in D.C.?"

(By the way, it's a fair question as to what I have to do with policy in D.C. The dinner during Mainnet made me realize that every single Messari customer would be impacted by the rules being written by those in Washington, and I needed to gain a clear line of sight. Quickly.)

But after my discussion with his policy team, Sam had clearly gathered that a number of people, including me, had issues with the DCCPA's DeFi language, and were planning to either fix or fight the bill. He knew I was one of the louder business voices in crypto who was now in the know, so we scheduled a follow up a few days later that Sam could join.



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We debated DCCPA for almost two hours.

I did not mince words: "FTX is viewed by other crypto lobbyists as a rogue actor looking to create a regulatory monopoly for itself to the detriment of the rest of the industry." We spent a good percentage of the call walking through Sam's view on the political chessboard, and he made his case that the most viable path forward for the broader industry was the one that FTX was spending considerable political and financial capital on advancing.

It was clear he wasn't going to stop pushing the bill. I think it was also clear to him that I was going to help resist it unless its problematic DeFi language was fixed. I thought the language being used would be horrible for the industry and our customers, the vast majority of which didn't have any idea how far along DCCPA was progressing.

Towards the end of that conversation, Sam was getting visibly frustrated that he hadn't converted me. In a shocking moment that felt very much like I was being bribed, he said, "I probably shouldn't say this, but just as a hypothetical...I don't think this bill is bad for DeFi. I don't think I'm wrong on this. But if I am wrong, and anyone in DeFi that supports DCCPA gets hurt, I'm willing to spend a significant sum of money making things right with them."

This wasn't a 1:1 either. His team was on the call. I was floored.

I told him I wouldn't engage in hypotheticals and instead wanted FTX to help fix the crippling and



unworkable DeFi language. I wrapped up the call and gave Sam and his colleagues several names of DeFi policy leaders to sync with who would share their specific concerns. I wanted Sam to help advance their concerns in FTX's follow-ups with Senate staff.

I did not feel great after this call. But the fact remained that Sam had spent tens of millions of dollars on a D.C. charm offensive and would have to be handled carefully, so as not to blow up relationships with the policymakers in his orbit who we believed were working in good faith on important, and admittedly high-potential, legislation.

Better to leverage FTX's progress and tweak legislation with good momentum, than to air concerns in public, make the industry look like amateurs, and lose critical staffer relationships.

The calculation was simple: co-opt FTX's influence in order to fix the bad DeFi language. As I tweeted numerous times, it would essentially boil down to "[no DeFi, no deal.](#)"

I hadn't had any direct conversations with policymakers or their staffs at this point. Messari doesn't retain any lobbyists, aside from being a member of the Blockchain Association with 100+ other companies. And frankly, DCCPA wouldn't even impact us directly, so there wouldn't have been much for us to offer in the DCCPA negotiations.

That said, I thought DCCPA needed to be improved for the long-term health of crypto, and tried to play a small role in helping keep people talking. If we could get the right lawyers in the room to engage on potential redlines that would protect emerging parts of the industry, we could see how the final drafts were trending, and \*then\* make a decision on whether a coordinated – and loud – rejection of DCCPA was warranted.

Messari counts big exchanges and DeFi projects alike as customers (frankly, in today's world they can't exist without each other), and we'd already convened a couple of previous policy meetups. That's how we ended up curating a small group of people for a follow-up meeting in D.C. to discuss the DCCPA's working drafts, weigh the pros and cons it presented to various industry groups, and most importantly, loop in the FTX team, so they weren't viewed as working in direct opposition to other crypto companies and trade groups.

The D.C. meeting itself was private, the discussion was private, and it would have stayed that way had someone not [leaked details to the press](#). Since it's now part of the public record, I'll share that Sam pled his case to the broader group at this meeting and (predictably) extolled the merits of the DCCPA, echoing many of the points his team had shared with me previously.

His message – and particularly his exit – was not well received.

After Sam made his case, he excused himself from a table of twenty public policy experts with decades of experience in crafting financial regulations, gathered his entourage, and said over his shoulder, "I just want to say I really appreciate your efforts here. Thank you for being super f\*cking constructive."

Nothing like a good 'ole pat on the head from the boy genius who's actively trying to sell you out.

## The Leak, the Voorhees Debate, and the Alameda Balance Sheet

By the time the meeting in D.C. wrapped up, I'd spent the better part of a month with near full-time focus on policy efforts and the DCCPA. I wanted to get back to, ya know, real work, but more than one trade association predicted that the DeFi-crippling language and full legislation could get slammed through Congress during the lame duck (between Election Day in November and the new Congress taking office in January), and that probability was rising.

A number of investors were starting to grumble more publicly about Sam's lobbying efforts. (Credit to [Richard Chen](#) and [Yance Spencer](#) for being early.) I tweeted about [my redline issues for DCCPA](#) and wrote to a friend, "*I'm not going to pile on or come to Sam's defense, but it's good to have a little public pressure on him. FTX could end up being hugely positive in this saga or the villain. And the line is thin.*"

Still, it was premature for Twitter dunks, since it appeared that the DCCPA was salvageable, and the jury was out on whether FTX would help push for changes to the problematic DeFi language. I also worried that a public Crypto Twitter-led free-for-all would torpedo relationships that many of the trade groups and policy advisors had worked so hard to build in the year since.

(As a card-carrying OG member of Crypto Twitter in all its degenerate glory, I can still acknowledge that crafting, building buy-in for, and passing bipartisan legislation through both houses of Congress is a high-wire act in which the bird app generally Does. Not. Help.)

The DCCPA redlines appeared to be getting worse, not better, though.

One curious change to the early drafts included "clarifying" language around DeFi's decentralized exchanges that would have de facto legalized automated market maker DEX's like Uniswap, but explicitly blessed central-limit order book DEX's like Serum. (You'd never guess who had \$2 billion of SRM tokens on their balance sheet! Ok, ok, [it's FTX.](#))

It didn't take much longer for all hell to break loose when a [leaked version of the DCCPA redline got posted on October 19](#). That's when it seemed like Sam started to crack.

After that, Sam. Simply. Could. Not. Stop. [Talking about policy](#). While Congress was in recess. Two weeks before an election when staffers would find out whether or not they still had jobs. When pencils were down for a moment to regroup.

From then on, Sam watched his one-time adoring Twitter following begin to turn on him. During periods of high stress, one of his former colleagues told me Sam would turn to Twitter for reassurance that his messaging and decision-making were still on point. But he was starting to flounder and those dopamine hits dropped off a cliff.

Sam put out a [public thread on his proposed policy framework](#) – panned. He [debated Erik Voorhees](#) – lost. He also threatened to work to get some of his biggest DCCPA opponents fired. Then he and his team [mocked Binance CEO Changpeng Zhao](#).

As Omar says, "you come at the king, you best not miss."





Sam missed. Bigly.

Mere days later, CoinDesk broke the news that Alameda's solvency rested on the value of [its own illiquid token balance sheet](#), CZ announced he would [dump his substantial FTX stake](#) and part ways with Sam, in large part for lobbying against Binance and other crypto firms. Within 48 hours, the [game was up](#) for FTX, Alameda, and Sam himself.

You can read about the ensuing drama [literally anywhere else](#) right now, so I'll save the space.

But I will end with two things:

First, the DCCPA is now considered a tainted bill, fairly or unfairly. [FTX's influence on the legislation](#) is hard to deny, and it begs the question whether DCCPA would have caught or simply [exacerbated the damage](#) of FTX's apparent fraud. Some kernels of the bill may yet survive and make it into an evolved bill in the new Congress, but I doubt the current name or contents live on without material changes.

Second, there needs to be justice for Sam's crimes. It's not about retribution. As the indictments roll out, they look so damning that my hunch is Sam has simply been positioning himself to cop a negligence case and minimize the damage. But that would be a failure of justice. My first-hand experience, and that of dozens of other smart people who were snookered by Sam, was with a hyper-competent Machiavellian.

His full, forthcoming prosecution in the U.S. is a sign of the integrity of our justice system and a deterrent to similarly egregious future financial crime. Most importantly, it will prevent Sam from doing something like this again.

This saga has been terrible for crypto. But it's been even worse in terms of the human cost. Life savings lost. Investors spooked. Employees gutted. Sam's self-serving actions have had brutal consequences, and the consequences should be proportionate.

I hope Sam Bankman-Fried spends decades in prison. Where he belongs.

## 4.2 How a Bill Becomes a Law

At this point, you might be thinking, "why were all of these meetings happening in private? Seems like that classic smoke-filled room I've heard all about in every political thriller, and it stinks. Crypto policy shouldn't be happening behind closed doors."

On that I would like to agree, but I'm not sure we would like the results. Folks within the crypto industry generally have three options when it comes to engaging with policymakers:

1. Spend a fortune on in-house and external advisors, legal, comms and lobbyists, and plan to spend a lot of time in person meeting with regulators, staffers, and members.
2. Apply to join one of the major trade associations like the Crypto Council for Innovation or the Blockchain Association. This will also cost you six figs at least. In Washington, the overlap between

"good at policy" and "groks crypto" is small. If you're a decent crypto lawyer, but you rage quit group discussions like a five year old, you won't be very effective at policymaking.

3. Send mean tweets and rile up the base. A lot of people underestimate this. I don't. Twitter can be an effective antidote to \*bad\* bills. But Crypto Twitter is rarely a drone strike, with little penetration into "D.C. Twitter," and often a suicide vest. You can't write laws via Twitter, but you can give policymakers ("electeds" in D.C. parlance) a valuable temperature check on what their constituents actually care about. We saw this last year with the [Infrastructure Bill debate](#).

My personal policy strategy can be boiled down to "protect consumers, and do no harm."

Messari is not a company in Washington's regulatory crosshairs, but we invest in policy because good outcomes will help all of our customers. For transparency, here's where we land: approximately \$1 million / year in crypto advocacy. These costs are direct (in-house resources), indirect (dues for Blockchain Association, Coin Center, and contributions to GMI PAC), and in-kind (investments of company time).

We don't invest in tokens like the most highly engaged big funds (a16z, Paradigm). We don't manage customer funds or facilitate crypto money flows like the big crypto financial players (Circle, Coinbase, FTX, Kraken). And we aren't fighting for the right to exist like the personal wallet providers (Ledger) or ZK privacy technologists (Zcash).

But we invest anyway because good policy outcomes will help all of our customers and elevate the broader industry.

Yes, I also send the occasional mean tweet when I think it can be effective in helping form a narrative around an enemy. And at the risk of sounding immodest, those have been effective. My "crazy" tweets from last summer about the sitting SEC Chair are now ledes in the Wall Street Journal's op-ed section, and influential sitting members of Congress seem to be forking specific attack lines I've used in the past.

Policy inception via mean tweet? Sort of. But again, Twitter only goes so far.

For as much progress as we made last summer in raising hell over the Infrastructure bill's problematic "broker" definitions, that language was signed into law without a single change.

In other words, we lost.

To win in D.C., you have to play the D.C. game. We'll be fighting the constitutionality of certain laws for years to come. We'll be duking it out with overreaching regulators until we have a new administration in the White House. (Sorry!) But that's all defensive strategy.

A high-octane offense can deliver results where it matters – in elections, positive legislation, and regulatory carve-outs. FTX actually had a good offensive playbook, but it was selfishly designed to hide its principal's operational corruption.

To understand the process behind lawmaking, let's run through a fictional example.

Below I've replaced real players with code names, and shuffled around just enough details to avoid blowing up specific lobbyists, staffers, or members of Congress. It's a cleaner and more entertaining analysis, and this is the closest I'll get to [Margot Robbie in a bubble bath](#) explaining the subprime crisis.

I hope this helps convey how a political process that can be maddening at times, does, in fact, work in a democratic nation with 330 million people, and I hope it helps illustrate how some crypto proponents may end up willing to make some tough concessions in order to ward off much worse – and existentially bad – attacks from our political enemies in the new year.

Let's dive in...

1. A hypothetical conversation in D.C. in 2021 after the Infrastructure Bill:

- Senator Bob: *"This crypto thing is getting pretty big. I didn't realize how many people cared about this stuff, I thought it was just a bunch of gambling degenerates, but we've actually heard from a bunch of voters and startups about the things they are building, and some of the concerns seem justified. Our regulated exchanges aren't getting the clarity they need and losing market share to offshore entities. We're killing earlier stage companies with legal costs, and it's important that we separate software from custodial financial services."*
- Senator Karen: *"Crypto is full of shadowy super coders whose mission is to undermine law enforcement, evade taxes, gamble with customer funds, and destroy the U.S. Dollar. They also want to destroy the environment as crypto 'payment processing' (i.e., mining) burns enough coal to power a Scandinavian country. Burn it all down, or give regulators the authority to crack down."*

Remember, this is our starting point for the debate. It's crypto's [Overton window](#), and it will inform everything that happens next.

2. Over the next few months, Senator Alice, a friend and political ally of Senator Karen meets with Senator Bob. Senator Alice: *"Karen has some good points on crypto, and I agree with her on most things politically. Bob, I disagree with you often, but it also seems like you agree that these crypto exchanges need clearer oversight, and that pushing the problems offshore isn't necessarily protecting Americans, just creating more black box risk for us internationally. Is there something for us to work on together here? Oh, and by the way, I met this charming young man who doesn't seem like the other crypto zealots at a Save the Whales gala. His name is Flash, and his team wants to meet to discuss some of the issues they're tackling and help us think through potential solutions."*

3. Wouldn't you know it, Senators Alice and Bob (and just as importantly, their staffers) realize there is bipartisan support and common ground for a bill that would solve the country's crypto exchange oversight issue.

But in order for a bill to become a law it has to:

- a. Get drafted, including "redlines"
- b. Get "marked up" in Committee and pass out of Committee to make it to the floor
- c. Secure 60/100 votes in the Senate to break a procedural block (the "filibuster")
- d. Secure majority support in both the House and the Senate
- e. Get signed into law by the President

Because there is no point in spending time and energy on bills that have no change at steps c, d, and e, the majority of time spent crafting legislation is in steps a and b. The members and their staffs share the same goal: draft something bulletproof that can make it "out of committee" and then pass via a broader vote. As such, this is where closed door concessions get made that are necessary to win support later in the process.

4. Alice and Bob sit on one of the same Senate committees, which is responsible for overseeing the Alice and Bob Commission (ABC), one of the two major financial markets regulators. Senator Karen sits on the committee that oversees the other major financial regulator, the Safety and Truth Department (STD). Senator Alice: *"I love Karen, but we're never going to get anything done if we need to work with her on this. Let's draft this in a way that avoids STD's involvement. Then we won't have to refer this to her committee. One of Flash's team members was at the ABC previously, and they have some ideas for how we can avoid the STD."*

5. Because Senator Alice sits in the majority party, she is the Chair of the committee that oversees ABC. Senator Bob is the "Ranking Member" of the minority party. Both are important. One of Alice's staffers, a lawyer named Linda, holds the pen on the draft. Linda has lots of experience, so she knows how to expertly navigate three big challenges:

- Secure buy-in from the bill's co-sponsors. She's working hard to get a bill drafted that protects investors from fraud and abuse (Alice's top priority), without stifling innovation or hurting the U.S. competitive positioning in an emerging financial market (Bob's top priority). There are two other co-sponsors, Xavier and Yann, who will have secondary input as sanity checks. If all the sponsors are happy, things are in good shape.
- Figure out who to trust within the crypto industry. This is not a trivial undertaking as crypto is an ever-evolving landscape, and most of its players are new. Market leaders have a history of collapsing, going to jail, or getting embroiled in litigation with major regulators. You need industry at the table to get the technical details right and win Bob's support, but you also need to ensure industry doesn't \*love\* your bill, or both Alice and Bob will be viewed as far too lenient.
- Keep the bill sufficiently narrow to avoid procedural objections from Senator Charlie, who sits on \*both\* financial regulatory committees and is generally an ally of Senator Karen. Charlie will be a good signal for what can get out of Alice and Bob's committee without veering into Karen's jurisdiction. Linda needs to throw him some bones for this to have a viable shot at getting passed.

As you may have gathered, Linda is pretty important!

She is also a single human being with finite time and capacity for feedback. In the same way that you shouldn't write software with 100 people, but 100 people should review it, you shouldn't craft legislation with 100 people, but 100 people should review it.

Early on in the drafting process, Flash and his team have enormous impact, as they've been at the table from the jump, and some of them (like Linda) understand the ABC well because they actually worked there! This will come as a surprise to some, but @RarePepe420 will not have the same impact as Linda's former ABC colleagues.



6. "The Bill" has a name. The Alice and Bob Commission Promotion Act, or ABCPA.

Once bills have names and people start to say those names out loud in D.C. they start to get taken a bit more seriously. By early fall, ABCPA is \*red hot\* in part because Flash and his team are on billboards, partying with Tom Brady, Giselle, and former Epstein Island-resident Presidents.

Flash is making it rain in PAC spending, and meeting with House and Senate leadership to convince them to append the ABCPA to one of the "must pass" bills Congress has to consider during the lame duck. Oh and by the way, don't forget he's going to give a billion dollars to re-elect President Biden and the rest to Save the Whales. What a mensch! Flash isn't like those other dirty crypto subversives. This guy gets it! He wants to be regulated and protect consumers. And he understands that we can't just pass a bill that oversees centralized exchanges, we need to get this *DeFi thing under control as well!*

<record scratch>

7. See previous section.

8. "Well that was a nightmare," thinks Linda. "Maybe Karen is right," thinks Alice. "I just want to go back to my farm and never hear about crypto again," thinks Bob. "Muaahaha," thinks Karen, evilly.

And just like that, the probability of a 2022 ABCPA drops to near zero, and the 2023 policy discussions are re-decentralized, potentially even off the table. Even if Alice and Bob can get ABCPA out of committee, and through the Senate next year, Karen's perfect political foil, Congressman Paddy O'Shea now Chairs the House committee that oversees the STD.

O'Shea is part of the changing of the guard from the November election. Nothing changes in Senate leadership, but everything changes in the House, and the new House leaders have a thing or two to say about the STD, and want to prevent its overreach from spreading.

Crypto's legislative options now boil down to a proxy war over how authority is split between the ABC and the STD. With Flash out of the picture, a dozen other industry leaders (with more nuanced, technical, and balanced views around what constitutes positive legislation), have entered the chat, and their stock with members and staff has risen considerably.

You might not like how the sausage gets made or agree with every policy emissary the crypto industry has representing the movement in D.C., but I will tell you one thing definitively: Flash's demise is good for crypto's long-term health.

Here's what happens next.



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### 4.3 The SEC vs. CFTC Proxy War

The Senate Banking Committee, controlled by crypto adversaries, and the House Financial Services committee, now controlled by more open-minded crypto proponents, oversee the Securities and Exchange Commission (SEC), whose Chair, Gary Gensler, is more or less crypto's public enemy #1 in D.C. (Not winning [Dem](#) or [GOP](#) friends either!)

I'll get into how maddeningly ineffective he's been as a regulator in the next section, but for now, know that [Gensler wants oversight of the big crypto exchanges](#) as he believes that just about every asset not named bitcoin is an unregistered security.

The Senate Agriculture Committee and House Agriculture Committee oversee the Commodity and Futures Trading Commission (CFTC). "Senate Ag" sponsored bipartisan crypto legislation that would have given the CFTC primary jurisdiction over the crypto spot exchanges. House Ag, like House Financial Services, is now controlled by more open-minded crypto proponents.

When we're thinking about legislation and oversight of the crypto spot markets, the CFTC seems to be the more appropriate regulator of most crypto spot markets today. The majority of crypto market cap and volumes center around bitcoin and other true crypto-currencies (ugh, Doge), and truly decentralized Layer-1 platforms like Ethereum (and Cardano, Polkadot, Solana, Avalanche, Cosmos, etc.) that don't pass most people's sniff test when it comes to looking and acting like investment contracts or securities. (An overreaching SEC may disagree.)



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As a result, legislation that puts the CFTC in the driver's seat in the oversight of exchanges and custodians like Anchorage, Coinbase, Gemini, Kraken, and others seems to make sense. The CFTC is no slouch as a regulator (as we'll see below), but at least they aren't openly hostile to crypto's existence, and exchange compliance would seem possible under their oversight.

SEC oversight, on the other hand, would likely prove impossible, as exchanges wouldn't be able to list assets like ETH until they were either issued "no action letters" as non-securities, or registered with the SEC. How does a decentralized Layer-1 protocol and its community produce centralized financial reports and disclosures, you might ask?

Well, I think you have your answer for how unworkable SEC authority is to the future of crypto in America.

The Crypto Counsel for Innovation's (CCI) CEO, Sheila Warren, lays out the most likely path forward by [drawing on some history](#):

*"Where does policy go from here? Dodd-Frank gives some insight. At the center of the [2008] collapse were exotic and largely unregulated financial products called derivatives - credit default swaps (CDS) were sold on billions of dollars of securities backed by shaky mortgages (MBS). Think of CDS as insurance on default risk.*

*In the 1990s, derivatives were seen as an exciting financial innovation that could unbundle risks, and Washington decided the economy would benefit from as little regulation as possible. Fed Reserve Board Chairman Alan Greenspan in 1999:*

*'By far the most significant event in finance during the past decade has been the extraordinary development and expansion of financial derivatives.'*

*When I worked as a Wall Street lawyer in the early 2000s, CDS were gaining popularity among many financial firms and had moved well beyond super elite traders. In fact, several cutting edge financial firms were exploring other similar products. In 2008, mortgages began to default rapidly and suddenly everyone who sold those MBS derivative products - CDS - owed a lot of money, causing a global economic meltdown and revealing just how interconnected financial institutions were. The contagion was shocking and severe.*

*Title 7 of the Dodd-Frank Act subjects all derivatives to substantive regulatory oversight - 'swaps' are regulated by the CFTC & 'security-based swaps' by the SEC. Two years after enactment, the agencies issued a joint rulemaking defining these terms. So these things can take years.*

*[Fast forward to crypto, post-FTX collapse.] Reactive, panicky policies are not the solution. Now is the time for thoughtful, careful discussion with lawmakers and stakeholders to ensure the U.S. crypto regulatory framework promotes safety & soundness, protects consumers, preserves our innovative edge, and prevents bad actors."*



The [best case scenario in 2023](#) is one in which:

- The CFTC regulates the custodial exchanges, "digital commodities" like BTC and ETH, and carves out DeFi (for now).
- Stablecoin issuers face new oversight requirements that outline the rules they will need to follow in order to fully integrate with the legacy financial system.
- And then, and only then, we can have a discussion around the SEC's role in overseeing bona fide crypto securities. Ideas like [SEC Commissioner Hester Peirce's Safe Harbor](#) provide a glimpse at how the Commission could deal with the gray area in between.

As Ledger's [Seth Hertlein](#) pointed out, the DCCPA never "solved the threshold 'what is it' problem. (security/commodity/other). In fact, it may make things worse by creating a new bucket (digital commodity), giving the CFTC primary authority, but then giving the SEC veto power over CFTC decisions. That won't go well." Those definitions will be tricky, but critical.

Common sense [might yet prevail](#), but we've got a couple of big, powerful mob bosses that stand in the way of a short-term resolution.

#### 4.4 MiCA Pros & Cons

It pains me, but we have to talk about Europe and their mixed bag of policy tricks, [Markets in Crypto-Assets](#) ("MiCA") and the Transfer Funds Regulation ("TFR"), since they are now law of the land across the EU, and will go into effect by 2024. These two bills form the backbone of three years worth of discussion regarding a comprehensive regulatory framework for crypto. Some of it is terrible and should be avoided at all costs in freedom-loving countries, and some of it borders on passable, if not positive.

Let's start with the good news.

- There's clarity from a big economic bloc in terms of their treatment of crypto in the years ahead, and they think this is a step forward in consumer protection and market integrity.
- They (mostly) focus on centralized Crypto Asset Service Providers ("CASPs") and asset issuers and focus on rules that would protect against market abuses. They kick DeFi regulations down the road until after the sector has been properly studied.
- They require CASPs to have real presence and management in the EU, hold them liable for damages or losses caused because of hacks or operational failures, and mandate that client assets are segregated in case of bankruptcy.
- Asset issuers are responsible for certain minimum disclosures, and for assets without any issues (BTC, ETH), exchanges will have to provide a white paper and other basic information if they want to list them, in which they could end up liable for mistakes.

- The [early returns on their DeFi “study”](#) are encouraging! They want to regulate legal entities versus protocols, introduce a voluntary framework for DeFi supervision, establish something called “embedded supervision” (on-chain monitoring!) and oversee oracles.
- They didn’t ban bitcoin thanks to its energy intensiveness, as some radicals had initially proposed, though they do have some maddening ESG reporting provisions in MiCA.
- And they provide a path to a digital euro stablecoin that isn’t necessarily a central-bank digital currency. That’s a loaded section of regulation. They cap issuance for asset-referenced tokens (“ARTs”) and non-euro e-money tokens (“EMTs”)
- NFTs are excluded (for now), except if they have a function that would make them some sort of financial instrument. (ApeCoin versus Bored Apes comes to mind. More later.)

As for the problem areas?

- TFR is one of the strictest implementations of the Financial Action Task Force’s “travel rule” anywhere in the world. It introduces detailed AML requirements for CASPs, including transactions that touch personal wallets. It doesn’t ban peer-to-peer transfers or personal wallets outright (in fact they’ve gone from referring to them as “[unhosted](#)” to “[self-hosted](#)” – little victories!), but it is invasive.
- There are no exemptions or minimums to TFR for transfers between CASPs (more onerous than banks), and CASPs must apply “risk-based” AML measures and verification if transfers to a given wallet exceed 1,000 euros.
- I know it doesn’t sound too good, but for a long time, it looked way worse. For most transfers to/from wallets, there won’t be a mandatory verification. Hence, this key demand (“unhosted wallet verification”) from the EU Parliament was quite weakened.
- Algorithmic stablecoins are essentially banned. It’s not just about the LUNA disaster. Remember this regulatory framework was originally urgently proposed and conceived after governments worldwide began to hyperventilate about the potential of the supranational Libra currency out of Facebook.
- They included a requirement to write “regulatory technical standards” to establish “minimum sustainability standards for consensus mechanisms,” which could end up being a backdoor way to ban Proof-of-Work mining, if not bitcoin itself.
- Crypto lending is not covered, but it will be reviewed later. I suppose that is a positive given it’s not a restriction, but given that a crypto crisis got us into this year’s mess, it seems like an omission.

Much like we have legislation and rulemaking in the U.S., MiCA and TFR can be thought of as permanent legislation passed by three “political trilogues” (the Commission, Council, and Parliament, which has some similarities to the House versus Senate in the U.S.) that will now be put into effect by “technical trilogues.” A key difference in the EU, is that the industry’s input into the final technical text (i.e.,

the letter of the regulations) will be much more limited than in rulemaking with U.S. regulators. Bureaucrats know best and will take it from here.

Passage of MiCA and TFR is now all but a formality in early 2023. After that, the stablecoin regulations will go into effect 12 months later, and other MiCA and TFR provisions 18 months later with periodic reviews and reassessments of the policy baked into the framework.

Aave’s Rebecca Rettig has broken all of this down in a couple of interviews, including this one with [The Economist](#), and Circle’s Patrick Hansen has been a [veritable fountain of valuable context](#) and nit-picky updates on Twitter. Consider much of this section stolen from those two primary sources on the ground, plus Ledger’s [Seth Hertlein](#), my spirit animal in fighting for privacy and personal wallets.

Their work and other policy leaders’ work is only getting started going into 2023 in Europe. With any luck, they’ll also be able to point to the temperance in the EU’s DeFi study language to carve that language out from bills like DCCPA. It would be nice to get DeFi-less exchange and stablecoin legislation passed in the new U.S. Congress, even if asking for utility tokens to earn designation as a new type of asset is too much to hope for.

## 4.5 Everybody Hates Gary

It’s the new hit sitcom on YouNow TV.\*

(\*Oh wait, the [SEC killed them](#). It turns out SEC reporting requirements for a consumer token is [impossibly restrictive](#): “*Pros Tokens’ status as qualified securities significantly limits our ability to respond to changing market conditions in a commercially feasible manner. [We must] make public filings and often get prior regulatory approval for product changes. As a result, we are unable to follow anything remotely like proper product development of “launch, measure, iterate” and struggle to launch new key functionalities we develop (like staking or per-app tokens).*”)

The first thing you need to know about Chair Gary Gensler’s SEC is that they have never met a company they didn’t want to sue (except, apparently, FTX). They’re suing Ripple over XRP’s status as an unregistered security, and it now looks more likely that they will win the case in 2023 [given new evidence](#) and the [precedent set in the LBRY case](#). They snuck a side door “unregistered securities” claim into an insider trading at Coinbase that the company itself had investigated and referred to authorities.

At least Grayscale is suing the SEC over their “arbitrary and capricious” [rejection of the GBTC ETF](#) Conversion application.

Though to be fair, the SEC went after Grayscale first, forcing a 2016 settlement that oh so ironically created the [GBTC redemption problem in the first place](#). And now they’re back at it [harassing Grayscale over Zcash](#).

Hammer. Nail.

The second thing you need to know is that this SEC missed most of the major problems that were going on right under their noses. They never seemed to investigate FINRA-registered broker deal-



ers for their reckless institutional lending practices. They allowed GBTC to float in the public markets with no redemption mechanism, which led to massive harm to retail investors, and a toxic collateral asset that sparked contagion (as discussed last chapter). To rub salt in the open wound, they seem to have cozied up to FTX and purportedly considered a “no action” letter for its affiliated IEX securities exchange, while [seeming to ignore the well-documented evidence](#) that FTX’s core business relied on a related market making and prop trading shop, a model that doesn’t usually fly unless you are a deep-pocketed political ally.

One reason to root for legislation to pass that empowers the CFTC is because the status quo under Gensler is untenable. Without clear legislative guidance as to where the SEC’s authority begins and ends within crypto, the industry will continue to fight a trench war – for years – with this SEC and its current leadership. We’ll lose the war of attrition, and even if we survive, we’ll be badly bloodied as a result. It’s the primary reason most crypto policy people are willing to make some tough concessions on bills like the DCCPA.

A complete absence of legislation will leave crypto’s fate in the hands of administrative courts, delay adoption, rack up legal bills, and throw default oversight advantage to one of the world’s most openly hostile crypto regulators.

#### 4.6 Ooki vs. CFTC (DAO Governance)

Given how aggressive Gensler’s SEC has been with the crypto industry, it’s natural to expect many people to begin longing for oversight from a different, more open-minded regulator.

There is a lot riding on the CFTC versus SEC question, but it’s important to note that the CFTC is hardly a slouch when it comes to regulatory teeth. Determining crypto’s most fitting regulatory framework needs to be future-proof, not a mere attempt at jurisdiction-shopping due to a single adversarial regulator who happens to hold his appointment at a single point in time.

Remember, it was none other than <checks notes> CFTC Chair Gary Gensler who was ultimately responsible for implementing key provisions of the Dodd-Frank Act in the aftermath of the 2008 financial crisis.

Gensler served in the role from 2009 to 2014, and even back then was considered to be a ruthless taskmaster. The last truly major rulemaking the CFTC did (68 new rules!) was under Gensler’s watch as the CFTC sought to bring oversight to the OTC derivatives markets, and expanded from the \$35 trillion futures market to the [\\$400 trillion swaps market](#).

It matters what authority is bestowed on a regulator by law, not who the person in charge at the moment happens to be. Because all regulators will ultimately face the temptation to regulate via enforcement. Look no further than the Ooki DAO case, which CFTC Chair Rostin Behnam argued was “[so egregious and so obvious](#)” that they had no choice but to pursue it.

We’ll touch on the specifics later, but suffice it to say that it is the [CFTC’s actions that appear egregious](#) in the Ooki DAO case.

A centralized trading and margin lending protocol called bZx ran what the CFTC deemed to be an illegal and unregistered operation. To skirt the laws, the bZx founders kicked its product into a token-governed DAO called Ooki, which had a limited number of key stakeholders (including the bZx founders) who made decisions on behalf of the protocol via token voting. Because it would have been hard for the CFTC to track down and pin liability on every single participating tokenholder, they chose an easier route: a sweeping enforcement action that would hold the entire DAO liable and imbue the regulator with new authority thanks to the precedent set by a default win in court.

The man at the helm of the CFTC, Chair Benham, strikes many as a more reasonable regulator (I like him personally), but that’s not the point.

Law is permanent and subject to misinterpretation and abuse if not carefully, narrowly crafted.

(Required reading: [Ooki DAO vs. CFTC](#))

#### 4.7 Tornado Cash vs. OFAC (Personal Wallets)

[Privacy is normal.](#)

That’s one of the most controversial things you can say in the West right now when it comes to financial surveillance, but it’s a rallying cry worth fighting for.

Indeed I’ve been encouraged at how many crypto leaders have stepped up to the plate to aggressively defend privacy. Coin Center’s challenge to the [6050i reporting provisions](#) included in last year’s infrastructure bill was the legalese around [Neeraj’s all-time banger of a tweet](#): “I’m sorry that your warrantless surveillance regime was built on the assumption that people would always need intermediaries to transact.”

They’ve also been at the forefront in defending privacy-preserving technology in response to the Treasury’s unprecedented and unconstitutional decision to sanction Tornado Cash.

We touched on the situation briefly in the “People to Watch” Chapter, and I’d encourage you to read [Coin Center’s analysis](#) in full, as it’s important. But in brief:

- The Treasury’s Office of Foreign Assets Control (OFAC) placed Tornado Cash, the protocol, on its Specially Designated Nationals And Blocked Persons (SDN) List. The SDN list is a sanctions list that typically covers individuals and companies, who can petition for their removal.
- In the case of Tornado Cash, not only were the Tornado Cash \*entity\* and related persons sanctioned, but several Ethereum addresses for the TC \*smart contract\* were also included. These contracts can’t be modified once deployed, and as bits of permanent computer code, cannot defend themselves or petition for their SDN removal.
- Coin Center pointed out that other divisions of the Treasury (FinCEN) had in the past noted this [common sense distinction](#) themselves!

- U.S.-based Tornado Cash users are now banned from interacting with the Tornado Cash protocol, which includes sending and withdrawing funds from the application. That goes against Fifth Amendment protections around due process.

Coin Center isn't alone on this. The DeFi Education fund [immediately filed a Freedom of Information Act](#) request around the Treasury's Tornado Cash OFAC deliberations. [Coinbase](#) and [Haun Ventures](#) filed amicus briefs in the case as well.

It's refreshing to see the solidarity – especially since this battle is as much about pushback over the [chilling effect](#) regulatory overreach will have on innovation (OFAC violations are not “slap on the wrist” sort of crimes), as it is about the right to private transactions.

We simply must win this one.

## 4.8 Protecting Crypto Banking

Senator Warren will likely hate crypto until her dying breath. She doesn't like the people, she doesn't like the audacity of speech and software that sits outside of the vice grip of the state, and she certainly doesn't like that crypto companies have access to U.S. banking.

In a recent letter [to Silvergate](#), Senator Warren questioned why a well-regulated bank (one that counted FTX as 10% of its deposits, and included a glowing customer testimonial) had missed evidence of massive financial fraud. This seems reasonable, if annoying, and it was a bipartisan letter. But the fact that a bank was unable to detect fraud between related entity accounts of a depositor is not surprising, especially given a) the known volatility of that depositor's end market this year, b) the nature of the depositor's business in market making and exchange, and c) the fact that Silvergate could only ever see a tiny fraction of the full FTX balance sheet, which was predominantly denominated in crypto. As you'd expect a crypto exchange's balance sheet to be.

A cursory study of Silvergate and [its financial filings show that concern over its solvency is overblown](#). If anything, the Warren witch hunt could spark stress and withdrawals that wouldn't have happened otherwise. I wouldn't be surprised if the FTX bankruptcy, subsequent contagion, and perception-is-reality FUD halve the bank's deposits quarter over quarter. Maybe worse.

But what would happen if Silvergate deposits – “substantially all of which are derived from our digital asset customer base” – decreased from \$12 billion in Q3 to \$6 billion by end of year?

Not much actually. Their leverage ratios were nearly 10x higher than the minimum regulatory requirements at the end of Q3.



	Actual		Minimum capital adequacy <sup>(1)</sup>	
	Amount	Ratio	Amount	Ratio
September 30, 2022				
<b>The Company</b>				
Tier 1 leverage ratio	\$ 1,672,886	10.71 %	\$ 624,666	4.00 %
Common equity tier 1 capital ratio	1,463,765	40.72 %	161,753	4.50 %
Tier 1 risk-based capital ratio	1,672,886	46.54 %	215,671	6.00 %
Total risk-based capital ratio	1,676,080	46.63 %	287,561	8.00 %
<b>The Bank</b>				
Tier 1 leverage ratio	1,631,662	10.45 %	624,574	4.00 %
Common equity tier 1 capital ratio	1,631,662	45.45 %	161,568	4.50 %
Tier 1 risk-based capital ratio	1,631,662	45.45 %	215,424	6.00 %
Total risk-based capital ratio	1,634,856	45.53 %	287,232	8.00 %

Silvergate has run a clever business: become a port in a storm for crypto depositors and use that liquid capital to fuel a boring, plain vanilla commercial bank. They held \$8.5 billion in marketable securities (70% of its demand deposits) at the end of Q3, and the rest of the loan book is mostly exposed to floating rate loans (limited interest rate change exposure).

I'm not sure they would be A-OK with a 90% drawdown in customer deposits (would any bank?), but as long as Silvergate CEO Alan Lane gets together with his other big customers and convinces them that assets are SAFU, they should be able to weather the storm. Those same customers don't want Silvergate going under either. Live together, or die alone.

Of course, Senator Warren doesn't want to stop at simply investigating Silvergate. She wants banks to stop servicing crypto companies. It's a full-on witch hunt and her letter to the [Federal Reserve, FDIC, and OCC](#) exposes her real intent: to ban banking to crypto companies.

The Silvergate letter was allegedly written in response to a push from a well-known short seller who had been aggressively hitting D.C. with his anti-Silvergate pitch and found a pliant audience in the ulterior-motivated Warren. The Senator even went so far as to misquote a Washington Post article in her letters to regulators, falsely writing that Silvergate's “deposits quarter-to-date are **down \$9.8 billion**” versus the original WaPo text that “average deposits quarter-to-date were **down to \$9.8 billion**.” (emphasis mine)

That's a very convenient “typo” that is otherwise a material misstatement of fact regarding a public company. One that could trigger a bank run at one of Senator Warren's chief political targets crypto-friendly banks.

I would love to tell you that Senator Warren is the only problem when it comes to crypto's access to banking. But the Fed has been playing favorites and [breaking its own rules](#), too.

Caitlin Long's Custodia Bank is [suing the Fed](#) over its inaction on her company's application for a Fed master account, while the Fed flippantly approved [BNY Mellon's similar crypto custody service in October](#). I spoke with a couple of people who have had lengthy careers \*at\* the Fed, and they think Long and Custodia have [a pretty strong case](#). Those conversations happened before the FTX blow-up (perhaps things have now changed), but this will remain one of the most important under-the-radar legal battles to watch in the new year.

Crypto needs banking access, or the U.S. crypto ecosystem will be starved of on-and-off ramps, liquidity, and customer credibility.



As a closing note, this sort of thing isn't all bad: if you want to red pill good people, cut off their banking access. Nothing screams "buy bitcoin" quite like institutionalized unpersoning, financial speech crackdowns, and [morality banking](#).

Narcotics "pharmaceutical" companies get bank accounts at big banks, but [not marijuana dispensaries](#). Cartels [retain banking access](#), but [not truck drivers](#). This is bullsh\*t. You know it, I know it, and they know it. This is why I choose war versus retreat.

## 4.9 State vs. Federal (Stablecoins)

Stablecoins, not BTC or ETH, are now the backbone of the crypto economy. We'll talk about the progress of various types of stablecoins in the next chapter, but for now, know that there's two things to keep an eye on early in 2023.

1. New House Financial Services Chair, Rep. Patrick McHenry, wants a digital dollar, as does outgoing Chair, Rep. Maxine Waters. Congressman McHenry admits that their bipartisan legislation is a bit of an [ugly baby](#), but it's still arguably an improvement for the crypto industry. Their bill could answer whether the Fed has the [authority to issue a CBDC](#) (banks might not like it as it could threaten deposits), and pave the way for banks and non-banks alike to issue stablecoins subject to certain licensing requirements. It would resolve concerns around the type of assets that could back stablecoins (cash and short-dated Treasuries).
2. Algorithmic stablecoins will be in the crosshairs in both Europe (under MiCA as noted above) and the U.S. It's hard to argue that LUNA was anything other than a colossal mess for market participants worldwide, and its failure could lump other sustainable collateralized stablecoin implementations like Maker's Dai with the truly suspect (OHM). Odds are good that the best-case scenario for algorithmic stablecoins is that they are left alone and relegated to DeFi, never touching regulated exchanges. That would leave the experiments, which have historically proven to be crypto WMDs, fully cordoned off from the legacy financial system.

The \$10 trillion question is whether the future of stablecoins sits under the Paxos model (preferred jurisdiction is New York State) or the USDC model (preferred jurisdiction is federal). I find it hard to believe Tether will prove to be the eventual winner, though. There's a lot riding on a gradual flipping of stablecoin market caps versus a sudden shock, as USDT exchange volumes dominate on international exchanges and are an order of magnitude higher than USDC.

## 4.10 The Ground Game

An underappreciated component of crypto policy efforts this past year is in what we'll call the "ground game." The thankless, multi-year, never-ending work of educating (and [scoring!](#) and [supporting!](#)) policymakers, eking out state-by-state progress in the [laboratories of democracy](#), and fielding pro-crypto candidates in new elections.

The major trade associations have [staffed up this year](#) and done yeoman's work. They'll continue to have their hands full in the new year in the wake of the FTX fallout, but at least they'll have [19 new](#)

[crypto allies](#) in the next Congress, thanks to the organized efforts of one of crypto's top super PACs.

This year it's all about doing the work of reshaping the narrative (here's a good [101](#) and [102](#) primer on American influence), setting our own standards as an industry ([Salvation Lies Within](#)), and building solutions to the problems that plagued us this last go around.

Many of those solutions will be built at the centralized infrastructure level that we discussed last chapter: enterprise-grade security of exchanges and custodians, reliable and intuitive self-custody, financial, operational and governance transparency, Proof-of-Reserves and segregated customer accounts, etc.

It's the decentralized software that we're most excited about, though, and those solutions are what the rest of this report is all about. It's time to talk about crypto-currencies, scalable Layer-1 transaction ledgers, DeFi, NFTs, DAOs, and decentralized infrastructure networks.

In other words, let's get to the good stuff.

*You can apply to join as a member of the [Blockchain Association](#) or the [Crypto Council for Innovation](#), or donate to [Coin Center](#), the [DeFi Education Fund](#), or the [Electronic Frontier Foundation](#) if you'd like to support the ground game. Or you can [donate directly to the campaigns of representatives](#) who have done the work and are earnestly trying to get this right.*





BOOK TWO

# WHY CRYPTO MATTERS IN 2023

CRYPTO THESES 2023

## Inspiration

As I was writing this report, I was looking for inspiration and motivation, and couldn't think of anyone more visionary than [Hal Finney](#). In the depths of the 2008-2009 financial crisis, he was not only the first Bitcoin user but he successfully identified the two greatest challenges Bitcoin would face at scale... in the first month after launch.



Writing this much content in such a short amount of time [feels like an 11 mile sprint](#). But I'm grateful for it. Visionaries like Hal gave me a career that I never could have imagined. One that is still early, I hope.

The good parts of the back half of this report are dedicated to Satoshi Hal and his family.

The bad parts and mistakes are my own.



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## 5.0

# TOP 10 CRYPTOCURRENCY TRENDS

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## 5.0 Intro

Bitcoin remains tremendously important, even if it’s difficult to defend at times.

It’s not as flashy as other crypto applications. It’s got a big carbon footprint, and the “maximalist” religious zealots that promote BTC are a hostile bunch. Bitcoin can be used by people we don’t like and that can, at times, be inconvenient and undermine policy objectives. But as a single purpose, commodity money, and secure settlement system, it has held up miraculously. It has proven durability and will continue to serve as a powerful check on absolute sovereign authority.

It’s also on the right side of the U.S. Constitution. Monetary code is speech, and self-custodied bits of computer code won’t be subject to unreasonable search and seizure (we’ll fight it to the bitter end at least). That extends to privacy coins and “zero-knowledge” tech that powers some of crypto’s cutting edge payments systems, which I submit are technologies embedded not just with cypherpunk values, but with the values of the U.S. nation’s Founders.

We will debate Bitcoin’s role in society for as long as it exists. As Bitcoin grows (and it will resurge, I’m sure), I don’t expect the powers that be to stand idly by without a fight. As it’s been for a decade, Bitcoin’s best defense will continue to be its inability to be held hostage by one charismatic leader, and its volatility and boringness will deflect attention in different ways.

That said, bitcoin’s role as a usable currency will continue to be questionable. You can’t (or shouldn’t) build debt systems around 100 vol assets. You can’t (or won’t) integrate bitcoin into state governable central banks as a primary reserve any time soon.

That’s what makes it so important to build stablecoin infrastructure (the right way) in parallel. Stablecoins are bridge currencies to a future where nations play a smaller role in centrally managing their economies.

Under a central bank digital currency (CBDC)-led future, finance looks dystopian and authoritarian. It looks exciting with cryptocurrencies.



## 5.1 Bitcoin is “Outside Money”

I mean, we canceled a country this year. What more is there to say?

Credit Suisse analyst, [Zoltan Poszar](#), is one of my favorite macro analysts to read and follow. His investment bets aren't always on the mark, but his mental models and frameworks for how to think about the world's dominant reserve currencies are required reading for any serious investor. Zoltan popularized a term called “outside money,” which is a more elegant descriptor for non-sovereign currencies than what those of us who have been into bitcoin from the early days have been able to come up with ourselves.

When the U.S. decided to sanction Russia for its invasion of Ukraine, and more importantly, to seize its U.S. Treasury reserves, it was a “cross the Rubicon” moment for crypto. Zoltan called it [Bretton Woods III](#):

*“When this crisis (and war) is over, the U.S. dollar should be much weaker and, on the flip-side, the renminbi much stronger, backed by a basket of commodities. From the Bretton Woods era backed by gold bullion, to Bretton Woods II backed by inside money (Treasures with un-hedgeable confiscation risks), to Bretton Woods III backed by outside money (gold bullion and other commodities). After this war is over, “money” will never be the same again...and Bitcoin (if it still exists then) will probably benefit from all this.”*

According to Zoltan, the trend towards deglobalization and on-shore manufacturing, domestic supply chains, and commodity reserves would have a persistent inflationary effect. Nations outside of the U.S.-EU alliance will “inevitably, but not imminently” look to outside money like gold and other commodities instead of G7 “inside money” and FX reserves that slowly lose purchasing power.

Bitcoiners often get ridiculed for “moving the goal posts” on bitcoin as an inflation hedge, but most of us have always used inflation as shorthand for “long-term monetary debasement” (QE is permanent), not point in time hedges on changes to Fed rate policy (target interest rates are temporary and subject to rapid adjustments).

Bitcoin is big now, and its continued ascendance will be slow, but powerful.

We're in a foot race to see whether more emerging market central bankers begin to bid on BTC or the big reserve currency nations move to kill the invention. Pro-crypto reservists are starting to pop up in unlikely places like the [Harvard economics department](#), so we're getting closer to the end game than ever before, despite this year's market stress.

Bitcoin maximalists are often rightly derided for their tone and toxicity, but it's telling that Vitalik's tongue-in-cheek [April Fools post on maximalism](#) does steelman the thesis for Bitcoin.

(More on Bitcoin's latest developments in our [Q3 Bitcoin update](#).)

## 5.2 Global Regulatory Challenges

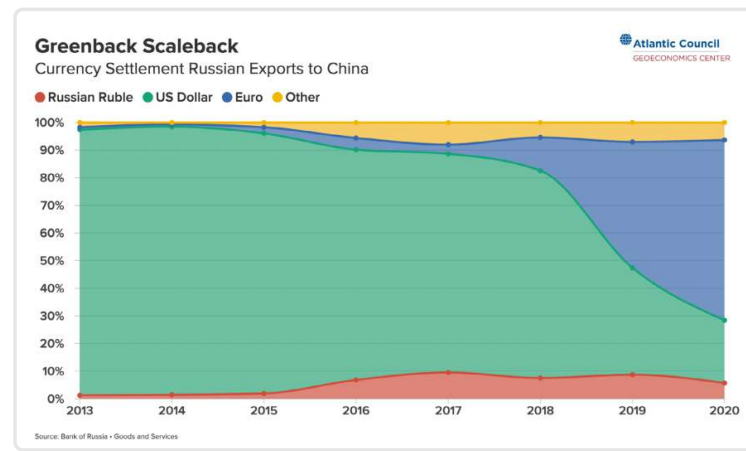
There's a reason Satoshi disappeared.

It's unlikely global authorities will like technologies that make their jobs harder. I'm not talking about bitcoin's pseudonymous nature (crypto is notoriously easy to track with forensic tools like [Chainalysis](#)). But I am talking about how challenging it is to freeze or seize bitcoin at scale.

It's not popular with the Chinese Communist Party or the Canadian Government alike for the same reason: It's incompatible with dragnet financial surveillance and the one-click financial deplatforming that authorities covet.

That's why you will typically hear bitcoin maligned as a tool for terrorists, money launderers, and rogue states, even though it's a [rounding error according to the data we do have](#). It may be politically expedient to draw attention to the outliers and negative anecdotes, especially when financial experts within the government refute those narratives based on hard data. They certainly never praise the tech when its same attributes allow refugees in wartorn countries to raise money in times of distress. Or people to survive financially during a total currency collapse, such as the current awful situation in Lebanon.

For instance, the Treasury Department itself knew that there wasn't a realistic risk that Russia could use cryptocurrency to evade sanctions at a meaningful scale. For bitcoin to do that, we'd be talking about multiple orders of magnitude larger flows of money than would be possible to conceal on a public ledger like bitcoin's. When it comes to evading U.S. sanctions, Russia is almost certainly going to turn to digital assets, but it seems more likely to be the digital yuan, given recent trends.



(Source: Atlantic Council)

That didn't stop opportunists from using a red herring, slamming bitcoin as a [potential tool for the Russians](#) at the time and later as fodder for an unnecessary, overreaching bill to stamp out crypto in the name of "security." And I'm trying to think of something recent and more dystopian than the Canadian government [putting American CEOs on a watch list](#) for promoting self-hosted crypto wallets: a sluggish response to protected online speech of foreign citizens.

We've largely forgotten about it only because so much has happened since.

In light of ongoing regulatory uncertainty worldwide about the very legality of owning crypto privately, I rather like the concept of tracking "institutionally seizable dollars" (ISD%) or the amount of crypto that could be confiscated by a central service or authority at a given time.

If you're new to crypto or high profile (physical safety is at a premium) and you live in a "safe" jurisdiction, you should likely have a high ISD%.

If you're a bitcoin OG, anonymous, or live in an unsafe jurisdiction (like communist China or Canada) you should aim for a low ISD%.

Money is not the root of all evil, it is simply a tool for trading tangible resources (food and shelter) and human time (labor). Crypto is a monetary innovation, and those who call it a tool for evil are often projecting their own geopolitical worldview onto a neutral, amoral, and permanent technology.

Bitcoin will [outlive the Euro](#). So it's best for the folks in Brussels to learn how to deal with it.

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## 5.3 Bitcoin Mining

There's been some terrific research done on the [economics of mining](#), and I won't cover that here, other than to say that it [hasn't been a very good year for miners](#). One year ago, bitcoin miners operating in Texas could produce bitcoin for between ~\$5-10k, and bitcoin traded at \$60k. It now costs closer to \$15-20k to produce the same bitcoin, and more miners are in distress.

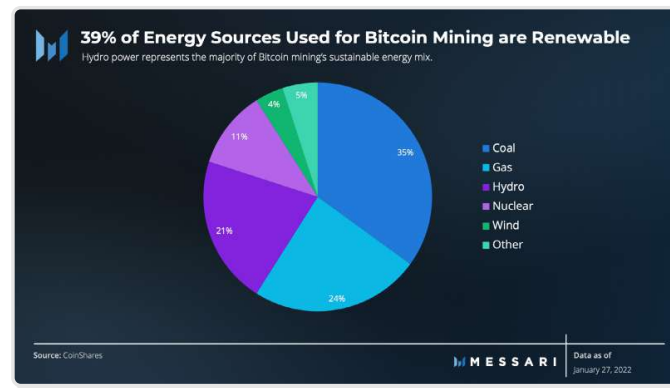
(Here's an [excellent article from Compass Mining](#) that breaks down the top 10 miners by performance, balance sheet, and overall financial condition if you are interested in specifics. Zack Voell also recaps the monthly carnage. The [September](#) update was "what happened this month." The [October](#) update was "not a great month." The [November](#) update was "a remarkably sh\*t month.")

But we don't need to talk about the idiosyncrasies of hardware operations or harp on the fact that a capital and energy intensive sector has struggled amidst the 75% bitcoin price decline.

Instead, let's talk about mining, and the regulatory crosshairs in which it now sits. To do that, let's talk about the "good facts" and "bad facts" about proof-of-work mining and whether bitcoin can actually help [improve the environment](#).

### Bad facts:

- Bitcoin mining produces [a lot of e-waste](#) each year, about the same amount as a country the size of the Netherlands. Only about 17% of this sort of waste is recycled today.
- In environments with [acute energy shortages](#) and [high costs](#), bitcoin mining can be seen as driving up marginal energy costs for the average consumer.
- At the beginning of the year, only 39% of bitcoin mining was renewable. [CoinShares estimated](#) that nearly 60% of bitcoin mining power comes from coal and gas. (I'm awaiting CoinShare's January refresh to see how things have evolved in 2022. This is a fairly manual and tricky data set to compile, and they have the best we've reviewed.)



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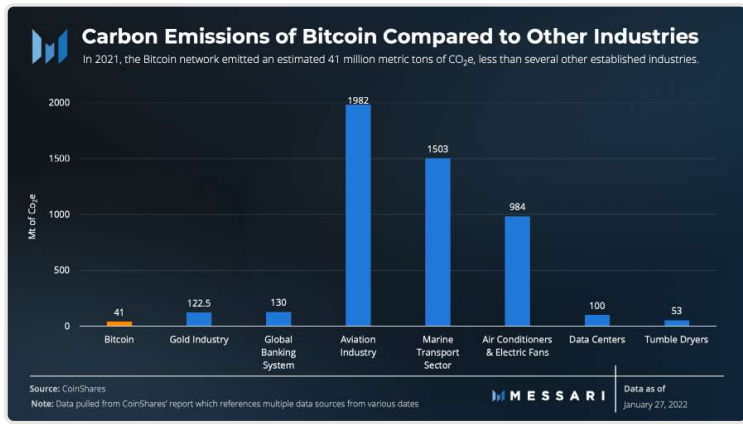
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### Good (or mitigating) facts:

- Bitcoin mining costs are fixed and capped by market forces. Bitcoin does not become marginally more energy intensive if more people use bitcoin. Instead it is a function of bitcoin's market cap and energy costs. As mining issuance rates decline over the next 5-10 years, energy consumption and e-waste will be capped by the marginal cost it takes to mine a single bitcoin, and that cost will only face upward pressure if bitcoin's entire market cap resurges. (You wouldn't buy more energy than BTC is worth to mine.)
- Today, mining creates a carbon footprint that's about the same size as tumble dryers and about a third the size of gold mining. It's also significantly less energy intensive than the global banking system or the militaries that secure it. Not exactly a global killer.



- And finally, bitcoin miners are “[the dung beetles](#)” of the energy world. They'll eat energy that no one else wants or can use. The trend towards leveraging wasted and stranded energy sources continues. Bitcoin miners have been increasingly co-locating to capture flared methane, stranded geothermal energy, coal refuse, and even recycled waste tires.

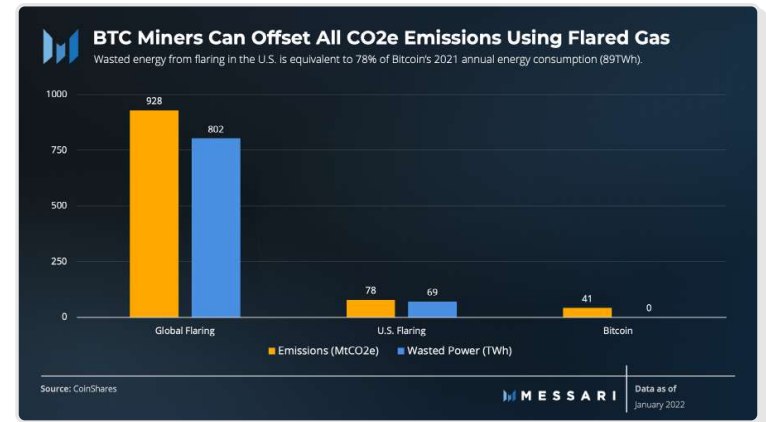
Flaring is a particularly valuable segment to highlight, as even the White House Office of Science and Technology wrote about it favorably in their [crypto climate report](#).\*

Natural gas is a common by-product of crude production. Because oil drilling sites typically reside in remote locations where pipeline and powerline infrastructure is non-existent, excess natural gas is often flared (combusted) away. Methane leaks directly into the atmosphere, causing more than 30 times the greenhouse effect of CO<sub>2</sub> over a 100-year period.

Bitcoin miners have found ways to leverage wasted energy and reduce the carbon footprint of the oil industry. CoinShares estimates that 69 TWh of wasted power in the U.S. is lost annually to flaring, which results in a carbon footprint of 78 million tons of CO<sub>2</sub>e emissions. In other words, the wasted energy from flaring in the U.S. alone is equal to 78% of the energy used by the global Bitcoin network in 2021 (89 TWh). Repurposing flared energy towards bitcoin mining would drastically reduce the

amount of greenhouse gasses entering the atmosphere. Enough to potentially offset all the network's CO<sub>2</sub>e emissions or even make it carbon negative.

Bitcoin as an ESG asset. I am very sorry to disappoint you, but it's going to happen!



And we should make Bitcoin cleaner and more sustainable if we can!

Look, I think ridiculous double standards on energy policy should be fought hard. (Can we create a better carbon credit market using crypto? [Of course!](#))

But I also know that a) bitcoin miners will be [prime targets for load shedding](#) because they are centralized and easy to spot, b) are not a particularly lovable bunch given their energy usage is tied to a bearish bet on the competence and responsibility of global governments, c) in my opinion, they're wasting valuable policy resources [fighting the reopening of coal plants](#) for bitcoin mining, and d) renewables are the future anyway.

The narrative deck is already stacked against us. Why make it any easier to target Bitcoin?

(\*Note: The White House also notes that mining can help strengthen renewable energy grids, as renewable energy is unpredictable and results in excess energy during off-peak times that results in energy producers curtailing (or dumping) that energy. Miners can be a constant energy buyer of last resort, increasing profitability for renewable energy operations.)

(Required Reading: [How Bitcoin Is Improving The Environment](#))

## 5.4 Bitcoin Yield

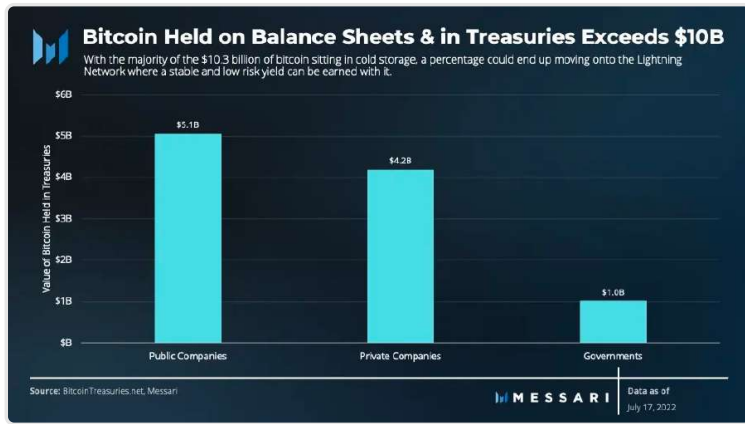
There's no such thing as a free lunch. One of the knocks on bitcoin over the past few years has been that it doesn't generate yield or “do anything.” That is a feature, not a bug of a store of value that is



difficult to confiscate (or borrow).

One of the really great things about the financialization of bitcoin is that you can make 5, 7, 10% interest, risk free! All you have to do is let one of the industry's top crypto lending businesses like BlockFi, Celsius, Genesis, or Voyager borrow your funds and watch the cash roll in. Nothing bad could possibly happen...

Bitcoin can't be staked, and recent history has shown why you don't really want to lend it out to centralized counterparties. But what if there was a way to generate yield on bitcoin natively without incurring counterparty risk? That's something Sami wrote up for us [earlier this year](#), and I'm fascinated by the concept, particularly for countries and companies that are otherwise sitting on large stashes of BTC. It all boils down to a bet on the Lightning Network, which I have grown tired of betting on as it has only ever disappointed me. Current lightning capacity is about \$90 million. Wrapped Bitcoin on Ethereum (WBTC), which is itself just 10% of the TVL in DeFi applications, is 40x larger.



In a rising rate environment, I'm not sure that many corporate treasurers are willing to load up on balance sheet bitcoin. If anything, we're more likely to see supply-side shocks from miners covering costs and debt service payments, tax loss harvesting, and (in very bearish scenarios) potential default driven sales from [Microstrategy](#). Short of a significant Fed pivot on interest rate policy, the next demand-side shock for bitcoin will likely happen at the global government level, not big corporations.

(Required Reading: [Earning Yield on Bitcoin](#))



## 5.5 Memes & Ripples

Out of the top 25 crypto assets by market cap, the top three performers in Q4 have been Dogecoin, Litecoin, and Ripple's XRP.

#	ASSET	PRICE (USD)	7 DAY TREND	REPORTED MARKETCAP	REAL VOLUME (24H)	CHANGE VS USD (90D)
1	Dogecoin · DOGE	\$0.0883		\$11.71B	\$195M	+56.62%
2	Litecoin · LTC	\$75.65		\$5.43B	\$119M	+40.15%
3	XRP · XRP	\$0.383		\$19.28B	\$238M	+20.40%
4	Polygon · MATIC	\$0.903		\$7.88B	\$122M	+12.78%
5	Uniswap · UNI	\$5.97		\$4.50B	\$28.02M	+4.54%

If you had told me this when I started writing ~200 hours ago, I would have done a tweet thread instead and called it a day.

## 5.6 Privacy Coins & Private Transactions

Defaults are powerful when it comes to crypto networks. Blockchains like Ethereum are transparent by default and allow for private or "shielded" transactions to be processed in specific pools. But it's not clear whether that will prove to be a feature or a bug at scale.

On the plus side, I'm not sure we would have been able to scale public blockchains under real-world regulatory constraints if they had started off fully private from day one. From an auditability and transaction-monitoring standpoint, we've benefited greatly from default public and pseudonymous chains. The people who track criminal financing for a living have a slightly easier job, so less of a panic at the disco.

On the other hand, the default public nature of most blockchains has now put "privacy preserving tech" into the naughty category for crypto applications. We'll need a major uptick in [viewing key](#) support and acceptance in order to keep authorities at bay in the coming years. Otherwise, applications like Tornado Cash will continue to run the risk of being targeted for "aiding and abetting money laundering." (I don't agree with it, but it's a clear and present risk.)

That may create opportunities for the largest private-by-default networks, Monero and Zcash, as well as privacy-focused Layer-2 scaling solutions such as Aztec (already flagged by at least one exchange as a [high risk protocol](#)) and Polygon's Nightfall (a [jointly launched solution with accounting firm EY](#) that preserves on-chain transaction privacy for enterprises without hindering their bookkeeping requirements).

I'm bullish on both Zcash and Monero [amidst the upcoming privacy wars](#). Especially Zcash. (Maybe this year I'll even be right!)

Ethereum won't solve base layer, end-to-end privacy for many years (if ever). That opens the door for

a pure play private L1 like Zcash, or as Balaji suggests, a [ZEC-ETH hybrid](#).

(a16z's [zero-knowledge canon](#) is really good if you want to [nerd out on the tech](#).)

(Required Reading: [The ZK Everything Report](#))



## 5.7 Stablecoins Should Be Our Leading Export

Though I do not like some of our [authoritarian and paternalism-inclined overlords in Congress](#), I am mega bullish on America and its ongoing leadership in tech, finance, and crypto.

If we think about the dollar-banking and markets system as our leading “tech company,” one of the easy wins we should notch is on the stablecoin front.

The U.S. dollar continues to dominate as the world’s reserve currency, and there is an almost insurmountable distribution advantage if we merely lean into stablecoins as a national priority.

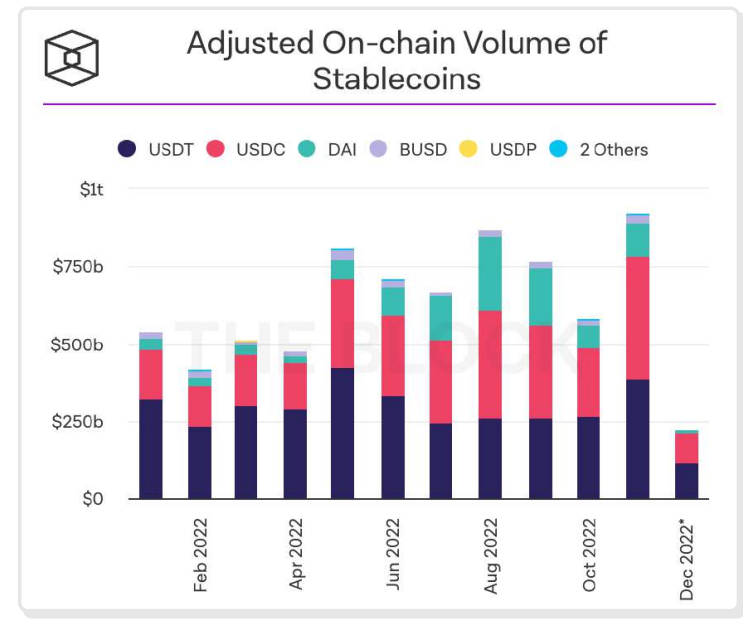
Our entrepreneurs have been leading the crypto infrastructure and DeFi buildout. Over 50 million Americans own crypto today, and it’s likely that Americans own a plurality of all crypto in circulation. Crypto is also a sector in which China simply cannot compete with us, since open financial architecture is fundamentally incompatible with Beijing’s authoritarian model.\*

There is a burning need for USD-pegged stablecoins in countries with sky-high inflation such as Argentina, where [a dozen conflicting exchange rates](#) overlap and the government is creating new rules around who can access dollars:

*“Most commonly Argentines use the “dolar blue,” a free-floating, all-cash rate of 280 per dollar that’s technically illegal. Other rates include one for investors buying stocks and bonds, another for credit card purchases, one for the “Qatar dollar” that effectively doubles the official rate for foreign travel (associated with the World Cup’s timing, one for “Coldplay” which involves a 30% “tax” on top of the cost of tickets for concerts by artists who charge in foreign currency.”*

If we want to prolong our status as the world’s reserve currency holder, we should get better at exporting digital dollars without the shackles of a CBDC - something that no country will want for national security and privacy reasons. As we covered up top in the “outside money” section, there are [plenty of geopolitical reasons](#) that other countries may want to move away from the dollar reserve. We shouldn’t make it easier for them to switch off by falling behind on the tech and regulatory frameworks.

We don’t need to do much to win. We just need to not [butt fumble](#) a huge lead. We already have \$900 billion of dollar-denominated stablecoin transactions per month, about what the [Fedwire service does per year](#). That terrible month we just had? Another record for USDC.



(Source: [The Block](#))

Stablecoins come with tradeoffs. You can optimize for their censorship resistance, their price stability, or their reserve audibility, but not all three. Well-regulated stablecoins like USDC from Circle are stable and audited, but they’re also censorable. The Cowboy stablecoin, Tether’s USDT, is stable and tough to censor, but you’re making leaps of faith on the accessibility of its underlying reserves at any given time. Purely algorithmic stablecoins like Terra’s UST work well...until they depeg, and really don’t work so well.

We need all three experiments as stablecoins to be the backbone of DeFi and global crypto payment networks. Here’s where the puck is heading next year.

*(\*I’ve had this paragraph in my notes for a while. I think I wrote it, but I’m not actually sure. If it came from someone else, I’ll fix the attribution.)*

## 5.8 The Stablecoin Trinity

I have spent a lot of time the past few years writing about the various types of collateralized stablecoins. I don’t want to be redundant to prior reports, so let’s do a speed round.

**1. The Majors:** There are two well-regulated USD-reserved stablecoin issuers in the U.S.: Circle and



Paxos. Circle has \$45 billion in USDC and counts Blackrock and BNY Mellon as its custodians. Paxos issues the Binance USD stablecoin (\*on [Ethereum](#)) and Paxos dollar, which combined have about \$20 billion in circulation, 95% of which is BUSD. Paxos is regulated by the New York State Department of Financial Services as a trust company, while Circle is a licensed money transmitter.

Those legal details matter in terms of how these issuers may jockey for regulatory positioning going forward. Paxos has a trust company charter and conditional OCC charter, so it likes keeping things cozy in New York State, while Circle is pushing harder for federal stablecoin legislation. Paxos is “more regulated” and has the biggest global exchange (and Mastercard and PayPal) as its white label customers, and USDC is the most dominant Ethereum-based stablecoin, and DeFi reserve, but [faces FUD at times](#).

2. **The Cowboy:** Tether’s market dominance has declined each year over the past several years, and it continued to narrow this year, as BUSD and USDC ate into its ETH-based market share in particular. USDT is still 50% larger thanks to the dominance of Tether on the Tron blockchain, but it has otherwise lost its lead. USDT on Tron is mostly an international phenomenon: the leading “not quite U.S.-blessed” digital eurodollar.

I explained last year why it was not quite right to call Tether a fraud. USDT seems to live [by a code](#) vs. any one law. Maintain full reserves (they publish semi-annual audits, but no one will ever be happy), but keep out of reach of any jurisdictions whose authorities seem trigger happy to seize assets. At times, they have been under-reserved, such as the 2016 Bitfinex hack (and customer bail-in) and the 2018 theft where they were a victim of an \$850 million fraud themselves. (Good [Tether overview on Odd Lots](#).)

You can think about the fully-reserved stablecoins on crypto exchanges and blockchains almost like Balkanized digital nations. On Ethereum, the ranking goes USDC, USDT, BUSD. On BNB Smart Chain, the order is reversed. On Solana, Avalanche, Polygon and most other major L1’s and L2’s, USDC and USDT are usually #1-2 in circulation. On Binance, and most international crypto-crypto exchanges, USDT is the top quote currency. All three are useful, and USDT on Tron is particularly underestimated, but [powerful in its own right](#).

Then there’s the crypto-collateralized stablecoins:

1. **Dai:** MakerDAO is one of the cockroaches of crypto, and I mean that in a good way. Though its circulation [has roughly halved to \\$5 billion](#) from its March 2022 peak, it has shown resilience once again in a brutal bear market. Despite the repeated shocks in the centralized crypto lending markets, MakerDAO and Dai haven’t experienced any material issues or destabilization of the Dai peg.
2. **Others:** most of the other crypto collateralized stablecoins are rounding errors compared to Dai though they have similar structures, such as Liquity’s LUSD (and soon competitive stablecoins from Aave and Curve). There’s only one other meaningful crypto collateralized stablecoin, the last algorithmic stablecoin team left standing, [Frax](#).

	Fiat	Collateral Debt Position	Algorithmic
<b>Tokens</b>	USDC, USDT, BUSD, TUSD, USDP	DAI, MIM, LUSD	FRAX, USDA, USDD
<b>Centralization</b>	Centralized	Decentralized	Decentralized
<b>Scale Factor</b>	= 1 (\$1 stable for \$1 fiat dollar)	< 1 (Less than \$1 stable for \$1 collateral)	≥ 1 (\$1 stable for \$1 collateral + exogenous backing)
<b>Backing</b>	<b>Fiat</b> <ul style="list-style-type: none"> <li>Cash + Cash equivalents</li> <li>Requires Centralized, trusted off-chain partners (banks + audit firms)</li> <li>Implicit sponsor firm (i.e. Circle)</li> </ul>	<b>Exogenous Collateral</b> <ul style="list-style-type: none"> <li>Crypto collateral used to issue stablecoin debt (governance token not required)</li> <li>Overcollateralized</li> <li>Stables always redeemable for collateral</li> </ul>	<b>Redemptions: Endogenous + Exogenous</b> <ul style="list-style-type: none"> <li>Redemptions + mints assumes value in projects/governance token (required)</li> <li>Ranges from fully collateralized, to partially collateralized, to fully endogenous</li> </ul>
<b>Limitations</b>	<b>Centralized</b> <ul style="list-style-type: none"> <li>Single-Points of failure, Regulatory Risk</li> <li>Blacklist properties (centralized parties can blacklist addresses)</li> </ul>	<b>Overcollateralized</b> <ul style="list-style-type: none"> <li>Requires more money to be deposited than issued. Result is inefficient capital use within the system</li> </ul>	<b>Stability + Trust</b> <ul style="list-style-type: none"> <li>Large-scale trust in the stability model is the chief constraint on growth</li> <li>Stability dependent on project/governance token</li> </ul>

Source: Messari

## 5.9 Algo-Stables: Crypto WMDs

This year’s failure of Terra and its LUNA token and TerraUSD stablecoin was swift and savage. The pain inflicted on investors was severe, and many people lost their life savings directly or indirectly betting on Terra’s UST. It’s a fair question as to whether we should continue running these high stakes algorithmic stablecoin experiments or whether they are all doomed to die the same painful death eventually.

I’ll save you the look-back: I was optimistic on Terra in the 2022 Theses and will double down on why below. I only started to sour on the project in January 2022 as Do Kwon’s swagger began to depeg from reality and into God complex territory. The aggressiveness I liked in 2020 and 2021 started to look like VC-fueled narcissism as the numbers got bigger. I sold most of my stake at the “arm tattoo” moment in January (and said as much on Twitter).

I did warn about the very thing that undid LUNA in the end:

*“[Terra’s] biggest headwinds are known unknowns, and it’s unclear whether they would prove manageable or catastrophic to the entire Terra ecosystem...the reflexivity of UST and its usage of LUNA as a primary source of collateral [is something] to worry about. In a full “risk-off” environment, it’s unclear how resilient Terra and UST might be. During the spring [2021] dump of LUNA, UST nearly became insolvent as the value of LUNA fell below the total value of UST in circulation. It took a \$70mm capital infusion from Terraform Labs to shore up the stability reserve at Anchor, a systemically important Terra lending protocol. That lender of last resort model works until it doesn’t.”*

In hindsight, we got lucky that Terra collapsed before it got even bigger and [knocked out all of DeFi](#). Arthur’s take on LUNA is [a great supplemental explainer](#) as is [Matt Levine’s](#) if you want the gory details. Or there’s [always a thread](#).

These seigniorage share models are supposed to bifurcate risk into a speculative asset that absorbs volatility and backstops the system and a stable asset that is the object of stabilization. But they have reflexivity in down-trending markets that create “bank runs” and assumptions around “lenders of last resort” to shore up the share token during periods of distress.

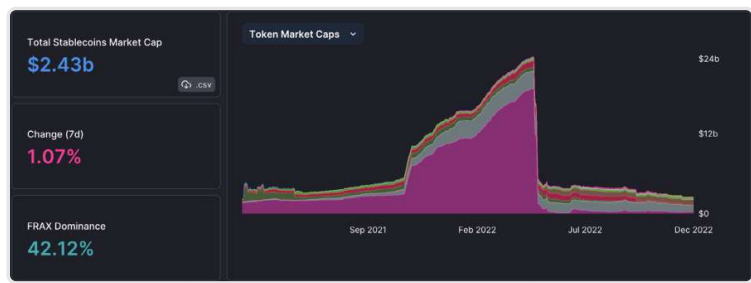
I still think this model is possible. You have to grow conservatively and leverage an “insurance” contract funded from trading and lending fees (like BitMEX), though. For illustration, had Terra been able to leverage fees from their payment partner Chai or net interest margin from sister lending protocol Anchor and contribute that to an insurance fund, they might have had a shot at averting a bank run. But when conservative, fee-driven growth went out the window, so did the unit economics and risk guardrails. This is banking 101 stuff, and their capital ratios sucked.

To be clear, I’m just not sure the experimentation in seigniorage share models is worth the risk anymore. Sure, you can invent a nuke, or do gain-of-function research in the coronavirus lab, but should you? Is it really healthy to give these programmatic black swans oxygen?

Fractional reserve models are still interesting to me, though. That’s because we know most people are already comfortable keeping some funds in fractional accounts in legacy finance. One way to do this would be to meter withdrawals by wallet size (quadratic withdrawals?) which would serve as a sort of programmatic FDIC insurance. (OHM is a little bit like this, but it hasn’t really 3,3’d its way to greatness this year...circulation is down 90%).

Fractional reserve stablecoins (pioneered by Frax Protocol) build upon the idea that there is a sweet spot between overcollateralized and pure algorithmic stablecoins that allow for a scalable, capital efficient, decentralized stable value asset. The fractional reserves dampen reflexivity during periods of contraction, offering stablecoin holders 1:1 convertibility between stablecoins and the underlying collateral, and generally provide greater confidence in the peg compared to purely algorithmic models. Frax still has \$1 billion in circulation and has maintained a tight peg throughout the year, despite the background noise.

Frax and Tron-based USDD now account for 70% of the algorithmic stablecoin market. It’s probably good that this whole market is an order of magnitude smaller than it was in May.



(Source: DefiLlama)

I was disappointed to see [Fei unwind](#) (disclosure - I was a seed investor) after multiple hiccups. They had a rocky launch, ill-fated merger with a team that suffered a brutal hack, and sat between a rock and a hard place after the Terra collapse this spring. But they did push the envelope on a number of fronts: introducing the concept of “protocol controlled value” (PCV) in which protocols (not their liquidity providers) own the assets users deposit to the system, and they were aggressive in terms of the business development and “corporate actions” they pursued out of the DAO. It was a good team but messy unwind.

In terms of other experiments, I’m excited about Rai and Reserve, but neither have been able to make the jump into relevance.\*

I ask again, is the juice worth the squeeze in this sector?

I’m not sure. Last year I wrote:

*“There are ponzi-like game theory attributes of these protocols that drive interest and participation, but it’s unclear how those will hold up amidst a broader crypto selloff.”*

We have our answer. [Not great, Bob!](#)

I don’t love the chaos, but still see the need for new algorithmic stablecoin implementations. As reserve currencies continue to inflate away purchasing power, we need new currencies that maintain their purchasing power.

I believe [we’ll get an inflation-resistant stablecoin](#) in my lifetime. And [it will be glorious](#).

*(\*Isn’t that ironic? [Sheeeiiiit](#). The ones for their designs and conservative approaches are too small to cover still as they aren’t serving as meaningful reserves.)*

## 5.10 CBDCs & Dystopia

What’s worse for society than a \$60 billion algorithmic stablecoin collapse and bankruptcy? A central bank digital currency.

Circle’s Head of Policy, Dante Disparte noted that the CBDC craze really started with Libra. It’s not that they were angry with Facebook’s boldness. It’s that they were jealous of its potential and wanted it for themselves. *“In keeping big tech at bay, 105 central banks began flirting with an even more perilous societal prospect, namely that central banks would become retail banks.”*

Here’s [Dante’s comparison table](#), in case you want to make the full-throated argument against CBDC enthusiasts in your bureaucratic circles.

The two best lines for those incapable of squinting:

- The case for CBDCs is often framed as a panacea for ills in the banking system that could be solved with policy and rules-based competition, rather than taxpayer-borne science experiments with money.
- A CBDC would be tantamount to the Federal Aviation Administration flying planes and building



jet engines, rather than defining competitive, rules-based safe passage in the skies.

There are many ways governments could wrap the economic arsenic of a CBDC in a colorful candy shell, such as [airdrops](#) for certain behaviors (or [political allegiances](#)). And honestly, I can't think of anything more sinister or dystopian.



# 6.0

## TOP 10 ETHEREUM & L1 TRENDS

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	Payment Stablecoins (e-money tokens)	CBDCs
<b>Issuer</b>	Regulated bank and non-bank actors.	Central banks.
<b>Intermediation</b>	Issued via bank and non-bank actors and intermediated across multiple, open blockchain networks, virtual asset service providers (VASPs), banks, and payment companies, among others.	Depending on the design structure (for example, wholesale, retail, general purpose, or hybrid), CBDCs may be intermediated via authorized bank and non-bank actors.
<b>Holder/User Rights</b>	Digital bearer instrument with the right of redemption at par for one unit of the underlying reference fiat currency, even in the issuer's bankruptcy, subject to bankruptcy remoteness, segregation of funds, and preservation of principle under money transmission and or e-money frameworks.	Digital legal tender status invoking the full faith and credit of the issuing central bank's public balance sheet and backstop.
<b>Legal Classification</b>	Emerging treatment as electronic stored value in the United States, or e-money tokens in Europe and other jurisdictions.	Digital legal tender status or as yet undefined as CBDCs remain largely theoretical among most central banks.
<b>Prudential Risk</b>	Potential for losses of confidence and bank-like run risks if economic stabilization mechanisms skew from conservative cash, short-dated government obligations, and high-quality liquid assets (HQLAs). Potential for direct custody of cash at central banks.	Notional infinite liability and no counterparty risk. However, depending on the CBDC structure, central banks would move from becoming a responder of last resort to systemic financial risk, to a responder of first resort.
<b>Governance</b>	Governed by regulated single-issuer or multi-issuer frameworks, payment system consortia, banks, and non-bank actors.	To be determined, but ostensibly governed by central bank authorities, boards, or public-private consortia involving authorized intermediaries.
<b>Financial Integrity</b>	Anti-money laundering (AML), countering the financing of terrorism (CFT), sanctions compliance, and know-your-customer (KYC) obligations borne by regulated intermediaries and virtual asset service providers (VASPs). On-chain financial transactions are transparently recorded down to micropayments constituting illicit activity.	Anti-money laundering (AML), countering the financing of terrorism (CFT), sanctions compliance, and know-your-customer (KYC) obligations possibly borne by central banks (depending on CBDC design) and authorized intermediaries. Transactions potential recorded in opaque, non-public records.
<b>Fungibility</b>	Possible one-to-one exchange of comparably regulated and backed payment stablecoins or e-money tokens, subject to market conduct and payment system interoperability.	Possible free exchange inside contiguous national territory, with the risk of global balkanization on geopolitical, strategic, and economic grounds.
<b>Economic Design</b>	Designed with constant one-to-one backing of underlying reference currency reserves, while holding strict asset-liability management retaining price parity, liquidity, and redeemability at par (even in conditions of market stress), without maturity transformation or fractionalization. Designed as an open, programmable, and composable medium of exchange on the internet fighting buyer's and spender's remorse.	Designed for economic parity with national currency(ies) affording legal, price, and economic certainty to end users, subject to account balance limitations for fear of sparking a run on bank deposits.
<b>Technology Infrastructure</b>	Multiple open-source, non-proprietary permissionless blockchains or closed proprietary bank and payment system technologies, including distributed ledger technologies (DLT). Constantly upgradable technology subject to competition.	Permissioned or proprietary technology, subject to public procurement, vendor captures, or national encroachment or soft appropriation of financial services or technology firms. Operating certainty and conservatism poses technology obsolescence risk.
<b>Digital Wallet(s)</b>	Global, open networks of device-centric digital wallets serving retail, wholesale and emerging use cases for payment stablecoins, e-money tokens and other digital assets.	Government or authorized intermediary-issued proprietary digital wallets depending on CBDC design.
<b>Monetary Policy</b>	Responsive to monetary policy and its transmission as a function of underlying reference assets and circulation being driven by supply and demand factors.	Monetary policy directly transmitted by central banks and authorized intermediaries, with potential dislocations of fractional reserve bank deposits or implied domestic "flight to safety" risks.
<b>Balance Limitations</b>	None. Subject to payment stablecoin open value chain, liquidity, circulation custodians, VASPs, and other regulated market participants.	Balance limits likely to be imposed based on CBDC design considerations, geographic limitations, and concerns about deposit base and interoperability.
<b>Geographic Scope</b>	Global.	Domestic with likely cross-border interoperability, subject to capital controls, balance, and other limitations.
<b>Principle Use Cases</b>	Internet scale, device-centric, low-cost, high-trust, programmable, composable internet money and payments.	Authorized domestic fast payments, government-to-citizen money transfer, financial inclusion, provision of digital public goods.
<b>Privacy Features</b>	Intermediated, privacy-by-design features, cryptography powered competitive blockchain networks.	Still being determined depending on CBDC design and authorized intermediary approaches.
<b>Settlement Finality</b>	Increasingly approximating mature payment system transaction throughput with near-instant settlement finality, approaching fractional transaction costs when compared to proprietary systems.	As yet undetermined, but based on reported experiments, such as the Federal Reserve Board's Project Hamilton report, high-throughput transaction flows at population scale are possible, but necessitate centralized technology more suitable for wholesale use cases than retail-level transactions.





## 6.0 Intro

If 2021 was the year of the crypto investor, 2022 was the year of the crypto developer.

The Ethereum Merge was a huge milestone for crypto: a \$200 billion network porting over to an entirely new, scalable transaction ledger with a brand new security model, in real time, with zero hiccups. It was a spectacular technical feat, even if it ended up being boring to watch.

That it went off without any major hitches bordered on miraculous, and I will be the first to admit that it was completed much sooner and with less drama than I thought it would be. Vitalik and the Ethereum Core team deserve major kudos. They aren't the only ones who have been shipping, though.

The alternative Layer-1 ecosystems have been evolving at warp speed. We highlighted Solana's community traction a couple of chapters ago. Optimistic and ZK-rollup ecosystems have been relentless in onboarding new applications. Cosmos has proven to be a real competitor as it siphoned off more "appchains" to its ecosystem and proposed an overhaul to the economics of its ATOM token. Meta spinout, Aptos, launched its mainnet.

If security and scalability is what's required to accelerate adoption and make room for new killer applications, then the L1 developers killed it this year.

That's not to say L1 development has been all sunshine and rainbows. Upgrades take time and patience, and core developers are scrambling to solve MEV issues, reduce platform downtimes, and ensure their blockchains do not become censorable or damaged by centralization risks.

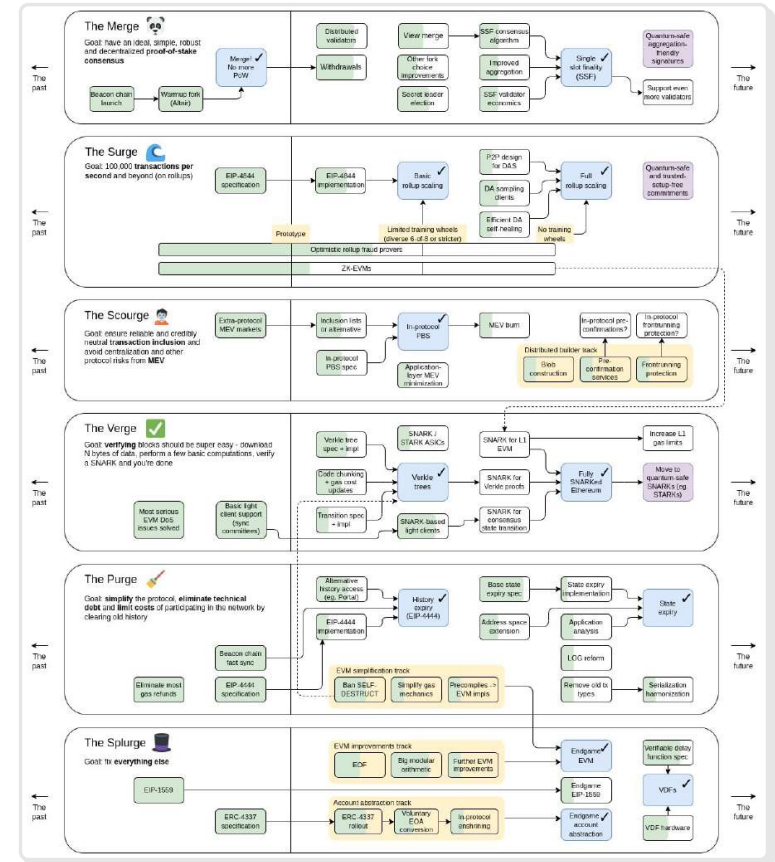
But the future looks bright.

*\*Note: this stuff is highly technical. I'm working on directional correctness and concision, and allowing for some imprecision for the sake of human readability.*



## 6.1 The New Ethereum Roadmap

The Merge was a major technical update six years in the making. Now that it's been successfully deployed, laypeople might not appreciate just how much is still left to build on the Ethereum core team's aggressive roadmap. Many of these subsequent releases will come faster (and can be tackled more iteratively) than the Merge. In a single tweet, Vitalik [laid out what's next](#):



Let's walk through this all in plain English:

- The Merge: Part one of The Merge forked out Proof-of-Work consensus and switched to Proof-of-Stake (the big milestone this fall – [Why Proof-of-Stake](#)). Now developers are working on ensuring [transaction validation is well distributed](#), allowing stakers to withdraw from the staking contracts



(est. [March 2023](#)), and tackling more wonky items like improving signature aggregation.

- **The Surge:** The goal is to reach 100,000 transactions/second by introducing a new Ethereum transaction type called “blobs,” where rollups will have a specific allocation of blockspace to post their data. The initial form of blobs will be delivered in EIP-4844 or “[Proto-Danksharding](#).” In its full form, “Danksharding,” fees on both L1 and L2 should be reduced while tackling Ethereum’s version of [Data Availability Sampling](#).
- **The Scourge:** This is a new phase added recently ([Vitalik’s tweet](#)), largely in response to community concerns over risks that maximum extractable value (“MEV”) was creating potential transaction censorship (more on this in two sections). It also includes full Danksharding of blob transactions. That’s a real sentence I just wrote.
- **The Verge:** A “fully SNARKed Ethereum” makes verifying blocks easier and introduces something called Verkle trees, cryptographic proofs that are smaller than their Merkle tree cousins, paving the way for [stateless clients](#) (better mobile support!) on Ethereum.
- **The Purge:** Lots of little code clean-ups that simplify the Ethereum protocol, eliminate technical debt and limit costs of participating in the network. This will include state expiry in [EIP-4444](#). Again, things that reduce costs and improve performance.
- **The Splurge:** What Vitalik calls “fix everything else.” These are EVM improvements, account abstractions, and the creation of a “quantum-safe” Ethereum.

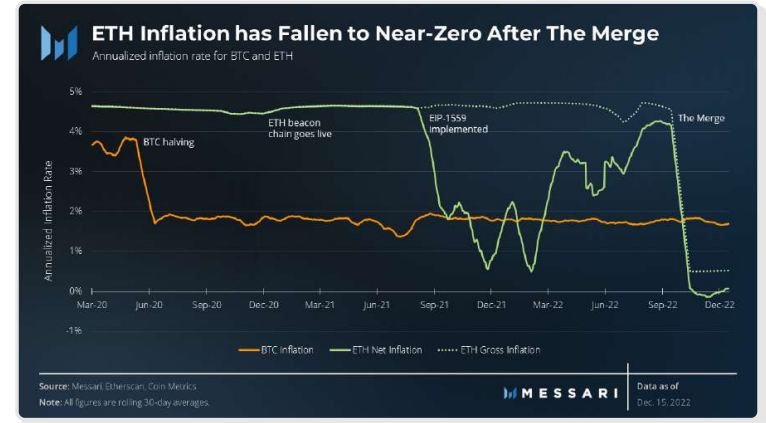
If you want to nerd out and get deeper into the weeds on what all of this means, Vitalik did a [two hour episode](#) with the Bankless gentlemen on why each bucket is important to the Ethereum roadmap, and an encore episode on what to watch for in 2023. Otherwise, you can take my word for it that the next couple of years are about cleaning up tech debt, nailing the scaling and security of rollups, and ensuring the EVM stays censorship resistant.

## 6.2 Merge Economics

The Merge marked a [fundamental shift in the economic model](#) of Ethereum. The switch to Proof-of-Stake yielded a protocol whose environmental footprint was reduced in size by ~99%, making Ethereum more compelling as an investment to environmental, social, and corporate governance (ESG)-minded institutions. It also reduced new token issuance by 90% and eliminated nearly \$500 million of monthly sell pressure from miners. Finally, it created a net deflationary asset with real yield as a result of the [fee burn mechanism](#) Ethereum implemented in August 2021 in EIP-1559.

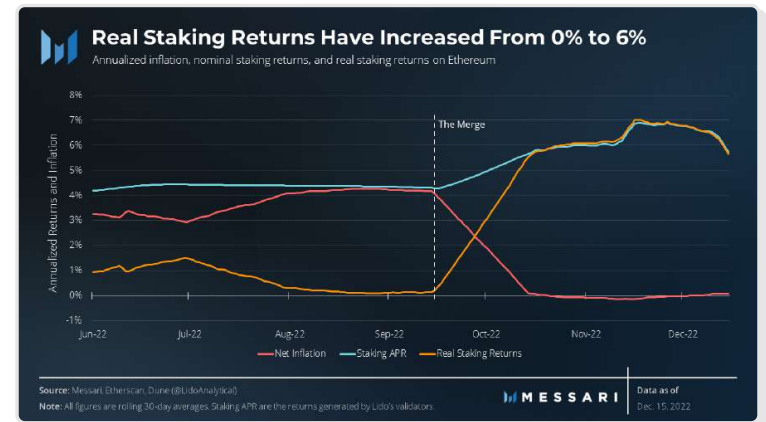


#theses2023



Since EIP-1559 went live last summer, the Ethereum protocol has “burned” [about 85% of all transaction fees](#), with the remaining 15% triaged to miners as “tips.” Ether’s supply will become net deflationary (tantamount to programmatic stock buybacks) if burnt transaction fees exceed the network’s staking issuance rate. We think the network could have steady-state deflation of 1–2% per year depending on the demand for blockspace. No other project in crypto has achieved these supply dynamics.

Depending on the number of active stakers on the network as well as the level of network activity, yields could range from 5–7% in 2023, setting a sort of “risk-free rate” for Ethereum’s financial system. Some DeFi protocols are already starting to build out this yield curve for their investors to monitor. Headline yields today are a bit higher, though we expect those will decline and normalize over time, as staking becomes easier and derivatives like Lido’s staked ETH (stETH) become ubiquitous.



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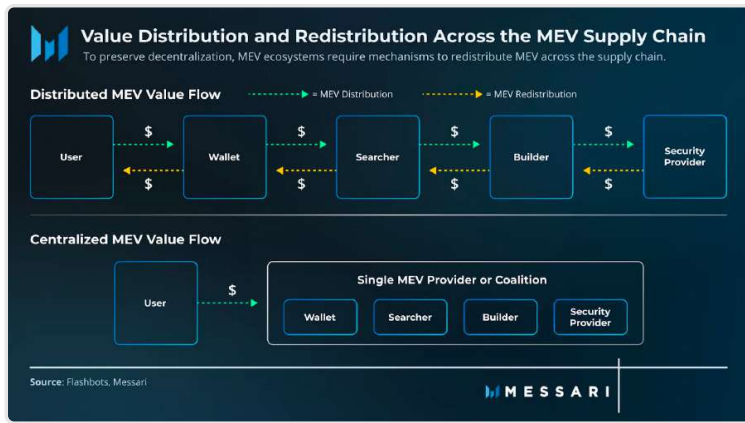
(Required Reading: [State of Ethereum Q3 2022](#), [The Investor's Guide to the Merge: Understanding and Playing the Opportunity](#), [What Will Ethereum Miners do After the Merge?](#), [How Traders are Positioning for the Merge](#), [Staking Done Well](#))

### 6.3 MEV & Censorship

Maximum Extractable Value (formerly Miner Extractable Value), or “MEV”, is one of the most fascinating technical challenges in all of crypto, and it’s attracted some of the industry’s top technical and financial minds to solve its riddles.

In short, MEV is a byproduct of the power dynamics that exist between a blockchain’s security providers (miners / validators) and the network’s users. Since the security providers (or “sequencers” in the case of a rollout) are responsible for determining the transaction order and inclusion of transactions per block, they can impose a tax on users.

This tax, MEV, exists on every blockchain, so it can be thought of as a feature, not a bug, in some ways. MEV can arguably make protocols more liquid, efficient, and antifragile. A healthy MEV sub-economy would redistribute most MEV rewards to staking tokenholders, and ensure that the transaction processing “supply chain” separates block proposers (anyone) and block builders (specialists) in a global, decentralized block building competition.



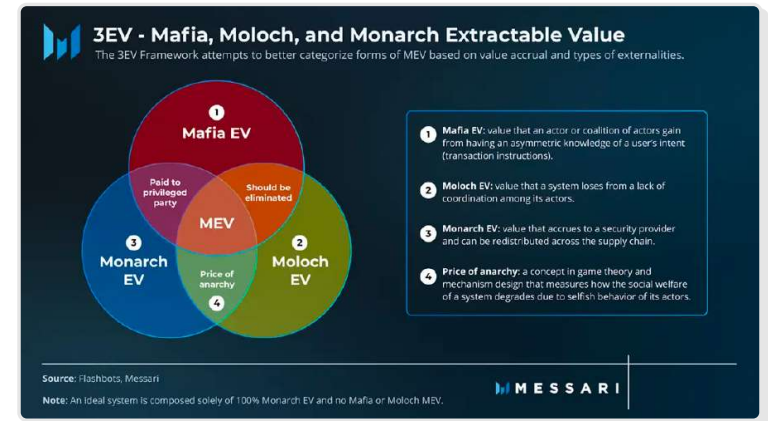
A block proposer is the same thing as a transaction validator. It’s simply a node/person/entity that creates a block of transactions and propagates it to the network for inclusion in a blockchain. Pre-Merge, these proposers were the miners. Post-Merge, proposers are ETH stakers, validators, that are programmatically selected by the protocol to propose the next block on the chain. This sounds like a lot of work, but historically, a lot of proposers have simply created new blocks based on gas fee and sent them to other nodes in the network.

Under [proposer-builder separation](#), or “PBS,” block builders are disaggregated from proposers. The

builders create “exec block bodies” that order the list of block transactions and submit them to proposers along with a fee. The proposers (validators) are incentivized to simply accept the exec block body with the highest bid. This helps to specialize block building (where it pays to specialize in efficient block bundling), without jeopardizing network decentralization.

Obviously, there are some negative consequences of this. Block builders may try to extract value from the network through asymmetric knowledge of users’ transaction instructions (e.g., front-running a trade) and fleece other network stakeholders with an aggressive network “tax” rather than redistribute some of the rewards across the transaction processing supply chain. And some transactions could even be censored outright if block builders collude or blacklist certain addresses.

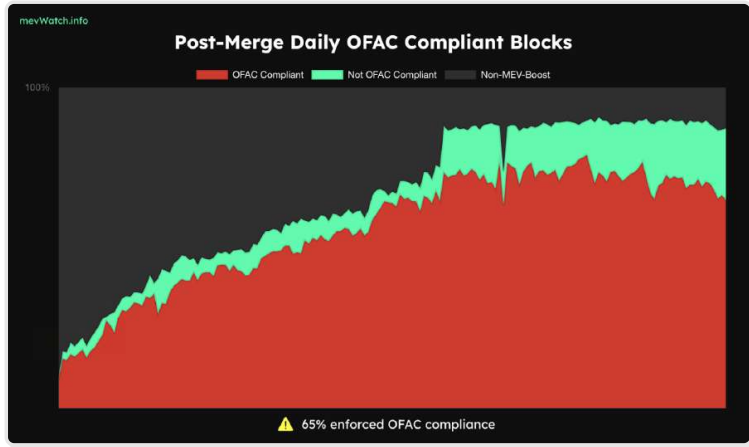
One of the leading MEV R&D shops, Flashbots, proposed a framework to categorize types of MEV based on their value accrual and possible externalities. If we can design systems capable of controlling for certain types of “bad” MEV, we can (hopefully) create more equitable protocols in the future that socialize MEV’s gains.



In fact, censorship is the primary post-Merge concern with Ethereum right now.

When the U.S. Treasury Department sanctioned Tornado Cash, many post-Merge validators (who had become more recognizable and sophisticated in a MEV-rich post-Merge environment) began to censor certain addresses and transaction types. Large custodians, exchanges, cloud staking services (like Alchemy), and even decentralized RPC relayers (like Pokt) became OFAC-compliant, basically overnight. OFAC-compliant blocks hit nearly 80% of network validation in mid-November, though that is (thankfully) back down to 65%.





(Source: [MEV.Watch](#))

With a new block produced every 12 seconds, this means that “censored” transactions will be posted in under a minute, on average. Having to wait an extra ~36 seconds isn’t the apocalypse, but it does strike many in the Ethereum community as a bad precedent.

If more types of transactions are deemed sanctionable and subsequently censored by producers, there will be more competition to cram “non-compliant” transactions into blocks produced by other validators. Worse, there is some degree of concern that financial authorities like the U.S. Treasury will soon see that they had a direct (and credible) route to enforce compliance requirements over entire blockchains by forcing large U.S. custodians to make a choice between transaction censorship or non-participation in staking economies (not really viable).\*

Ethereum devs need time to work their magic on “The Scourge” part of the roadmap and solve the base layer censorship problem before regulators somewhere do something ill-considered and technically impossible like demand entire chains are OFAC-compliant.

In the meantime, major custodians and exchanges will make their own determinations on behalf of customers as to whether they will censor transactions and only leverage software and network infrastructure that complies with OFAC sanctions. But we should keep an [even closer eye on what wallets](#) (e.g., [MetaMask](#)) and decentralized node operators choose to offer their users by default. When it comes to public policy, it’s helpful to have that OFAC-compliance ratio around 70% for now.

(\*Yes, [I’m aware of slashing](#), but I assume Coinbase isn’t ever going to get slashed, so this will be handled “out of court” as they say.)

(Required Reading: [The Book of MEV: Current Landscape, Future Solutions, and Key Considerations](#), [Ethereum’s Compliance Concerns are Greatly Exaggerated](#))

## 6.4 What Vitalik’s Excited About

What’s Big V excited about [this year](#)?

1. Privacy-preserving and real-world asset backed stablecoins (this happens to map to my thoughts from last chapter, but I promise I didn’t peek when I was writing mine.)
2. Within DeFi, Vitalik likes prediction markets. I think prediction markets are dumpster fires and no one has yet figured out how to make them interesting. This could be a contrarian bet that pays off big in the future if I’m wrong, but even V acknowledges that he doesn’t expect them to make “multibillion-dollar splashes,” so maybe the interest is academic.
3. Identity modules around things like authentication (sign-in with Ethereum), names (ENS), attestations (decentralized social), proof-of-humanity (Worldcoin? jk), etc.
4. DAOs, which he breaks down into communities that are decentralized either for robustness, efficiency, or interoperability.
5. Hybrid applications that use blockchain and non-blockchain systems like voting, “auditable centralized services,” etc.

If you’re a builder, I’d read through this carefully, and pick an underdeveloped area that Vitalik likes. It seems that every single application envisioned in the Ethereum whitepaper is now enormous, and you can draw a straight line [from this 2017 post on market makers](#) to what happened with Uniswap’s invention in the last bear market, and what is now the backbone of DeFi and a \$5 billion protocol whose volumes rival Coinbase.

(Required Reading: [EVM-Chains in the Bear Market](#))

## 6.5 Exploding Bridges

I wrote in last year’s report that blockchain interoperability and bridging protocols would be one of the top three most important emerging areas of development to watch.

*“All of these new blockchains (plus Ethereum’s Layer 2 rollups) will need to talk to each other, so the most acute pain point in crypto today may be the lack of bridges. If the future is multi-chain, then those who build better cross-chain connectors and help move assets fluidly across parachains, zones, and rollups will inherit the (virtual) earth.”*

I didn’t say it would be easy! In fact, that prediction aged (catastrophically) well.

Axie’s Ronin “sidechain” was hacked for [\\$600 million](#). Wormhole’s ETH-SOL bridge [lost \\$320 million](#). Nomad lost [\\$200 million](#). Today’s bridges have proven to be, shall we say, unstable.

Rollups are a bit different. They’re basically just blockchains with built-in bridges for transferring value

and settling transactions across EVM chains. Rollups, as their name implies, are blockchains that process their own transactions, but “roll up” to Ethereum for settlement and leverage Ethereum’s robust security.

see dozens of L1 blockchains proliferate.

Let’s drill down the different types of rollups and the “modular blockchain” thesis, then talk about today’s two largest non-EVM ecosystems, Solana and Cosmos.



## 6.6 Rollups and Modularity

Rollups improve blockchain scalability by executing transactions on separate blockchains, then posting compressed transaction data to an underlying L1. Traditional rollups that rely on Ethereum L1 for settlement, consensus, and data availability were first to market with Arbitrum and Optimism Layer-2s launching in 2021.

The new kid on the block, [Celestia](#), ushered in the “modular” thesis which became all the rage this year. While traditional rollups execute transactions and rely on Ethereum to settle, verify, and store their data, modularity allows developers to [mix and match](#) how their protocols handle each step. We’ll touch on modularity a bit more below, but first let’s dig into the rollups to watch this coming year.

As an individual user, you don’t really care if the button you push on a front-end service is routing your crypto transaction over a bridge to an EVM compatible “alt-L1” like Avalanche or an “appchain” built on Cosmos, or whether it’s processed on a rollup chain like Arbitrum.

What you do care about is that your assets are secure when in transit, and that they are there on-chain when you want them back.

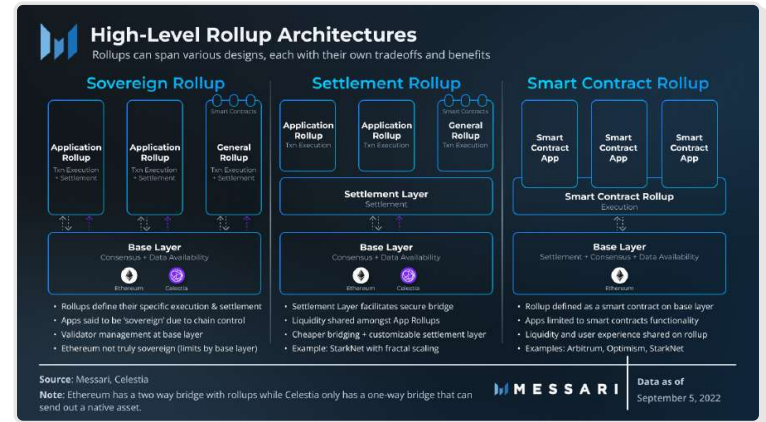
High net worth investors, corporates, and governments certainly care about security. If a rollup suffers an outage or vulnerability you can always claim funds on its associated parent L1. If a Layer-1 blockchain has an outage or significant performance issue, you’re out of luck until things are back up and running. When everything is working, there’s no difference between rollups, appchains, and alt-L1s.

But the security issues can get ya. [Bad](#).

It’s all pretty similar to the global banking system, actually: you don’t really care how your neighborhood bank routes your payment through the banking network. You just don’t want your money lost in transit, and you want your savings to be secure and insured. Individual bank accounts are FDIC insured up to \$250,000, but bigger depositors face more risk.

Vitalik [expounded on his thoughts](#) around why the future of \*cross-chain\* bridges isn’t that bright. There are “*fundamental limits to the security of bridges that hop across multiple ‘zones of sovereignty’*” and the modular blockchains thesis where “*you can’t just pick and choose a separate data layer and security layer. Your data layer must be your security layer.*”

If that’s the case, it reinforces my hunch that the L1 “blockchain wars” will look similar to the browser wars and mobile OS wars. That is, the EVM and one or two others might win at scale, but we won’t



**Smart Contract Rollups:** A smart contract on L1 verifies batches of compressed transactions using different flavors of “proofs.” They are “enshrined” to the L1 as they rely on the smart contract for final settlement (security). The two main types we have today are:

- **Optimistic Rollups:** Optimistic rollups rely on “[fraud proofs](#).” They are “optimistic” as batches are assumed to be valid until a fraud proof submitted by “verifiers” indicates otherwise (within a set challenge period). Currently, Arbitrum and Optimism are the two largest optimistic rollups, and they account for ~80% of the \$4.3 billion in TVL on L2 blockchains today (not counting Polygon’s PoS chain).
- **Zero-Knowledge Rollups (ZK Rollups):** While similar to optimistic rollups, ZK Rollups rely on “[validity proofs](#)” to verify transactions. Each batch posted to L1 includes a validity proof that the

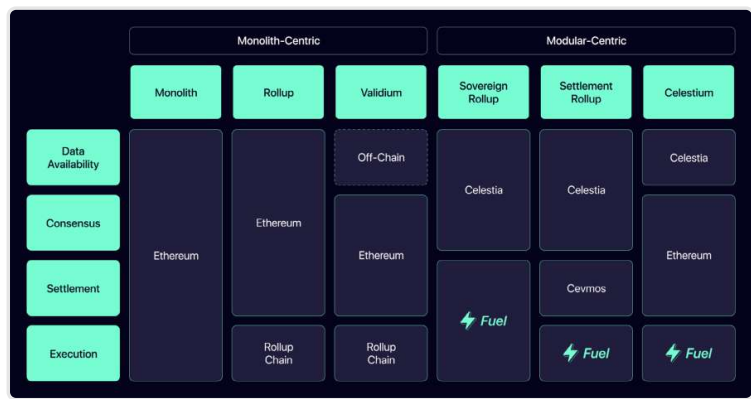
smart contract then verifies, and hence, a long arbitration period isn't required. In contrast to their optimistic counterparts, it's much more technically complex to achieve EVM-compatibility for the zk bunch. Polygon, zkSync, Scroll, StarkWare, Loopring (Taiko), and ConsenSys have all announced plans to launch zkEVM rollups "soon."

- Many developers are more excited about the long-term potential of zkEVM implementations (and I predicted in last year's report that they would soon dominate), but it's really going to come down to usability. Optimistic rollups may have the edge for the foreseeable future due to the first-mover advantage. ZK Rollups may proliferate if and when their scalability benefits become more obvious as they \*theoretically\* promise cheaper transaction fees for end users.

**"Sovereign" Rollups:** In the same way that you can deploy a virtual server with one click from a cloud provider, developers can spin up sovereign blockchains with negligible upfront costs and eschew the burden of bootstrapping a distributed validator set. Sovereign rollups execute and validate transactions and post data to a consensus and [data availability layer](#) like Celestia, [Polygon Avail](#), or Ethereum (when data availability sampling is achieved).

The key difference from smart contract rollups is that they are "sovereign" in their decision making over the validity of transactions and the rollup's state. They can be optimistic, or zk-based, or whatever their communities' desire. Rollup nodes execute and verify transactions according to their own rules and do not rely on the opinion of an underlying smart contract layer for final settlement. They merely use the base layer to store data and refer to the order of past blocks to compute the next. The use of a separate settlement layer is optional.

The universe of possible modular configurations can make your head spin. Consider the [FuelVM](#), a modular execution layer with parallel transaction processing.



(Source: [Fuel](#))

Fuel Labs is building an optimistic rollup that settles to L1 Ethereum, but the FuelVM itself is configurable with different settlement, consensus, and data availability solutions. Paired with Celestia, it's

a Sovereign Rollup. When using an independent settlement layer like [Cevmos](#), it becomes a "Settlement Rollup."

Easy, right?

I have rewritten this for concision and accuracy multiple times, and it's impossible.

*(It's directionally correct, though. I will leave it to the Messari analysts to parse the nuances – and offer more depth – in their excellent ongoing research in the new year. In the meantime, keep in mind that crypto scalability hinges on the "modular" and "monolithic" designs.)*

Value accrual on rollups and modular networks is questionable because it is unclear how much economic value will actually flow to the consensus and data availability layers versus transaction settlement and execution.

Some DeFi applications in particular will have to monitor whether liquidity ultimately gets fragmented between rollups thanks to insecure cross-chain infrastructure. Expect some novel tools and protocols in this space (we still need bridges!) as we continue to march towards a multi-rollup world with a decreased dependence on Ethereum L1 and a heightened search for cheaper transactions and data availability.

Rollups are a boon for application development (better interoperability and user tradeoffs, better throughput and lower fees), but the jury is still out on whether they will compete effectively with alternative Layer-1s like Solana and Avalanche. Traditional rollups get security benefits (and trustless bridge benefits) from their ties to Ethereum, but transaction costs are still an order of magnitude higher than many alt-L1s.

That leaves an opening for a couple of big, if beleaguered, competitors.

(Required Reading: [The ZK Everything Report](#), [How zkEVMs Can Keep Ethereum Competitive with Alternative Layer-1s](#), [The Value of Optimism](#))

## 6.7 Too Close to the Solana

Many in the crypto community have taken to referring to blockchains with a single settlement layer as "monolithic" versus their "modular" counterparts.

Wrapping transaction execution, settlement, network consensus, and data availability on one main chain may not be the ideal way to scale a blockchain ecosystem, and more communities are gravitating towards a more segmented approach with various layers optimized for different levels of performance and decentralization. You can think of this similarly to [microservice architecture](#) in traditional app development.

What would it take for an alt-L1 like Solana to [win in the endgame](#) versus modular blockchains?

1. Computational advances that make running high-powered nodes cheaper over time





2. Delays or securities issues with rollups
3. User preferences and experience
4. Product-market fit of killer apps on a specific chain
5. How much centralization and MEV tolerance users are willing to accept.



There are no explicit downsides to monolithic chains; it's just that the engineering challenges are different. With monolithic blockchains, the innovations have to happen in hardware and transaction scaling, whereas with modular designs, the bigger challenges are arguably around blockchain communications, bridges, and solving other interoperability edge cases.

Solana has had a tough go in the wake of the FTX bankruptcy. After a red hot 2021, Solana has come back down to earth.

Last year, I wrote:

*"I will acknowledge the recency bias, but only if you also acknowledge the fact that Solana is really good at the things Ethereum doesn't even try to be good at. Solana is not trying to out-EVM and out-modularize Ethereum. It's trying to fit everything it can into its base chain."*

FTX, Alameda, and some of their closest investors had close ties to Solana (SOL and SRM [were major holdings on FTX's balance sheet](#) according to bankruptcy documents) and were active, enthusiastic funders of its early ecosystem. But the Solana team and its early community were eager to embrace a mentality of "eating glass" during the last bear market and may be able to rebound again once this hurricane passes.

Solana has continued to improve its [speed](#) and node decentralization, if not its server/cloud level decentralization. Though the immolation of FTX/Alameda presented a setback to some of Solana's core supporters, another enterprise-grade rug pull may have more lasting impact.

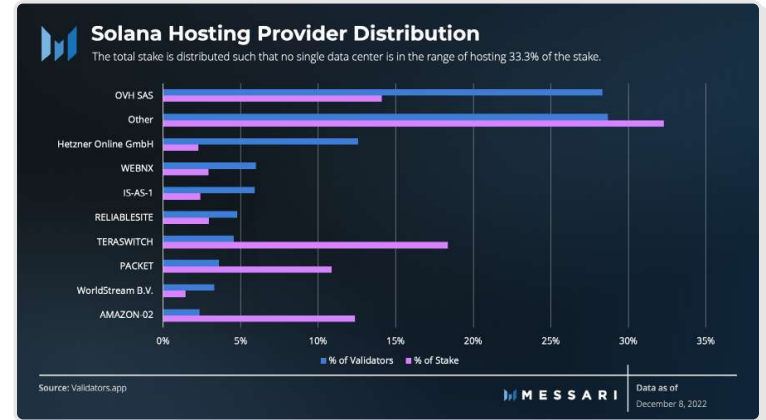
At the end of September, the Solana network had a concentration of validators and staked SOL with Hetzner Online, a German web-hosting company. Hetzner hosted over 40% of the network's validators and over 20% of staked SOL, with a particular concentration in one German data center. In early November, Hetzner removed all Solana-related activities in their German site and stated publicly that they would forbid future crypto-related activities on their servers.

Though the incident did not interrupt the Solana network, it brought the issue of centralization back into focus.

Solana's validator count has tripled in the past two years, and roughly 70% of the network's tokenholders stake their SOL. Validators are distributed across 35 geographic locations around the globe and more than 100 unique data centers. And the Solana Foundation released a [network health report](#) in August 2022 intended to track centralization risks and showcase Solana's strength.

Still, data center concentration remains an area of concern for Solana and other L1s. Whether it's Hetzner or AWS, using large cloud providers to run validators gives those providers disproportionate power over the network.

Fortunately, hundreds of Solana validators were able to migrate from Germany to other countries such as France and Finland (and away from Hetzner to hosting providers such as OVH SAS) after the abrupt policy change in November.



On the plus side, Solana seems to be the ecosystem that has been pushing hardest on mobile accessibility. The [Solana Mobile Stack](#) represents a big bet on mobile infrastructure in order to power a generation of new crypto applications. Its Web3-native Software Development Kit (SDK) is built on top of Google's Android OS with a new smartphone (the "Saga") to match. The SDK allows any Android phone to run Solana's software, while the Saga offers Solana's software natively at a price point of \$1,000.

Crypto isn't very mobile friendly, and the Saga is a bet and hedge that Solana developers will be able to iterate faster and more reliably on top of crypto-native designed hardware than the competitive devices from fee-extractive monopolies such as Apple. [Saga also plans to leverage Helium](#) for mobile coverage, which could boost the adoption of a major adjacent decentralized wireless protocol if it gains adoption.

Rooting for Solana means rooting for concurrent hardware, a mobile platform, and network advances. I'm not sure any other L1s (beyond Ethereum) can make that claim as credibly as Solana. They'll rebound in 2023.

(Required Reading: [The Solana Ecosystem Overview](#), [How Solana Wins the Endgame vs. Modular Chains](#), [Solana DeFi: Ramifications Post-FTX Collapse](#))





## 6.8 Cosmos & Appchains

Though we didn't call them "modular" blockchains last year, I wrote:

*"Cosmos was the first community to work on a modular network of blockchains, and Ethereum's rollup-centric scaling plans seals the deal: the "one-chain-to-rule-them-all" thesis is dead, and Cosmos' Inter-Blockchain Communication protocol (IBC) does something Polkadot and Ethereum don't, keeps the protocol entirely open and independent of the Cosmos "Hub" and its native token, ATOM."*

Now it's time to pay the piper. The Cosmos community is toying with what it now calls the "ATOM 2.0" era, which aims to enshrine the Hub as Cosmos' central data router and shared source of security. It's unclear whether ATOM 2.0 will work (it has received pushback on its ambition as a proposal for its adoption was [rejected](#) by the community), but while that developer debate plays out, Cosmos will likely remain the top ecosystem for "sovereign" appchain developers.

The flexibility Cosmos affords developers in creating their own chains (custom inflation schedules, transaction fees, transaction types, security models, coding languages, etc.) and the value accrual mechanisms the IBC affords appchains (MEV, transaction costs, etc.) make the ecosystem compelling for those with the technical chops to vertically integrate their apps. Look no further than dYdX, arguably the largest application in crypto, which [migrated from a ZK-rollup](#) to an appchain this year.

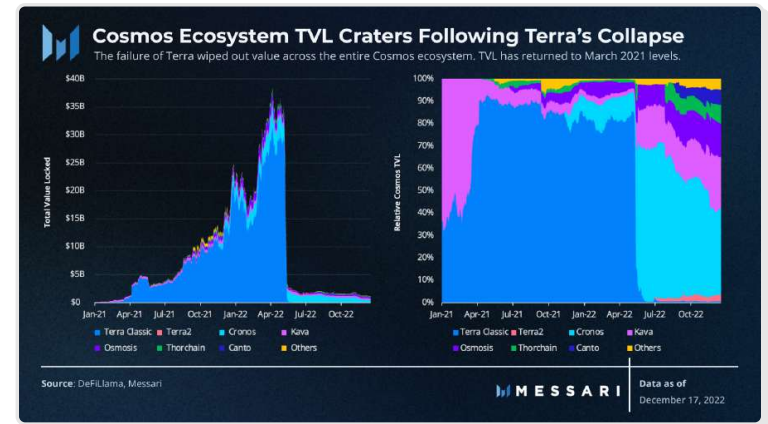
While L2s may inherit the \$100 billion security budget of Ethereum at virtually no cost (periodic call data and no need to support a dedicated validator set), the tie-up with the EVM affords less flexibility, more interoperability challenges, lower throughput, and higher direct costs. When one of the most successful, high-throughput dApp developers switches backends, others will likely listen. Unless L2 speeds increase significantly or more non-financial transactions are pushed off-chain (DeSoc likes, gasless Snapshot voting, etc.), the apps people use could end up on Cosmos. The new standard operating model for successful decentralized applications could be to leverage an L1 as an initial launchpad: build, scale, and then migrate to a custom appchain.



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It's very simple.

Sei and Canto are new L1s built on the Cosmos SDK with a focus on DeFi apps. Sei has a built-in central limit order book (CLOB) with a parallelized order matching engine. Its objective is to become the NASDAQ of crypto, and its shared liquidity and centralized order book model makes it optimized for DeFi use cases. Canto recently launched an EVM-compatible L1 which has pre-built core protocols such as an AMM DEX, lending protocol, and a stablecoin. It aims to make these core protocols free public goods for users and developers. Canto has chosen to take a democratized approach to user acquisition. There are no venture backers, no pre-sale, no foundation — just the chain. The objective is to minimize rent-seeking activity and give users and developers simple, free infrastructure. While commendable, without revenue potential, products (and people) aren't motivated to compete, and developers may be hesitant to build enhanced features.



## 6.9 Other L1s

I don't want to gloss over some of the other L1 chains I wrote about last year. Instead I'll consolidate them here. Some are dead. Others live on. But I only have so many hours to write about these things, and there are still several chapters ahead.

**Cardano** had a big year of technical upgrades, including [Plutus](#) smart contract capabilities and the [Vasil hard fork](#) with upgrades to Plutus and better scaling. Will the slow and steady approach prove to be a prudent path to scaling? Cardano's volumes (transactions, TVL, and developer activity) have paled in comparison to bigger ecosystems so far. But 2023 will be a pivotal year.

**Polygon** crosses a bunch of different sections in the Rollup and Modularity sections above. I'd encourage you to read more about the project in our [latest quarterly report](#) and our [ongoing analyses](#) on all things EVM, rollups, and modular blockchains. They were a bright spot in Q3, setting new all-time highs in active addresses and NFT wallets. They've also got [one of the best BD teams in crypto](#), one

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that notched partnerships with Reddit, Meta, and Starbucks this year.

Polkadot founder [Gavin Wood](#) was the co-founder and technical mastermind of Ethereum, so it's no surprise that Polkadot's design as an interoperable "chain of chains" looks like Ethereum post-Merge. Gavin's often a step ahead technically, and the Polkadot developer community consistently ranks highly relative to peer communities. We'll see if that translates to more killer ecosystem applications in the new year. (Gavin is [stepping down](#) as head of the project, but continuing on as its chief architect in 2023.) You can read our full Q3 report on Polkadot [here](#).

I covered Terra last chapter, so...

## MOVE-ing On to New Stuff

The same strategy is evolving with a new batch of L1s seeking to solve crypto's user experience and scalability challenges. These upstart L1s are more specialized than their predecessors and can offer faster execution, lower transaction costs, and specialized components tailored to application verticals like DeFi.

What we call the "upstart L1 thesis" boils down to whether you believe that it's still possible to innovate around an enhanced user and developer experience at crypto's base layer. This year, we saw two potential candidates emerge:

Both Aptos\* and Sui spun out of Facebook's nixed Diem project.

Aptos and Sui inherit years of R&D and partnership discussions from a world-class engineering team. Their new Rust-derived smart contract development language, Move, aims to give developers better control over their data management and more secure execution. Both projects pitched themselves as high-speed, high-scalability chains (they decouple consensus and parallelize transaction processing to finalize transactions in less than a second). These projects have strong teams, backers, and networks.

That said, Aptos had [hiccups with its early launch](#), and Sui is still merely [available on testnet](#). Sui may also have clawback issues from the FTX bankruptcy process. FTX Ventures invested \$75 million of the \$350 million that Aptos raised this year, but that deal appears to have closed after the typical 90-day bankruptcy clawback window. The \$100 million to Sui is a different story. It looks like a third of Sui's \$300 million in Q3 funding may have been received within the 90-day clawback date. We'll see if the FTX investments come into play for either network.

Success for any upstart L1s hinges on business development and, more importantly, developer courtships: a tall order in bull markets that's only made that much tougher in bears.



I'm skeptical about how much value will ultimately accrue to these upstarts in an icy winter. While the TAM of L1s are significant, I made the mistake last year of betting against Ethereum's dominance. I won't make the same mistake again now that the champ has passed its toughest trial yet. I'd expect Ethereum to stay over 70% dominant until we're out of crypto winter.

At the end of 2020, I thought Ethereum's lead was unassailable. At the end of last year, I wasn't so sure, as I was bearish on The Merge's timely completion. Now that I'm bullish Ethereum dominance again, I'm not sure the community should be rejoicing. I consistently get Ethereum directionally wrong in both directions.

## 6.10 Other, Other L1s

I should reiterate something I wrote last year in the preface to the L1 Chapter. Once again, I want you to stop reading, go to a mirror and repeat after me:

*"It isn't TBI's job to hype my project onto the top L1 list. The above projects were selectively reviewed for timeliness and thanks to prior Messari analyst research. If we didn't get written up this year, there's always next year, or Messari's [quarterly reporting](#). I understand that it's simply not possible to cover every single project that has exploded in this broad, complex market, even in subsections of a 150 page report. The fact that our protocol wasn't covered was not bias or incompetence on the part of the author. If anything, it's a wake-up call that we have to hustle to be so good we can't be ignored."*

Last year, I also reflected on how incredibly cool it was that we could now essentially produce "earnings reports" for top crypto communities without the need for any central, corporate investor relations team, and that we could do so over any arbitrary time period and update it in real time. We put that 1000x improvement in investor information symmetry to the test this year and now offer quarterly reporting for all of these L1s:



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**Ethereum Base-Layer Looks Expensive, TRON Seems Cheap**  
Key usage and financial metrics for major chains along with trading multiples

	Unit	ETH	BNB	MATIC	TRX	AVAX	SOL	NEAR	HBAR	XTZ
Market cap	\$ M	161,267	46,296	5,676	5,634	5,130	12,067	2,819	1,400	1,238
Annualized revenue	\$ M	1,103	267	17	153	9.2	19	0.9	0.4	0.8
Total value locked	\$ M	30,852	6,617	1,465	6,330	1,938	2,062	343	102	40
Daily transactions	'000	1,150	3,396	2,846	141	1,446	34,884	449	871	43
Daily active addresses	'000	506	889	276	2,676	45	223	32	N/A	44
Unique wallets added	'000	6,741	23,955	24,294	12,968	305	N/A	4,743	N/A	84
Annualized revenue multiple	x	146	173	339	37	555	624	3,196	3,371	1,695
TVL multiple	x	5.3	7.0	3.9	0.9	2.6	5.9	8.2	14	33
Transaction multiple	x	140	14	2.0	40	3.5	0.3	6.3	1.6	30
Active user multiple	x	318	52	21	2.1	113	54	87	N/A	30
Wallet growth multiple	x	24	1.9	0.2	0.4	17	N/A	0.6	N/A	16

Source: Messari Quarterly Reports, Token Terminal, DeFi Llama, Block Explorers, CoinGecko  
Note: Solana transactions are only non-wallet transactions. Avalanche data includes all chains and subnets.

MESSARI | Data as of September 30, 2022

# 7.0

## TOP 10 TRENDS IN DEFI

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These metrics are still evolving, their usefulness as valuation reference points is still in question, and I'm sure more than one person will copy this chart, crop out this subsequent paragraph, and dunk tweet on us for saying "ETH expensive, TRX is cheap" because it doesn't fit their priors.

But the metrics themselves are what they are. It's on us to make sense of them and come up with better ones, as needed, as we enter a more fundamentals-driven era for crypto.

If your community wants to start working with us on quarterly reporting, let's do it! Here's a taste of what we do for over a dozen L1s and 40+ major token projects:

EVM: [Ethereum Q3](#) | [Polygon Q3](#) | [BNB Chain Q3](#) | [Avalanche Q3](#) | [TRON Q3](#)  
Non-EVM: [Solana Q3](#) | [TRON Q3](#) | [Polkadot Q3](#) | [Tezos Q3](#) | [Hedera Q3](#) | [NEAR Q3](#)

And we push this data and these reports to Bloomberg, S&P, Refinitiv, and other top financial data aggregators - for no charge - in order to help crypto cross the chasm.

To preempt your mean tweets, I'll add that we're adding quarterly coverage for Cardano, ICP, and (I hope) Cosmos in Q1 as well as many of the other top 100 assets by market cap. Stay tuned for all of these project-specific updates in January.



## 7.0 Intro

I don't think I can possibly be more excited about the future of decentralized finance (DeFi).

Most people don't realize how close to disaster we were this fall in the U.S. when it comes to the free and open future of crypto's financial backbone. Let me tell you, the Crypto Twitter mob \*did not\* stop the DCCPA and its killer DeFi provisions. Instead, the public spectacle of the bill's leaked draft tightened the D.C. reviewer circle and could have put FTX in the driver's seat for the final revisions of future altering law for open crypto protocols.

We dodged a bullet with FTX's well-timed implosion.

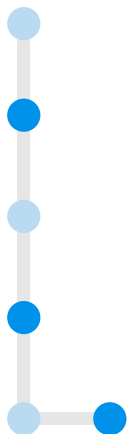
I don't want to argue counterfactuals, but I mention this only to warn that DeFi's headwinds are still very real. We can rejoice that we live to fight and build another day. But we also have to keep our eyes on the prize, and there is no bigger political footrace right now than the one between DeFi builders, gridlocked legislators, and overreaching regulators.

If we want to take crypto to the next level, then the builders and the legislators will have to get simpatico inmediately, and hold the bureaucrats in check when it comes to DeFi oversight.

[Salvation lies within](#). It's time for security and audit standards. Risk waivers. Comprehensive community disclosures. And apps that work beyond speculative teaser rates.

We need more apps to work for everyday users and to [find use cases that make us proud](#). And we need to clearly explain what DeFi is and define what the policy solutions should be.

Where should we invest in 2023 to strengthen crypto's financial services sector?



## 7.1 Revenge of the dApps

Are the L1 protocols still [fat](#) or are applications that make crypto interesting starting to bulk up and capture value?

Ethereum [transaction fees](#) are way down this year, and the competitive dynamics with dApps have shifted. Uniswap, Lido, and OpenSea (the three largest Ethereum-based apps) now generate more monthly fees, on a combined basis, than the entire Ethereum L1. More volume is shifting off Ethereum to its scaling solutions (Polygon and Optimistic Rollups, in particular), or to new customized appchains (dYdX on Cosmos) where the dApps have more control over their value capture mechanisms and consensus rules.

Aave and Uniswap launched their protocols on various emerging networks this year and came to quickly dominate their segments in terms of volumes and TVL. This showed that the Schelling point for most users isn't around chain-specific native versions of lending and decentralized exchange, but of the top applications by user. Just as Binance will likely steamroll the top domestic "Thai-first" exchange in Thailand upon its entrance to the country, Aave is likely to dominate in whichever digital country (L1) it enters.

Why then does DeFi still sit at all-time lows versus Ethereum? I'm bullish on DeFi dominance versus Ethereum in 2023, absent ham-fisted new regulations.



As I said in the intro, I don't want to gloss over regulatory risk.

Tornado Cash usage plummeted following the U.S. imposition of sanctions on the protocol and the arrest of one of its core developers. Aave decided to geo-fence its front end from U.S. residents shortly afterwards, effectively eliminating one of its largest user bases. Concerns about regulation over software and front ends are so acute that some investors are proposing compromises that call for the regulation of the front-end services. (You might not like it, but we'll be fighting for DeFi in court for many years.)

Still, the TAM for DeFi remains massive. The global financial services industry is valued at nearly [\\$23 trillion](#). So a [\\$15 billion DeFi sector](#) doesn't seem frothy to me. At all.



(Required Reading: [DeFi Business Models: The Convergence](#), [DeFi's Invisible Revolution](#))

## 7.2 Uniswap, the Final DeFi Unicorn

I wrote about a lot of the core plumbing in DeFi in the [2021 Theses](#) (two reports ago!), covering things like automated market makers (AMMs), yield farms, vaults, flash loans, oracles, **impermanent** divergence loss, and more. It's pretty amazing that since then we're down to a single billion dollar DeFi protocol in Uniswap, despite the incredible progress that's been made in the two years since.

Here's a [good refresher on DEXs](#) and how they work, as well as a [video on Uniswap V3](#) that covers why people were so excited about its release. I think it could be an unassailable protocol in the AMM category. V3 has proven to be a true 10x improvement when it comes to the working capital these DEXs require to run reliable, low slippage exchanges. The "concentrated liquidity" that professional market makers provide has [arguably created more liquidity for major asset pairs](#) than even the largest centralized exchanges. Paradigm is, of course, talking its book here, but I [tend to agree](#) that there's not "much alpha left in designing new AMM invariants."

That doesn't mean there aren't other areas in which DEX protocols can compete.

AMMs might compete around offering dynamic fees that adjust with volume or volatility, or improving the performance and reliability of their reference pricing oracles. Or we might yet see winning central limit order book models. [Ox](#) has become the backbone of [several new NFT and gaming marketplaces](#), even as some skeptics speculate whether [on-chain order books are dead](#) thanks to the constant (expensive, high latency) stream of transactions they must update to match buyers and sellers around a central limit.

Otherwise, most AMMs will fail to stand out from the pack. PancakeSwap, dominant on BNB Smart Chain, settles transactions on fairly centralized infrastructure and relies on a close relationship to Binance. Various other AMM DEXs are confronting their own unique challenges. Curve has been hijacked by mercenary "board members" (remember [veTokens?](#)), who have brutalized its tokenomics, while Balancer has been dealing with [hostage negotiations](#) with an activist tokenholder. Sushi has had a nightmarish stretch in reorganizing its leadership, Osmosis was hit hard by the Terra collapse in Q2, and Serum was outright killed by FTX.

There's only one thing I know for sure in the DEX space:

Other DEXs are not going to dethrone Uniswap with tokenomic tricks or marginal price improvements. You don't compete on fees, you compete on value, and Uniswap has proven that Uniswap is Uniswap's biggest competitor when it comes to creating incremental value for its users. The only question I have for 2023 is how the community will design and implement the protocol's fee switch, in which UNI tokenholders will vote to (finally) direct a portion of protocol trading fees to the treasury.

I doubt most Uniswap liquidity providers will push back much at this point. Given Uniswap's dominance, the fee switch won't hurt them much, and I'm reminded of the Steve Jobs [negotiation with HarperCollins before the iPad's launch](#). There's nothing wrong with charging sustainable and fair fees for a valuable service. In fact, there should be more of that in DeFi, and an 80/20 split between UNI LPs and governing tokenholders feels fair.

(We cover many of the top DEXs in depth for our quarterly reporting customers. Here's the State of Q3 reports for [Uniswap](#), [Balancer](#), [1inch](#), and [Osmosis](#). Stay tuned in January for the full Q4 updates, and if you'd like your community covered in 2023, [please get in touch](#).)

Required Reading: [Expanding Uniswap's Addressable Market](#), [UNI Giveth](#), and [UNI Taketh Away? Bot Activity on Decentralized Exchanges](#), [Uniswap x Genie](#), [The Chronicles of Uniswap: the Token, the Switch, and the Wardrobe](#)

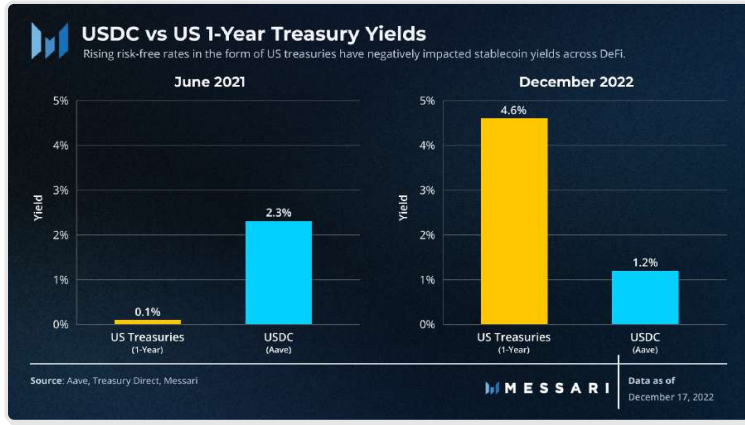
## 7.3 Real-World Collateralized DeFi

It's shocking how fast we went from "most customers don't care about decentralization" to "the only customers who weren't rekt this year used DeFi lenders."

The irony is that the centralized lenders were the ones to blow up on exotic bets and toxic token collateral, while the biggest DeFi lenders appear to have been running much cleaner loan books. In MakerDAO's case at least, they've even been piling into <checks notes> U.S. Treasuries?

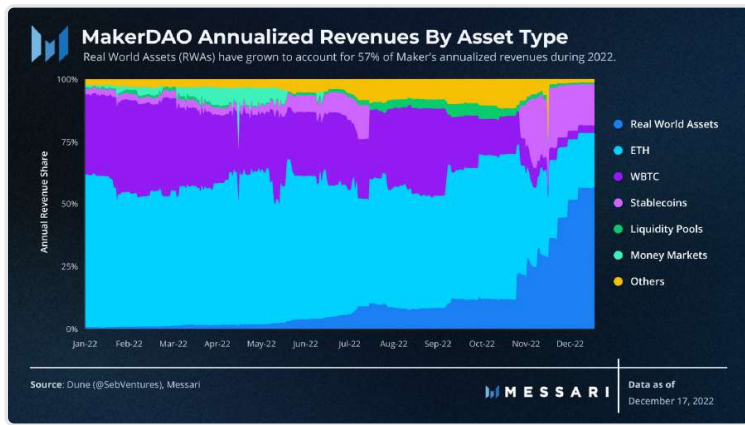
MakerDAO began [dabbling in real-world assets](#) (real estate, invoices, trade receivables, and commercial loans) in 2021, and they now count fully reserved dollar stablecoins as the majority of the collateral underpinning the Dai stablecoin. They added \$500 million in exposure to U.S. Treasuries this fall as risk-free yields ticked higher and DeFi yields collapsed.





You would think these protocols would be upside down now that crypto risk premia are rising and real-world yield is a bit easier to come by. Instead, it's been the opposite.

It's a far cry from August, when MakerDAO's founder, Rune Christensen, [claimed](#) that he was considering proposing a rotation out of USDC and other real-world assets at risk of seizure in the wake of the Tornado Cash sanctions. That didn't happen, though. Real-world assets account for 57% of Maker's total protocol revenue, up from less than 10% in July.



As rates have risen, Aave decided to get in on the overcollateralized stablecoin game as well. Its [GHO stablecoin](#), native to the Aave protocol, will allow protocol "facilitators" to mint a limited amount of GHO in a trustless manner and allow users to borrow GHO while earning yield on deposited collateral. The Aave protocol will capture 100% of interest revenue from GHO, compared to 10% on its other

assets, so the success of GHO would be a boon for the project. The official deployment date for GHO and Aave V3 on Ethereum is expected soon™.

These decentralized lending protocols are a) more transparent, b) better collateralized, and c) seem to have a much firmer grasp on how to do risk management and rotate into whatever risk-free assets are best.

(We cover many of the top lenders in depth for our quarterly reporting customers. Here's the State of Q3 reports for [MakerDAO](#), [Aave](#), [Compound](#), and [Liquity](#). Stay tuned in January for the full Q4 updates, and if you'd like your community covered in 2023, [please get in touch](#).)

## 7.4 Undercollateralized DeFi Lending

Overcollateralized DeFi lenders generate most of their yield from the demand for leverage from margin traders and market makers. Those yields have dried up as the risk appetite and opportunities for margin trading have collapsed this year. On the other hand, undercollateralized lenders like [Goldfinch](#) and [Maple Finance](#) offer yield on undercollateralized positions and have been able to generate [double-digit yields](#) from this riskier form of lending.

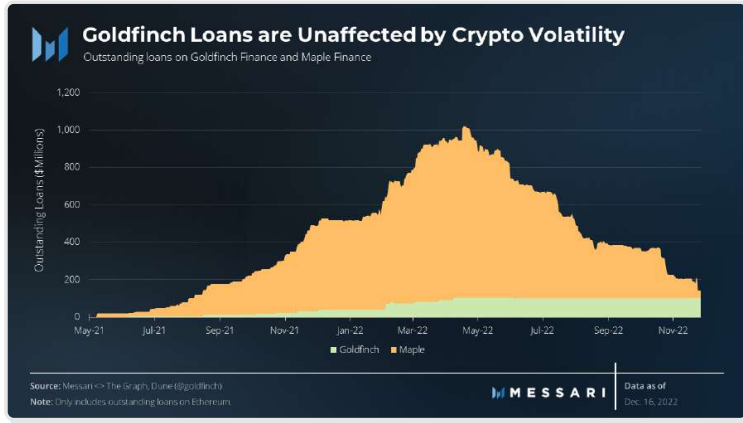
You might be asking, "Isn't this what just blew out a dozen large centralized lenders?" And you'd be correct. While it appears that DeFi's undercollateralized lenders maintained a higher standard of risk management than their centralized counterparts (we wrote over the summer about how [99% of Maple's loans were returned with interest](#) despite the period of extremely high volatility for crypto in Q2), reality is starting to catch up with them.

Lending to delta-neutral crypto market makers worked well to avoid the fallout from Terra. Maple's delegates may have been [more prudent](#) with counterparties, even through the fall. But crypto delivers risk in unexpected ways. Contagion from FTX led Maple to liquidate loans worth \$37 million, reducing its active loans to just \$41 million. Of that, [\\$10 million is now distressed](#).

Goldfinch still has a pristine track record, in part because it lends to non-crypto borrowers only (less reflexivity). But the protocol does have its own unique risks, such as higher exposure to developing economies and the fintech sector.







Maple Finance had a strong track record, as did Genesis Capital and BlockFi. But in a full risk-off environment with poor on-chain identity, reputation, and creditor infrastructure, this market has gone ice cold. Goldfinch is down 90%+ since its public launch at the beginning of the year. Maple is down 90%+ since its April high.

It's doubtful that crypto will ever compete with legacy banks at scale without undercollateralized lending.

The question is whether we have the right building blocks (credit scores, insurance, and yes, credit default swaps) that make this sector of DeFi viable in the short term. Can we use smart contracts, on-chain data, soulbound NFTs, and DeSoc identities to replace loan officers?

I hope so, but it feels like it may simply be too early.

(Required Reading: [Maple Finance: Sweet and Steady](#), [Goldfinch Finance: Let's Get Real](#))

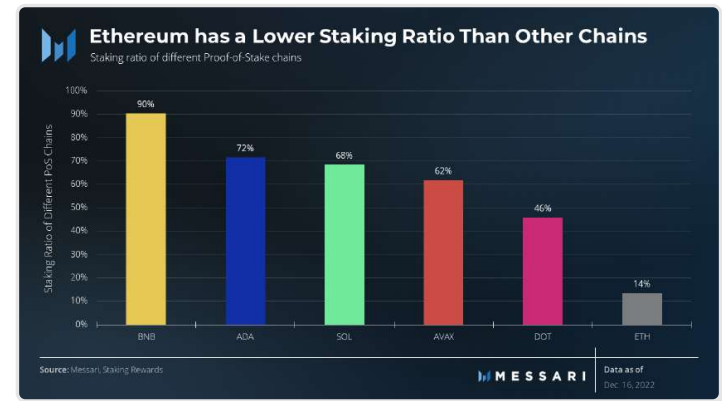


## 7.5 Superfluid Collateral & Synthetic Stakes

Liquid staking protocols made it more palatable for thousands of Ethereum investors to stake ETH and help bootstrap the security of Ethereum's post-Merge Proof-of-Stake blockchain.

A game for whales (a 32 ETH minimum is required to stake), with significant duration and technical risk (you didn't know when your staked ETH would become available again in the leadup to The Merge, which had been fraught with technical risks and years-long delays), and high opportunity cost (you can't use your ETH in the NFT or DeFi markets), was opened to all thanks to protocols like Lido and Rocket Pool.

These staking protocols were able to catalyze thousands of incremental ETH stakers thanks to the creation of new synthetic assets, staked ETH (Lido's stETH and Rocket Pool's rETH) that accrued Ethereum's staking rewards (for a 10% fee) atomically, and were liquid and tradable as soon as they were minted.



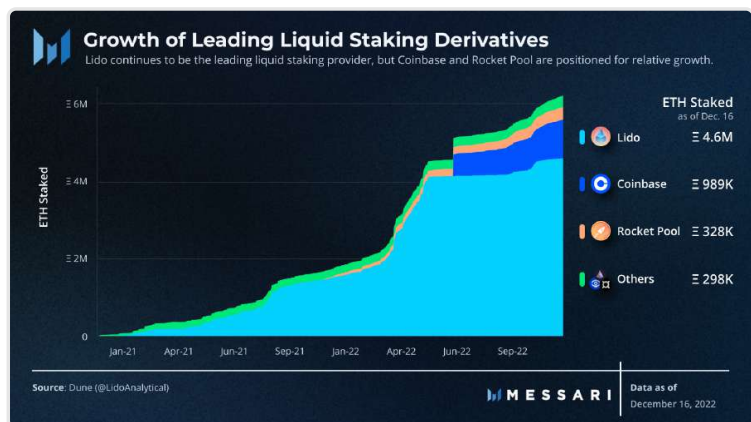
Post-Merge, the economics of staking are even more compelling.

With ETH inflation falling to near zero and validators earning real revenue (tips and MEV) on each processed block, the "real returns" to stakers have spiked to 6%. Further, when withdrawals go live on the Ethereum staking contract as part of the [Shanghai upgrade](#) planned for sometime in 2023, the risk of staking ETH (and synthetic instruments) will fall considerably as the minimum duration for staking will fall to just [27 hours](#).

There will be little to no reason to avoid staking ETH, and the result could be a boon for Lido and Rocket Pool, and to [attract participation from more centralized players](#).

We expect DAOs, exchanges, and other institutional ETH holders to stake en masse post [EIP-4895](#). DAOs have a combined \$11 billion in treasury assets. Coinbase has even more under custody. There aren't many more automatic annuity streams in crypto. Lido and Rocket Pool strike me as the next ma-

for long-term blue chip DeFi assets. I expect Lido will be the top fee generating dApp in 2023 across all of crypto. And [Rocket Pool's market share](#) could 5–10x in the new year.



Word of warning! Until ETH holders can [withdraw funds](#) from the staking contracts, there is ever-present technical and duration risk to these products. You'll recall from earlier that 3AC was decimated by forced selling of stETH after its peg to ETH broke amidst the market turbulence in May. I think about those as dramatically reduced risks going forward, but it's likely that there will be things that break in the synthetic staked token market as more exotic structures get proposed to compete with Lido. (Though I'm excited about [Eigenlayer's potential](#).)

Final thought: remember last year, when JPMorgan [projected](#) that staking could be a \$40 billion/year industry by 2025? Right now, there's a mere \$13 billion in staked ETH circulating at 6% per year, a figure which would have to grow 50x or more, to hit JPMorgan's \$40 billion staking revenue threshold. A 50x on Lido's current revenue would be \$1.6 billion annually. Nice.

(Required Reading: [Pop, Lock, and Rocket, A Valuation Model for Lido DAO](#))

## 7.6 The Perp Walk: dYdX as an Appchain

dYdX has strong product-market fit despite botching its decentralization and token value accrual scheme out of the gate (though, I think silly regulation is partly responsible). Q3 marked the fourth consecutive quarter in which token rewards paid out of dYdX outpaced revenues earned, this time to the tune of \$22.6 million.

Things are soon changing for the better. The launch of dYdX V4, a [dedicated appchain](#) on Cosmos, will provide a prime opportunity to decentralize the protocol and fix the leading on-chain derivative protocol's tokenomics. Validators in V4 will run the dYdX order book instead of the centralized dYdX Trading entity, re-aligning tokenholders and protocol revenue.

The community is aware of the coming tailwinds, too. In Q3, governance voted to wind-down two different token incentive programs and lowered trading rewards to reduce token inflation.



And the sheer number of innovations dYdX is looking to insource and customize as a vertically integrated appchain (base L1, custom modules, off-chain orderbook network, oracle network, Alchemy-like indexer, mobile applications, and a custom wallet) will be something other communities will be watching intently.

The coming migration will be risky, but it could also create the highest quality perpetuals product on the market and compete effectively with centralized alternatives. That's timely, given that one of the world's largest marketplaces for crypto futures just disappeared.

(Required Reading: [Evaluating the Cosmos Chain vs. L2 Decision for Investors and Builders](#))

## 7.7 On-Chain Asset Managers

I was surprised by how poorly on-chain asset managers have done this year, though I suppose I shouldn't be.

The fact that I haven't thought about them since last year's report is telling, and with DeFi yields plummeting and investors focusing on capital preservation and minimizing counterparty risk, there aren't many value-adds to yield optimization services. We're back to where we were in 2019 and early 2020, when this sort of DeFi application felt like picking up pennies in front of a Zamboni of risk (smart contract, governance, and counterparty).

It feels like the puck has moved over to investment DAOs instead (covered in the next Chapter), though I'm scratching my head at how protocols like [Enzyme](#) and [Index Coop](#) have struggled so mightily in "creating customized indices for crypto." That feels like a trend whose time has come, and I wrote last year about how ETFs were one of the most successful financial innovations in the past

30 years, with some \$6 trillion in net assets, lower management fees, and higher net returns for their investors.

Good active managers could make a killing this cycle as memes run out of steam and fundamentals take over. Rules-based asset managers are now much easier to create with code, and protocols that allow for a proliferation of on-chain funds and indices should have a stronger showing in 2023, provided they are built overseas. (The SEC \*definitely\* won't like these.)

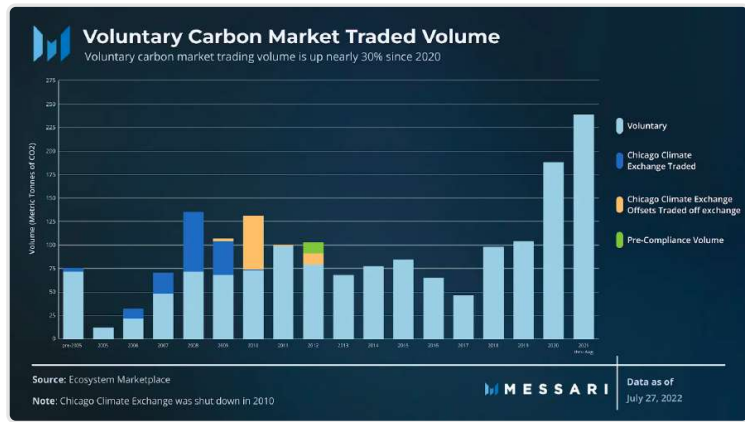
I'm going to run back this prediction for one more year:

*"There's opportunities for [smart beta products](#), sector specific plays, portfolio copy-trades, and more. The biggest near-term opportunity could be shadow stonks, like we've already seen on Synthetix, [Mirror](#), [UMA](#), etc. Consider that the "total value secured" by Chainlink oracles (smart contracts that leverage their data infrastructure) [\[is now \\$16 billion, down 80% year over year, but still 2x higher than it was in 2020\]](#) and you have the foundation for something big. Reliable oracle data, synthetic stocks, and indices smart contracts...all we need are [CNBC talking heads for distribution](#), and we're full-stack, fam."*

## 7.8 New Novel Markets: Two Truths & A Lie

Can you spot the lie?

a. Anyone who follows me knows that my side hustle to crypto is ESG investing. Whenever you can invest in a provably sustainable, green, and socially conscious organization, you should. And I'm glad more people are starting to agree with me, even if it's only on a voluntary basis.



So you can imagine how excited I am about crypto protocols like [Nori](#), [Flowcarbon](#), [KlimaDAO](#) and [Toucan](#), which are laying the groundwork for corporations and individuals to reduce their carbon footprints, by revamping [the broken carbon trading markets](#). By tokenizing carbon offsets and establish-

ing reputable on-chain carbon marketplaces, these protocols have the power to bring transparency, liquidity, and aggregation to the global green markets.

I'm bullish on "[regenerative finance](#)."

b. Real estate finance is one of the largest markets in the world. So it should be expected that there will be a [massive opportunity for crypto protocols to innovate in this area](#). Physical real estate plays that leverage crypto haven't taken off yet, such as [Propy](#) (tokenized real estate), [Milo Credit](#) (collateralized mortgage lending), and [Vesta Equity](#) (fractionalized ownership), and I'm skeptical that there is a near-term path to crypto's meaningful participation in such a heavily regulated and physical asset class.

That said, there are pockets that could be interesting. Housing prices are up 33% since the start of the pandemic, and the average 30-year fixed-rate mortgage is at its highest level in over a decade (up 87% since last December). The majority of commercial institutions have ceased accepting new applicants for home equity loans since the 2008 recession, and I can tell you from first-hand experience that the lenders hate when the majority of your net worth is in crypto. I wonder if this is the sector where undercollateralized lending could actually work. Buy a crypto-friendly bank, deposit holdings, and secure loans against your house AND crypto. It's not necessarily a cost saver, but it could boost the accessibility of the mortgage market to more home buyers.

I've got to admit, I'm much more excited about crypto protocols that fractionalize NFTs and virtual property than I am about physical real estate plays. When in doubt, natively digital property will be easier to secure on natively digital ledgers. The physical markets will always come last.

c. I believe in prediction markets.

Ok, now guess the truths and the lie.

Give up?

Fine, it's the prediction market one.

Prediction markets feel like a use case for crypto that's always one year away. I'm surprised they yielded essentially nothing of value in a high-stakes election year this year. Today, there's a paltry [\\$2 million at stake](#) on bets surrounding the 2024 Republican Presidential nomination in the US on [Polymarket](#). I think Avichal is largely right: "[Prediction markets converge to the two big use cases: 1/ speculating on the price of assets & 2/ sports betting. #1 is DeFi. I do think someone will do a sports betting 'DEX' but it requires sports specific oracles.](#)" Legal sports betting is growing without the added risks of crypto, and no one wants to gamble on tokens right now. Nothing to [see here](#).



## 7.9 DeFi Censorship

As I said up top, I'm not sure that we should take for granted that DeFi will survive the global regulatory gauntlet next year. DeFi is seen as the highest-risk subsector of crypto by members of Congress, and it will be challenging to effectively communicate a different story. If the value of crypto writ large is a complicated story to tell, just add DAOs, and it ratchets up the complexity to 11 for people who do not live and breathe the details of our industry.

I predicted last year that "we'd see a bifurcation of DeFi into CeDeFi (known teams), and AnonFi (pseudonymous developers)." With the Tornado Cash sanctions and detention of one of their core developers, that is unfortunately holding up, all too well.

Some teams are already preparing for a world in which DeFi protocols are regulated at the interface and "Labs" levels. It's a hard compromise that might have to be temporarily swallowed in some jurisdictions (to protect the underlying protocols themselves from crackdown), then fought like hell in courts.

It isn't new for the front ends of major protocols run by centralized teams to implement certain controls and restrictions on their sites. Uniswap Labs [delisted tokens](#) last year, Aave [geofenced U.S. users](#) recently, and most browser wallets and front ends are doing \*some level\* of IP tracking for AML compliance purposes. Because some teams have already set precedent, the expectation might be that all communities have the ability to comply with laws deemed applicable to DeFi, and should do so without fuss or incident.

Last year, I wrote about the Sia Skynet team's efforts to secure unstoppable frontends in Web3 via a project called "[Homescreen](#)." I still hope something like that succeeds, but it feels like we're a couple of core building blocks of privacy tech (and maybe a couple of brave legal victims) away from seeing that become reality.

As bravely as I'd like to flout laws I disagree with, I'm not spending a single day in Bahamian prison, American prison, or serving time as a guest of any state.

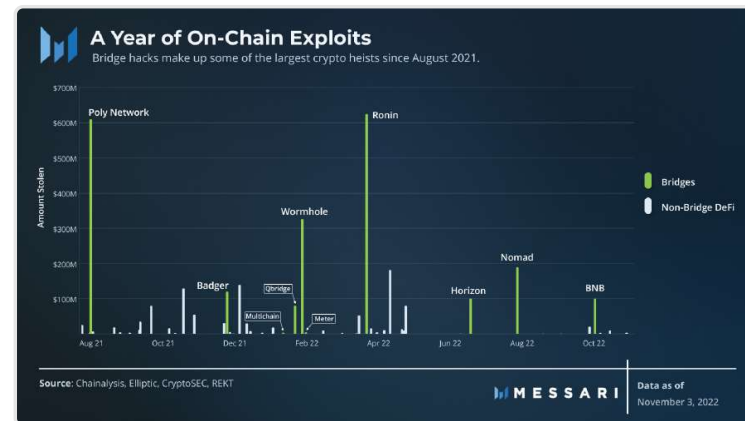
There are smarter fights to pick and stronger allies to solidify first. There's no glory in defeat.

The majority of DeFi users and volume in DeFi may be KYC'd within the next several years, but we can take comfort from the Tornado Cash case study that other non-KYC'd transactions will always be processed. Despite the furor around network-level censorship following the OFAC sanctions, 30–40% of [Ethereum's blocks are still processing transactions](#) to and from addresses on the U.S.'s naughty list.

There's no reason to believe this 70/30 dynamic won't continue elsewhere in DeFi. Just like the broader economy, the whitelist users will drive the majority of volume while we figure out how to weed out the blacklist and protect the gray area.

## 7.10 Bullish Unlocks → Down Bad

Methinks it's time to take security and sustainable token design more seriously after a year in which we experienced [\\$3 billion in on-chain hacks](#). Mango, Poly Network, Nomad, Wormhole, Badger, and Harmony Horizon were [among the nine figure hacks](#), but there were many others!



I expect the countless security auditors to [keep raking in cash](#), along with economic security modelers like [Gauntlet](#) and [Chaos Labs](#), and network monitors like [OpenZeppelin](#) and [Blocknative](#). I also think we'll see more efforts around developing [global security standards](#). Please devs, in 2023, do something. We can't have more bad prices.

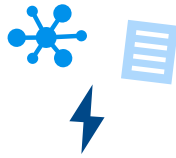
Especially if hackers can ultimately get to us with [mere eye contact](#).

### Quick Bonus

There's no such thing as bullish unlocks. That was a bull market meme. I can't believe I said this last year: "There's more trust in VCs to be professional secondary sellers on the way up, than panic retail sellers on the way down, too, so FDV likely matters more in well-distributed tokens than ones with big, long-term oriented backers."

That is such a horrendously ice cold take. My bad.





# 8.0

## TOP 10 TRENDS IN NFTs & DESOC

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### 8.0 Intro

NFTs reached euphoric heights in 2021. The hangover this year has been equally painful.

Amongst the wreckage, many of the usual skeptics piled on and predictably called for the end of NFTs. But I’m licking my chops for NFT infrastructure opportunities this year. I predicted last year that the NFT market would play out like 2013-2015 in bitcoin:

*“Yes, they’re like the ICOs of this cycle: sky high hype, crazy volatility, lots of early lottery winners and complete garbage. But as a new asset type and class, they will transform the world...they represent verifiably scarce, portable, and programmable pieces of digital property... which makes the potential for NFTs essentially unlimited as blockchains become global transaction ledgers for both natively virtual property and physical property.*

*Physical art is a [\\$1.7 trillion asset class](#) with ~\$60 billion of annual sales volume. At the end of Q3, NFT market cap was just \$14 billion [according to DappRadar](#). Digital art NFTs have represented less than \$2 billion in [total sales to date](#). So NFTs are still less than 1% of the physical art market, and digital art is just one tenth of the total NFT market.*

*Do those numbers remind you of any other four-year-old asset?*

*Despite the froth of today’s NFT market, this early flight from physical art to digital art could end up looking like 2013’s bitcoin “bubble,” which crashed 80%+ in 2014, but also marked the beginning of bitcoin’s decade-long ass whooping of physical gold. Bitcoin’s market cap crossed 0.1% of gold’s in November 2013. Wouldn’t you know it? The “non-collectible” digital art market is now 0.1% of the physical art market. The digital art/ NFT market crash will eventually be even more nauseating than the 2015 bitcoin bear market (because these are highly illiquid assets by definition), but the 10 year trajectory of the overall market will be the same: 100x+.”*

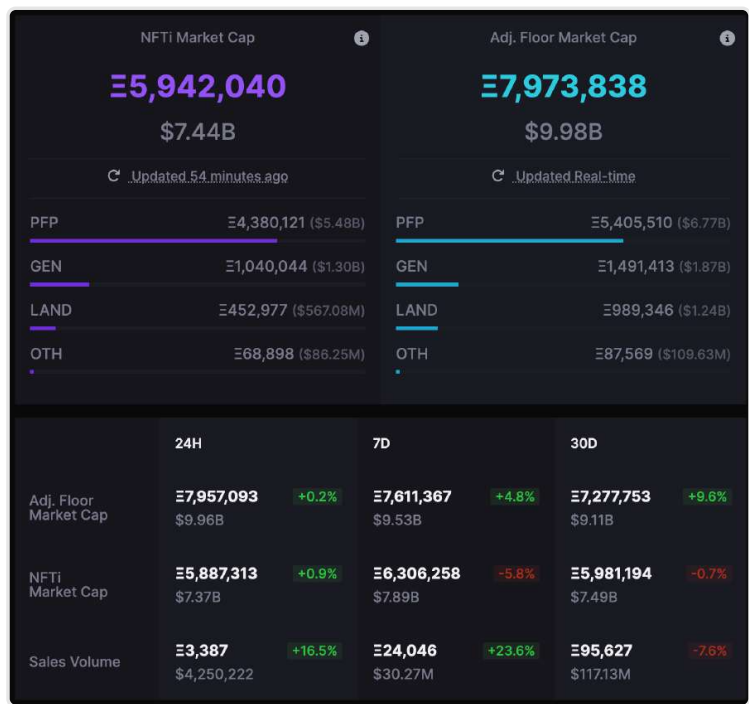
I’m sticking to that thesis, and everything we’ve seen this year hardens my conviction in the NFT space and its potential moving forward.



## 8.1 “Blue Chip” Pixelated Art

Given their non-fungible (and thus, highly illiquid) nature, the size of the NFT market is hard to assess. The best estimate that I’ve seen comes from the team at [NFT Valuations](#), which is supervised by the crypto faculty at the University of Nicosia (one of the earliest academic institutions with a real crypto footprint).

They peg the current NFT market cap at about \$7.5-10.0 billion, with two thirds of that coming from profile picture (“PPF”) collections like Crypto Punks and Bored Apes.



Is this sustainable? Allow me to analogize.

I’m sort of obsessed with [Yellowstone](#) and its Kevin Costner-led cast of cowboys and misfits. It’s a good show, and you should watch it. ([Succession](#) and [Yellowstone](#) are the same show but one is set in New York City and the other is in Montana.)

One of the things the guys (and one gall) on the Yellowstone ranch do is stamp new recruits with a branding iron once they’ve proven to be sufficiently loyal. You wear the big Yellowstone “Y” scar tis-

sue with pride and people know you’re part of the family. Since that family is formidable, people know not to mess with folks that wear the brand.

Anyway, if you understand why ranch cattle brands and gang tattoos are interesting community markers, it might help you grok PFP NFTs. Punks are arguably original collectors’ items because they were the first big NFT collection. Everything else seems like more of a head scratcher unless you think about them as clique identifiers.

If you want to feel like you belong somewhere, it’s a worthy investment for anyone who was early in crypto, has spare cash, and is looking for a new family, now that their old family hates them for shilling crypto last Christmas.

As for me, I’d prefer to sear my flesh with scalding iron vs. dropping \$5k on a Pudgy Penguin.

Jokes aside, the Bored Ape Yacht Club (“BAYC”) creator Yuga Labs had an interesting year (they’re now the second largest NFT project by “market cap”), and the project checks my box for “looks like innovation wrapped in a joke/toy.”

I won’t comment on the merits of the ApeCoin token itself, because frankly I don’t understand it, and that’s [why I pay these guys](#).

That said, [Apecoin is a novel experiment](#). Basically, Yuga Labs said:

*“BAYC (and its sister projects Mutant Apes Yacht Club and Bored Apes Kennel Club) want our pfp to be useful, and to represent unlimited access to a vibrant community of NFT OGs that meet up, wear the same hoodies, and colonize the metaverse together. Let’s do a governance token, and then [let people buy plots of the BAYC metaverse](#) with that more fungible currency.”*

And the community said, “Nice.”

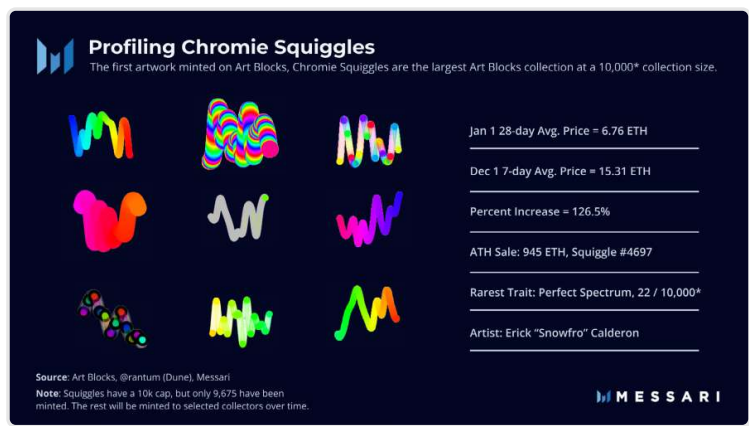
While I don’t understand the allure of this particular virtual community of nearly [100,000 human souls](#), I also don’t understand TikTok dances, the Kardashians, or how Dogecoin and Shiba Inu are still more valuable than Uniswap. In the meantime, their community is one thing that [actually seems to be growing](#) in this hellscape of a year.

## 8.2 Generative Art

I understand digital art slightly better than I do PFPs. Art Blocks, the “premiere” generative art NFT collection, is the [fourth largest NFT project by volume](#), and its various collections represent [four of the top twenty collections by floor price](#). Art Blocks sells things like pictures of squiggles for thousands of U.S. dollars that less enlightened heathens might otherwise use for things like food and shelter.



The NFTs look like this:



Art is art, and its value is in the eye of the beholder, and the market. I also get that most physical and digital art pieces are [Veblen goods](#), so I cringe conceptually as to why these things have exploded.

But that's not why I'm writing about literal squiggles. Instead, I try my best to find the innovation that's buried under the surface of the toys.

For generative art, it could be AI-generated NFTs that combine to create game assets, characters, icons/designs, music, content, etc. and secure all of that prompt-driven IP. Think of a designer or copywriter proficient in GPT-3 prompts that wants to secure all iterations of a creative work or mark. A photographer will take many photos and select one. Likewise, generative artists will tweak images with computer code and sell the best of the bunch. Or you might be able to combine NFTs and have [generative art reputation NFTs](#) that look and feel "elite." Much like a military officer's regalia, you can use these as pictures that speak a 1,000 words about your background, character traits, community, skills, and accomplishments.

Or you could run [genomic](#) simulations to create the perfect offspring.

Dystopia or evolution?

Depends on your worldview, I suppose. But given what we've seen from [OpenAI](#) this year, I'd get used to the realm of science fiction becoming real sooner than expected.

(Required Reading: [Revisiting Art Blocks](#))

### 8.3 The Institutions Are Here, Just Not the Ones We Expected

NFTs proved to be big business for big brands last year. Luxury brands (Gucci, Dolce & Gabbana),

professional sports leagues (NBA Top Shots), and food and beverage companies (Starbucks) alike all [hopped aboard the NFT hype train](#), and the low marginal cost (windfall profit) products it gave them last year when the market was hot.

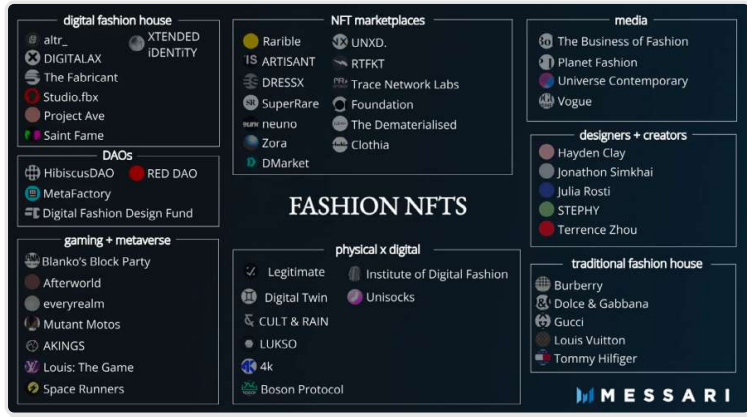


Very few of these collections maintained their value over the past year, but we've continued to see strong moves from legacy brands and non-crypto tech companies (bully for Salesforce who launched an [NFT Cloud!](#)) looking to integrate NFTs into their platforms. Reddit launched a [collectible avatar program](#), which has onboarded 3 million unique users. Meta is creating an [NFT marketplace](#) that will be integrated into the Facebook and Instagram platforms. I'm betting that we'll continue to see more experimentation with NFTs under Elon's Twitter (more on this in the decentralized social section below).

Fashion may be going digital the fastest. Though digital fashion is not a new phenomenon - in-game virtual goods and skins is now a [\\$50 billion market](#) - tokenized fashion opens up a world of new opportunities for brands.

Whether it's digital only (NFTs that can be worn in games and metaverses and transferable and composable across platforms, ideally) or digital/physical hybrids (NFTs that can be redeemed for physical items, or rendered on a person in a picture or video), there is plenty of demand. [Gucci sold a digital version](#) of one of its physical bags on Roblox, and it sold for \$800 more than the "real" thing. [Digital drip](#) will become more commonplace as gamers demand more customization around their digital identities.

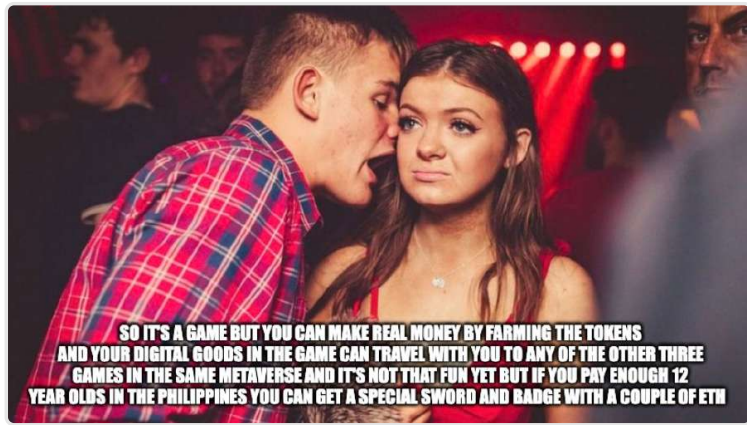




I'm more excited for brands and artists than I am for speculators. I think the mini-era of NFTs as "investments" is largely over. The era of NFTs as digital "consumables" is just getting started.

## 8.4 GameFi

Whenever I hear someone pitch crypto gaming as a key sector to watch, this is how I feel.



Don't worry. I understand the thesis, and our team has done a good job explaining [STEPN](#), Axie, and other early top games.

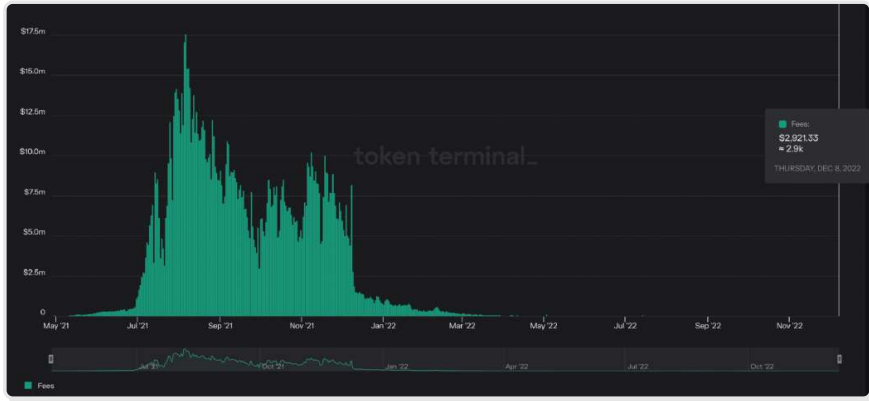
Web3 gaming is all about giving players ownership of their in-game digital items and using tokens to create in-game economies (and potentially, game governance). Players with a stake in the game they're playing, whether through in-game items or quasi-equity (tokens), will feel more invested in the game's success and spend more time and money playing. If you hit critical mass amongst players, they'll want to buy and sell items (NFTs), and an in-game economy can emerge that shifts the traditional gaming business model.

Instead of games extracting value from players via [Downloadable Content](#) (DLC) and micro-transactions, game creators can make money as marketplace operators (transaction fees). Users are incentivized to buy or earn top game items (the Play-to-Earn ("P2E") model popularized by Axie Infinity).

There's three problems, though.

1. To build a [sustainable P2E gaming franchise](#), the game needs to be, ya know, fun. Was Axie fun? Or was it a flash in the pan, bubble, or success story on par with the 2,000% APY DeFi pools that spiked for a moment, then tanked? My hunch is that more people were treating Axie as an odd job last year and not a pastime.
2. To make a fun game, you generally need a lot of money. Development timelines are long, and final products are expensive. Game development is significantly longer than software due to the art components and additional complexities. The higher the quality of the game, the longer the timeline. When NFT game items and complex token mechanisms are also thrown into the mix, game development might be even longer and harder to change compared to other areas of crypto software.
3. There's no denying that Axie knocked it out of the park with [\\$1.35 billion in lifetime protocol revenue](#), more than any other dApp and \$450 million more than the second highest grossing protocol, OpenSea. But we're looking forward, not backward, and here's the trend:





(Source: [Token Terminal](#))

You literally cannot see fees since the spring using this y-axis because they are down to less than \$1 million / year on an annualized basis.

If you think token trading, gambling, and financial negotiations are interesting, there are ways to express that passion productively in society. Namely in finance (legacy or crypto). I'm not sure adding tokens, financial alchemy, and creating steep player buy-in costs is a good way to build a fun game, or at least not one with a very large community.

I fully understand and [appreciate that the gaming market is enormous at nearly \\$200 billion per year](#), and I fully expect some teams to knock it out of the park with a crypto game at some point. It might even be one of the sparks for a "cross-the-chasm" moment for crypto or AR/VR.

But it's the most overhyped sector of crypto right now.

Last year I said, *"The play-to-earn gaming trend is here to stay. The amount of money these platforms have raised is nuts, and they're set up for a full cycle of iteration and development regardless of whether the sector's frenzy subsides next year."*

Though I did expect a pretty rapid cooling of Axie's growth, I thought some of the big checks going into crypto games last year were based on some substantive development efforts. If they were, I haven't seen them. It's just as likely that they were part of the foie gras-ing of the broader crypto entrepreneurial class.

I'm bearish, and will only update my thesis when I see some signs of life or startup valuations that don't pull forward ten years of credit for the entrepreneurs building in this sector. It sort of reminds me of early social networks. I'll invest as much as possible in the first actually fun franchise at a higher valuation and pay for the derisked assets then. I don't feel the need to be early or tinker here. I'm happy to write about them next year if I actually play anything fun.

(Here's a [good thread](#) and Galaxy [report](#). Great [graphic on the gaming sector](#) pp 31-40, too.)

## 8.5 The Cryptoverse

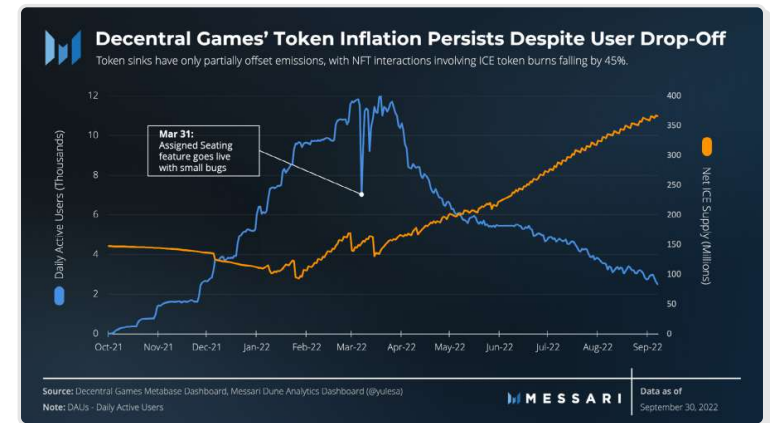
Using an Oculus for the first time and building that blue virtual mesh cage around myself was one of the coolest tech experiences I've ever had.

I also haven't used the Oculus in over a year.

Maybe it's lockdown fatigue, and I just prefer to see people in person when I can. When I can't, Zoom is still better than floating metaverse avatars. It still feels like we're years away from hardware that makes the cryptoverse not suck. The exception might be for gamers (I'm not one), [teledildonics](#) (no judgment, but again, not my jam), and gambling (if you're in crypto, who needs blackjack?).

We'll continue to cover the crypto metaverse, but I'm only likely to buy land in the metaverse if a [distressed Decentraland plot](#) comes on to the market. Otherwise, one of the only apps I've been intrigued by is Decentral Games, a DAO with [crypto metaverse poker rooms](#) with a real business model that does \$2 million / year in fees.

Though with less disposable income, cryptoverse players aren't biting as often...that \$2 million fee figure is down from a \$36 million pace in Q1. Ouch.



I remain bullish on our AR/VR future, but I'm not about to bet the farm on it happening any time soon. The people who have done that have [gotten their faces blown off](#) this year.

## 8.6 Decentralized Social (DeSo)

An irony of Meta's collapse this year seems to be that the other wing of Mark Zuckerberg's empire (ya know, the one that makes money) is one of the areas most primed for disruption (and opportunity) thanks to crypto. I am excited for Decentralized Social (DeSoC) experiments to take root in 2023.

DeSoC rearchitects Web2 social media on crypto rails. It has the potential to serve as the underlying substrate that allows people and capital to organize and exchange value on the internet. DeSoC gives people on-chain reputation, organization (DAOs), and ownership of their content. It also introduces new ways for people to better capture the value of their online IP. DeSoC will change how value flows on the internet.

Currently, the DeSoC sector is split into three layers: front ends, the social graph layer, and content storage. Front ends like Lenster resemble traditional social media apps, but they read and write data to the social graph layer (Lens, Farcaster) and the content storage layer (IPFS, Arweave) instead of their own app. The core piece of DeSoC, though, is the social graph layer.



Unlike traditional social, a DeSoC social graph is entirely open and composable.

Any developer can create an app on top of a DeSoC social graph and tinker with applications and monetization models. Users can use these apps and actually visualize their social graphs due to the openness of the data.

Imagine being able to chart which friends are triggering you online. Instead of blocking them, you could turn amplification down 90% until they lighten up. Having a bad day? Dial up the feel-good meme impressions. Feed me substantive business-related posts from 9-5, and witty banter and shitposts in the evening. DeSoC won't feed the algorithm and exploit your attention. It will help you conquer the beast and [take care of your chicken and your mental](#)s.

Most value in DeSoC will likely accrue to the social graph and content layers. Once a user's connections and content are stored in the social graph layer, they can use them in any front end. The runaway network effects of Web2 social media won't be locked into a single (censorable) front end like we see today.

A core infrastructure challenge facing DeSoC is the scalability of base layer networks like Polygon and Ethereum. Polygon's peak daily active addresses is 1.5 million, orders of magnitude more constrained than even mid-tier social networks like Twitch that have over 140 million MAUs. To achieve broad adoption, DeSoC protocols will need to operate on the cutting edge of scaling solutions like rollups, parallelization, and data availability.

Investment in this sector is good for the broader ecosystem's scalability challenges. DeSoC might also ultimately serve as the communications backbone for many DAOs and guilds.

If you think I am too negative on gaming, you might think I'm too blindly optimistic on DeSoC.

That's because a) I think it's easier to build DeSoC communications networks iteratively (this has been true historically when you look at social media vs. game studios' capital expenditures), and b) more of the value in gaming lies in the front-ends (best built by centralized visionaries) vs. the back-end (easier to decentralize via open-source software). The Web2 social industry happens to be nearly identical in size to the gaming space, \$220 billion in annual ad revenue alone.

If you include digital entertainment and content (direct consumer purchases and subscriptions) in the DeSoC addressable market, you get closer to \$1 trillion in annual revenue.

Transparency, user control over the algorithms, portability, revenue shares, 8 billion users.

Like I said. **BOOLISH.**

(Required Reading: [The Open Social Map](#) and more on [Lens](#), [Farcaster](#), and [Ceramic](#))

## 8.7 ENS & Identity

Vitalik likes decentralized identity and so do I! But I don't think [proof-of-humanity](#) necessarily requires you to submit to a global Very Good Citizen Registry™ or look into an orb and [sell your retina data or genomic sequence](#).

Let's start with the good and the bad of crypto naming services.

The Ethereum Name Service ("ENS"), Lens, and Unstoppable Domains allow you to add human-readable NFT wrappers around your crypto wallets, much like domain registrars offer human-readable website domains that point to different IP addresses. You can send ERC tokens (fungible or non-fungible) to [ryanselkis.eth](#) instead of a long crypto address. Though, you'd be incorrectly assuming I own that ENS domain. (I thought I had renewed it for three years, only to realize a squatter snapped it up over the summer. F word.) You can then use these persistent identifiers like a twitter handle or email.

It's much easier to remember, and it's big business. It turns out people want to use crypto more often



when blockspace fees aren't astronomically high.

DeSoc and gaming have proven to be good tailwinds for namespace adoption, and ENS has created a helluva schelling point for crypto users by securing the ".eth" namespace. Other competitors and breakout apps may choose to develop their own native naming protocols, but odds are good we get .eth, .crypto, .lens, and a handful of others as the most popular identifiers, much like we have .com, .org, and .io as the most popular domains today.



I think it's problematic that ENS and other wallet identifiers are globally searchable by default, along with every single trade, payment, vote, and other activity you've done on chain. That feels quite a bit more invasive than Venmo, and I'm not sure the solution to censorship and financial surveillance is radical and unprecedented transparency rather than privacy and selective data permissioning. Could crypto allow us to do identity the old-fashioned way, and show the world a slightly different person depending on the context of a situation?

You are a different person at work vs. at home, and with adults vs. with your kids. There is no reason everyone on the internet needs to know everything about you.

There's a number of teams working on this already.

Maybe the most interesting one you haven't heard of is [Urbit, an enigmatic project](#) that aims to create a sort of open-source and privacy-focused version of WeChat; [a digital homestead](#). Urbit is designed to give users digital autonomy, privately store their own data and digital assets, and communicate via direct, encrypted messages with peers without any third-party interference.

GDPR pop-ups are the internet's [floating garbage patch](#). Crypto-powered identity is the future.

(Required Reading: [ENS: Evaluating Growth Opportunities](#))

## 8.8 Creator Royalties vs. Monopolist Taxes

Apple charges a [30% tax on NFTs in its app store](#) in order to enrich the company and its shareholders in exchange for building a world class mobile operating system. Likewise, OpenSea made the decision to [enforce on-chain NFT royalties, reaping \\$1 billion](#) in exploitative gains for...its creators?

I've been a casual observer over the furor that's risen up over OpenSea's royalty change last month. But, to be honest, it didn't really register for me given the broader market backdrop and my interpretation of (much of) the anger as coordinated outrage amongst competitors that haven't quite been able to nip at OpenSea's heels the way they wanted to. (More on that next section.)

I will grant you that royalty enforcement sucks at the user level. If you're wrecked on an NFT "investment," you want to recoup as much as you possibly can. If you are looking to scoop up new NFTs on the cheap, you want your marketplace aggregators to have a full selection of assets, and you'll be pissed off if royalty enforcement reduces your access to certain collections or breaks your filters.

But I happen to think the right default in the long-term is to side with the creators. If creators want to opt out of royalties given the current market conditions as a way to help their fans get through the bear market, that makes sense. But I also think it's a sign of how baby sh\*t soft some NFT punters are. You buy a picture of a second-tier cartoon PFP that had embedded royalties baked into all transfers at the mint, a work of digital art that just "really spoke to you," and now that the market has turned, what, f\*ck the artists?

Nothing screams "Web3 is the creator economy" quite like Brad from SoHo demanding that we disable the valuable, differentiating function we were hyping as a game changer for artists less than twelve months ago, simply because his paper net worth evaporated from bad bets.

If this take upsets you, Brad, I'm sorry (that you feel that way).

Let's keep our eyes on the prize. Elon Musk [seemed like he was ready to go nuclear on Apple](#) for the app store VIG, but relented. Maybe [the Coinbase team will hold](#) the line? The [tide may be turning](#) for America's favorite monopoly, if only slightly.

Apps shouldn't need to give up 30% to Apple, but creators also shouldn't have to abandon agreed-upon income streams because you had a bad year. More on the need to route around the app stores in the next chapter.

(Bonus: DCinvestor had a [good rebuttal and mini-thread](#) to my critique re mandatory royalties.)

(Required Reading: [The Decline of NFT Creator Royalties](#))

## 8.9 OpenSea's Down Bad Yarrrr.

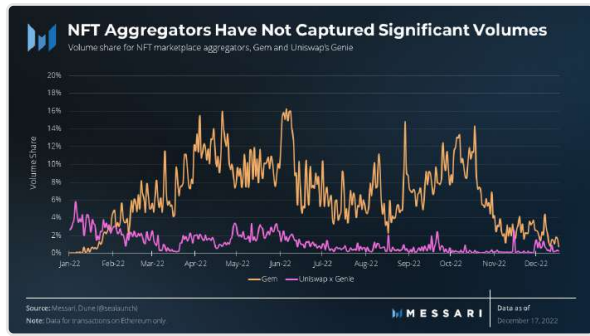
Last year, OpenSea was coming off one of the fastest revenue ramps of any business in history, processing nearly \$5 billion in NFF sales last December alone. They went from a seed-stage startup to a

[\\$13 billion business](#) in under two years, and I said at the time that I thought they could eventually be a \$100 billion company (or network) if they continued to execute. That was easy to say at the time! But I also still believe it.

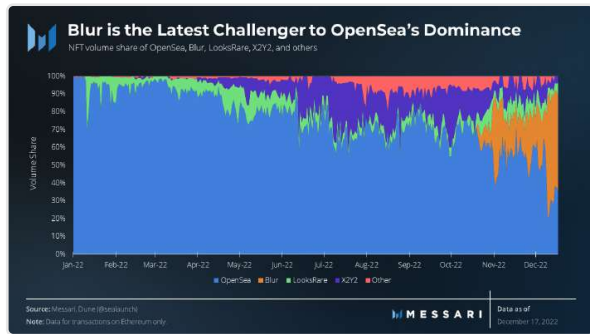
Yes, there are competitors. Of course they are after a bull market like we saw last year.

But Coinbase's [entrance flopped](#). FTX is now gone, [as are the NFTs it hosted](#) on its platform. [There is no second best](#), and the competition seems to be focused on marketplace aggregation or unsustainable, near-zero fee models.

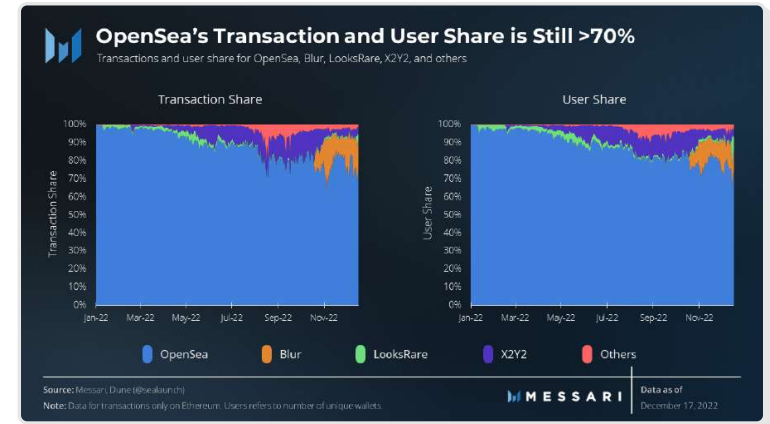
Uniswap's "Genie," Paradigm-backed [Blur](#), and even marketplace competitor Rarible [launched aggregators in Q4](#). OpenSea bought Gem, its [leading aggregator competitor](#) in Q2.



I'm skeptical if [vampire attacks](#) from competing marketplaces will displace a market leader with a strong brand and sustainable revenue model in the middle of a bear market. Paradigm-backed Blur is the latest to throw its hat in the NFT marketplace ring. Early data seems encouraging, but the same was true with previous competitors, LooksRare and X2Y2, who captured early volumes through incentives and discounts but now languish at sub-10% market share.



And that's not even the full story. Most of the alternate marketplace activity has been [wash trading](#) designed to spoof the appearance of liquidity and farm token rewards on near-zero-fee marketplaces. OpenSea's dominance becomes more clear when analyzing transaction and user trends in parallel to volumes.



Going back to the point I made earlier on bitcoin's history vs. digital art, it might be helpful to think of OpenSea in the context of Coinbase in the early days.

You young bucks don't remember *every single upstart* competitor to Coinbase and how adamantly they argued about how Coinbase's fees were unsustainably high.

It's not that the logic is flawed! Other things equal, a competitor that charges 90% less will ultimately begin to eat your lunch. But that's true in sectors that don't routinely have 90% dislocations in market structure. Coinbase's competitors never had a bear market buffer. Coinbase made money on the way up in each market cycle, and its competitors picked up (temporary) market share. But not enough to ever really make a dent. And when the tide went out, Coinbase had its retained earnings, and its competitors had nothing.

They all got crushed or pivoted.

I believe the same thing will happen in NFT marketplaces. If OpenSea fumbles operationally, or stops innovating, or experiences extensive brand damage, it could lose its lead. But it's got the same SEO marketing benefits as Coinbase did, the brand advantage (X2Y2 is a terrible name), and, as discussed above, that whole creator royalties thing. If this chart has plateaued, it will shake out also-rans but keep OpenSea operating in the black until things rebound.







(Source: [Nansen](#))

In full disclosure, I should remind you that I'm an early (lucky) OpenSea investor. But I invested, and will continue to hold, for three reasons: 1) the company's positioning reminds me of Coinbase for a slightly different asset class, 2) the design space for NFTs is significantly broader than it is in fungible currencies, 3) it seems probable that the feds come for NFTs only after everything else in DeFi, privacy, and DAOs.

Truth be told, I haven't spent much time on the NFT markets over the past couple years. At least not "investing" in (let's be real, "flipping") JPEGs themselves. It's because I'm bad at trading and have a finite attention span, but I do think NFTs will become a ubiquitous standard for wrapping financial assets in the same way they currently wrap monkey JPEGs.

(Required Reading: [Exploring the Unbundling OpenSea Thesis](#), [Comparative Analysis of NFT Marketplaces](#), [Blur](#), [Financialization](#), and [Renewed Interest in NFTs](#))

## 8.10 OpenAI & ChatGPT

I'm still, like everyone else, trying to process just what the hell is going to happen next as OpenAI transforms art and information. My quick reactions are here, if for no other reason than I want to look back on these next year and see how well they've aged or how silly my initial overreaction will look.

1. Prompt writers will inherit the earth. Who knew Twitter's character limits would keep me gainfully employed as a writer once my ability to write the Theses next year becomes a redundant skill! Seriously though, I wonder if this is going to upgrade or downgrade our cognitive abilities, or simply rewire our brains much like GPS and social media did? We're worse at directions and spatial awareness than we were pre-GPS, but better off. We're better at connectivity post-social media, but less mentally healthy. Which way will ChatGPT trend? And [what does the AI think of itself?](#)

2. The lawyers always win. This is going to be an IP and copyright lawyer's bonanza. Well structured, unique, historical data will find fresh monetization schemes. I could also envision this being great for individual users and hell for corporate users who might be opening themselves up to copyright infringement or other IP disputes in leveraging this tech. ChatGPT [passed the bar](#), so it's clearly in the pocket of Big Law!
3. I agree completely with Ben Thompson's [observations about ChatGPT](#) in *Stratechery*. This will be one of the biggest boons to productivity in the next decade. Today, it reminds me of early Wikipedia and early Google searches (both are still flawed, by the way). This might help students complete a term paper, but it won't do the work for them. If anything, this might free up good students to spend more time on diligence, assumptions, logical structure, and source review (vs wordsmithing), much like Excel allows you to run complex models, but those models are still mentally taxing to structure.
4. It's a short hop from ChatGPT to ubiquitous private communications. It's literally horrifying to think that all tweets, texts, and emails could be mass uploaded to the AI, and investigators, authorities (or enemies) could more easily query your own words for evidence of your state of mind and psychographic profile. The NSA probably already does this. But now it's hypothetically in everyone's hands? Bullish Signal. And any crypto protocol that makes it easier for you to own your own content and speech. I'm revisiting [Ocean Protocol](#), and it looks like others are as well.
5. I think the imminent demise of Google has been greatly exaggerated. I really liked this line [from Parker](#): "Remember before OpenAI when Google had a chatbot so powerful some guy believed it was sentient and tried to free it? That was the stuff they didn't think was worth shipping." Scary! We must decentralize these data silos if we are to defeat Skynet. And hope that China stays isolationist and runner up in AI research.
6. AI is simply a reflection of the data sets underpinning the large language models. The current data is pulled almost exclusively from the internet or intranets of tech companies. Content produced by AI is not representative of humanity or even a global hive mind, but it is heavily weighted by who is on the internet and, among that group, who dominates in producing content. AI isn't good or bad, but the data sets might be.

I could go on about this for hours. But so can every other Thought Leader in Tech™ so I'll spare you the word vomit. Go ask ChatGPT what it thinks about crypto.



# 9.0

## TOP 10 TRENDS IN DAOS & WEB3



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### 9.0 Intro

How do we build crypto sustainably? Are we serious about decentralization and open design frameworks? Or are we doomed to build Fintech 3.0 with the same tech giants dominating or (at best) providing marginal improvements in privacy, accessibility, and interoperability?

For me, this is the chapter that outlines some of the most burning investment needs in crypto (and, I think, the greatest long-term opportunities). We don't need a 30th DEX AMM variant or another 10,000 image animal PFP collection. We do need tools that will ensure crypto truly cannot be shut down.

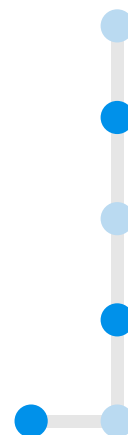
These tools come down to hardware, wallets, browsers, secure data pipes, and new governance primitives and social contracts. The first few aren't easy, but they are fairly straightforward.

We can't be reliant on Amazon, Google, and Microsoft for hosting; Apple, Facebook, or Google for browsing; or any of the Big Data giants to provide our oracle data for trustless applications. If they do help for some bootstrapping period, great! We just shouldn't get used to it or feel that the relationship is sustainable (we've seen the censorship risks in staking hardware already).

I'm even more interested in the “Layer-0” stack, though.

These are the tools we messy humans use to encode ethical underpinnings in our communities. Balaji calls Layer-0 (or the “moral stack”) the baseline for the [network state](#). That makes sense. Most good companies consider culture, mission, and values to be more important than their strategy or product at any given time. What's lacking most in crypto isn't talent, so much as good governance and social primitives that encode better Layer-0 values at the community level. Especially after this year.

Whether you're talking about DAO operations, legal structures, financial management, strategy, or product, the way we work in crypto and the why behind it still need major upgrades.



## 9.1 Wallets & Browsers

The backbone of the crypto economy is the personal wallet, not the [exchange-based account](#). Wallets act as virtual money clips, identity credentials, and personal data vaults. They unlock your access to the crypto realm, whether you're using a DeFi app, NFT, or DAO, and they support access to protocols and assets that might not otherwise be supported by your favorite exchange.

The upgrades this year to personal crypto wallets have been incredible.

MetaMask [integrated with fintech Sardine](#) to allow instant bank-to-crypto transfers. Coinbase announced its plans to [expand Coinbase Pay](#) to enable users to fund Coinbase Wallets directly from a bank account, added an SDK for developers looking to integrate fiat-to-crypto services directly within their dApps, and rolled out support for Ethereum dApps in its standard mobile wallet. Ledger completed [an integration with several exchanges](#) that allowed its customers to leverage CEX order books without losing control of their private keys (Ledger hardware wallet FTX traders are SAFU). And the new [Ledger Stax](#) looks sick.

At the same time, portfolio tools from Zerion, Zapper, and Nansen made it easier to track specific wallets in real time and manage full, complex portfolios from a single dashboard. My personal favorite is [Frame](#), a privacy-focused Ethereum wallet and native desktop application, which is my preferred command center for crypto transactions.

Better wallet infrastructure helps users manage the “not your keys, not your coins” problem, and turns personal crypto custody from a purity test to an accessibility, safety, and user experience upgrade. Good personal wallets also dim the contrast between CeFi and DeFi and give users better and more seamless choices. Retail traders might leverage central limit order books from their Ledgers, while institutional investors might execute DeFi transactions without assets ever leaving their regulated custodians.

While we've made good progress on wallets, there's still work to be done on the browsers and app stores. The most crypto-friendly browser, [Brave](#), has grown tremendously, doubling from 24 million to 50 million MAUs from 2020 to 2021. They [also rolled out](#) a privacy-preserving ads program in beta, created a Wallet Partner program that counts 75 dApps, and integrated with Solana and IPFS. I'm keeping an eye out for their [2022 year in review](#) in January.

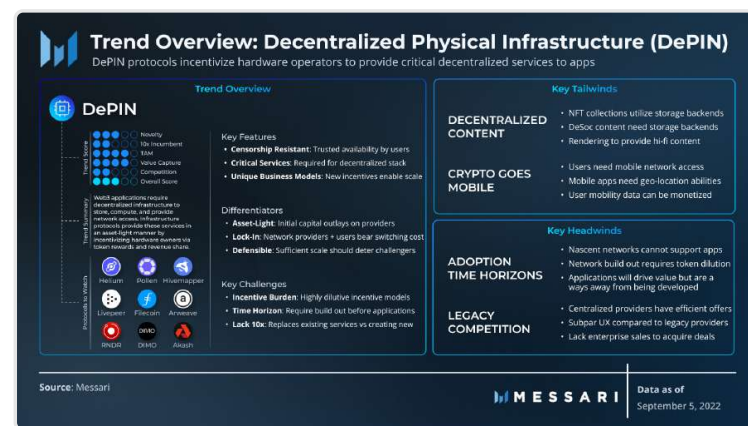
The most acute remaining access gaps are in mobile, though. As discussed earlier in the NFT chapter, it's gonna be a battle to ensure users have unrestricted access to crypto apps in the iOS and Android app stores. We may very well need a crypto native dApp store (will Brave build it?) or better jailbreak-ing tools to route around the monopolists. (Good discussion [here](#).)

Suffice it to say, there are still major censorship risks that confront crypto. And the backend challenges are even more acute.

## 9.2 DePIN

Our *physical* survival depends on the decentralization of hardware. The war against censorship will be fought in the cloud, and how effectively we wrest control of that infrastructure from Big Tech monopolies could be the difference, as we hang in the balance between an open internet and a global police state.

Decentralized Physical Infrastructure Networks ([DePIN](#)) help bootstrap decentralized networks of physical hardware. Things like file storage, wireless access, and cloud computing require lots of capital expenditure and operational headaches, and it's a non-trivial challenge to scale a hardware network to viability. Tokens have proven effective at catalyzing the development of these networks as they coordinate decentralized hardware investment at scale.



While it's been possible to incentivize hardware *supply* with token rewards, it's been slower to generate sticky demand.

This is a sector dominated by three of the largest and most reliable tech companies in the world – Microsoft, Google, and Amazon. That means partnerships, business development, and organic demand may be tougher to come by than other areas of crypto, and success hinges on a continuation of the trend towards greater Big Tech censorship. I believe crypto infrastructure will grow exponentially in regions where governments tighten their grip on dissent and crack down on speech, and there is tremendous opportunity for catering to gray market customers.

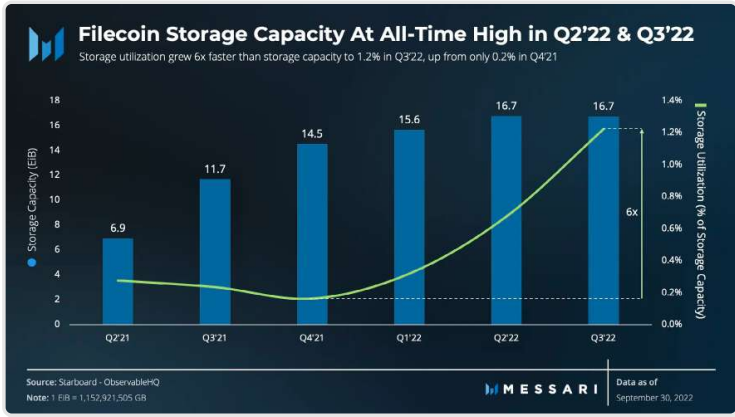
The same things that make this a challenging sector, also make it critically important and interesting for investors in the years to come. Hundreds of billions of dollars worth of spending. The backbone of the free and open web. A check on government suppression. That's the long-term trifecta of mission, market need, and monetizability we like to see!

In the medium term, if tech giants don't want to touch DeFi or DeSoc, those giant apps (and their user

bases) will end up leveraging things like Filecoin and [Arweave](#) to get up and running.

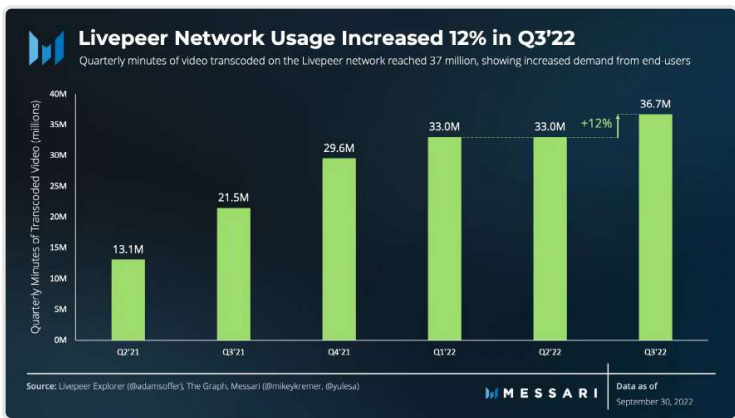
On the demand size, this feels like one of the more linear growth sectors of crypto.

Demand hinges on utility and more straightforward blocking and tackling of sales and partnerships. It's not as driven by token speculation (which has a much bigger impact on the supply side). For illustration, check out [Filecoin](#), where both storage capacity and utilization have grown more or less in a straight line the past 18 months.

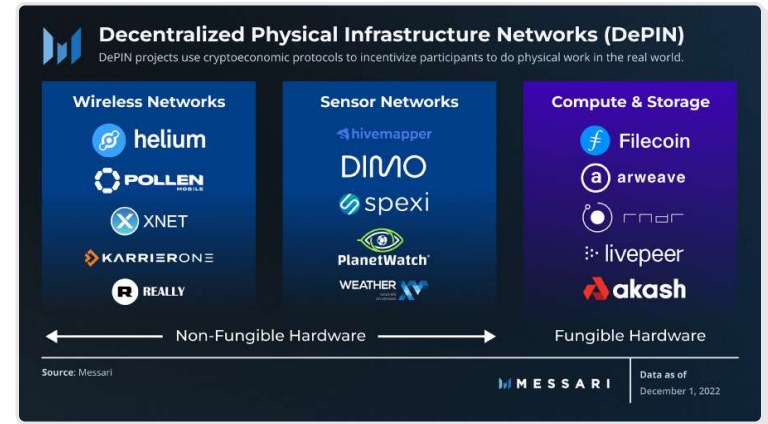


(We'd love to do quarterly reporting for Arweave, too. Sam, call us!)

We've seen similar growth in video transcoding usage around services like [Livepeer](#), which, like Filecoin, has seen pretty steady growth despite brutal token market conditions.



We've also kept our eyes on [Decentralized Wireless](#) ("DeWi") projects like [Helium](#) (5G and LoRaWAN network for IoT devices) and [Pollen Mobile](#) (5G network), and [mobility sensor networks](#) like [HiveMapper](#) (mapping) and [DIMO](#) (vehicle data). And we expect more protocols will look to decentralize their node infrastructure ([Pocket](#)) and their compute and hosting ([Akash](#)).



I don't think I could be more long-term bullish on this segment. Remember way back in Chapter 1 when we did the relative market sizings for the top sectors by market cap?

Well, I'll repeat: legacy cloud infrastructure is [\\$5 trillion in global market cap](#) versus a \$3 billion market cap for crypto players. Not a bad sector to spend time in. We're tracking it [quarterly](#).

#	ASSET	PRICE (USD)	CHANGE VS USD (24H)	7 DAY TREND	REPORTED MARKETCAP	REAL VOLUME (24H)	CHANGE VS USD (30D)	CHANGE VS USD (YTD)	ATH (USD)	% DOWN FROM ATH	SECTOR
1	Filecoin - FIL	\$4.59	-0.41%		\$1.47B	\$9.30M	-1.58%	-87.74%	\$234.27	-98.13%	File Storage
2	Arweave - AR	\$8.89	-1.13%		\$445M	\$3.14M	-7.46%	-86.52%	\$90.65	-90.2%	File Storage
3	Helium - HNT	\$2.16	+1.66%		\$291M	\$1.29M	+19.62%	-94.55%	\$54.81	-96.06%	IoT
4	Golem - GNT	\$0.229	+0.95%		\$229M	\$3.28M	+11.51%	-49.47%	\$1.24	-81.46%	Shared Compute
5	Livepeer - LPT	\$7.27	-0.88%		\$183M	\$1.78M	-4.89%	-82.22%	\$94.42	-92.3%	Shared Compute
6	Render Token - RNDR	\$0.516	-0.02%		\$155M	\$4.26M	-4.41%	-89.12%	\$13.41	-96.15%	Shared Compute
7	Sia Slingnet - SC	\$0.00261	-1.48%		\$138M	\$0.99M	+2.31%	-83.23%	\$0.0147	-82.2%	File Storage
8	Storj - STORJ	\$0.326	+1.14%		\$135M	\$1.84M	+2.23%	-82.24%	\$3.76	-91.32%	File Storage
9	NKN - NKN	\$0.0832	-2.92%		\$58.24M	\$0.88M	+0.59%	-78.05%	\$1.44	-94.2%	IoT
10	Akash Network - AKT	\$0.218	-2.70%		\$43.83M	\$58,135.57	-7.25%	-89.55%	\$0.262	-14.63%	Shared compute
Total: 10 assets			-0.29%		\$3.15B	\$26.81M	-3.19%	-84.58%			

(Note: I also liked this prediction from a16z's [Big Ideas for 2023](#) and didn't know where else to put it. One area of DePIN that could be exciting is energy. "Power grids are dated, centralized, and face several other issues like high upfront capital expenditures and misaligned incentives. There are great opportunities to build microgrids and storage and transmissions networks, by solving issues such as

high capital expenditures and disparate incentives solved through tokens. There are also burgeoning markets for renewable energy certificates (REC), and carbon credits on-chain. What's possible when we decentralize energy networks?")

(Required Reading: [The Telecom Cowboys of The Decentralized Wireless Movement](#), [The Exponential Demand for Compute](#), [How Are Web3 Infrastructure Protocols Trying To Capture Value?](#))

### 9.3 Data Integrity

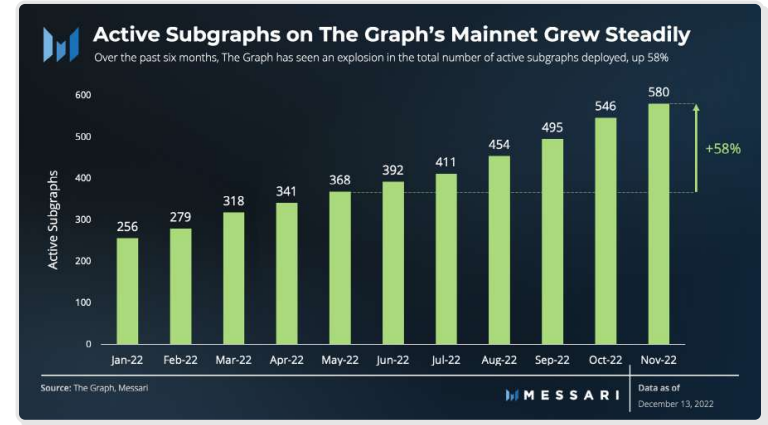
There are three core types of data in crypto: blockchain transaction data (including metadata), off-chain markets data (e.g., CEX orderbook data), and "real-world" data that gets ported into crypto through crypto's oracle services such as [Chainlink](#). We need better reliability and standardization around on-chain data, and better access to secure, verified "real-world" data in order for crypto (particularly DeFi) to reach its full potential.

With respect to on-chain data, [The Graph](#) is the dominant decentralized data infrastructure project today. Data consumers typically use APIs to pull blockchain data that is otherwise not easily accessible or well-structured. Most data providers, like Coin Metrics or Glassnode, offer a limited number of API endpoints for general-purpose datasets. Adding more endpoints is up to the providing entity (e.g., [Coin Metrics](#) or [Glassnode](#)). On the other hand, The Graph offers tooling that enables the developer community (or independent teams and entities) to develop open APIs of specialized subgraphs that data consumers can query to power unique application features. Anyone can build and publish open APIs, called subgraphs, making data easily accessible.

Given the fragmentation of the on-chain data API space, we decided to invest in [subgraph development](#) earlier this year. The result, we hope, is an emergent set of standards that mirror GAAP or IFRS reporting, which give us true apples-to-apples comparisons of various protocols.

Over the past six months, The Graph has seen an [explosion in the growth of subgraphs deployed](#) (58%), revenue generated from GRT token query fees (288%), staked Indexers joining the network (33%), Curators joining the network (7%), and Delegators joining the network (20%).

(Messari may have had something to do with that! Earlier this year, Messari [partnered with The Graph](#) as the first-ever Core Subgraph Developer team. Since we've got to work in this role, our team has deployed 7% of the actively deployed subgraphs on the decentralized network, which account for 5% of all query fees in the month of December.)



With respect to off-chain data sources (whether we're talking about crypto asset prices or any other conceivable feed), you need healthy oracle infrastructure, and Chainlink remains the 800 pound gorilla in that space with thousands of oracle networks and partner projects in its ecosystem. Chainlink is the backbone for the DeFi sector with leading projects such as Aave, Compound, and Synthetix all relying on their network for off-chain data, and they appear to be the only oracle platform that has seen consistent active user growth, given that [API3](#), [Band](#), and other oracles seem to have plateaued after steep early growth post-launch.

(More on projects like [The Graph](#), [IoTeX](#), [API3](#), [Covalent](#) on Messari Pro.)

### 9.4 Actually Useful DAOs

Decentralized Autonomous Organizations or "DAOs" have been bandied about since the earliest days of the industry. They can loosely be described as [subreddits with bank accounts and governance](#). A simple, yet powerful construct to solve our most pressing [coordination challenges](#). Last year, I predicted that 2022 would be "the year of the DAO." In recent weeks, Vitalik has doubled down on his excitement for DAOs, and so I guess I will too.

It won't happen overnight, but I still believe DAOs will change countless aspects of the economy, politics, and society at large in the years ahead.

Blockchains give us the ability to run centralized marketplaces on autopilot, giving their peripheral contributors more financial upside, autonomy, and governing control. The lenders and borrowers in a crypto lending protocol govern the "code bank's" risk parameters and fees - and earn them. The drivers and riders in a crypto ridesharing protocol govern pricing tiers and safety standards. The patients in a rare disease community can raise funds for their own treatment research, then recoup the upside if a drug is successfully commercialized.

It's awesome, and I'm certain it's going to work. It's just going to take some time.





To understand why I'm so bullish, you have to appreciate the unique, order-of-magnitude improvements that DAOs can offer contributors (at least technically):

1. Unprecedented control over how money is invested and directed versus most types of corporate structures. DAO contributors and workers truly are its owners.
2. The ability to leave a DAO, remove funds from its treasury at any time, and fork-off from the community (rage quit) without penalty is profound and inherently decentralizing.
3. An order(s) of magnitude improvement in the speed and cost of spinning up and winding down entities. (Though real-world jurisdictions still cause headache and expense.)

The foundational legal work needed to bring the DAO vision to fruition is significant, as we outlined last year: *"One of the things that is going to be a long-term hassle to figure out is how DAOs actually work in the real world from a tax, contract law, and compliance standpoint."* a16z has some of the [best proposals](#) for how to create legal DAOs as unincorporated non-profit associations, and Wyoming took the [national lead on this already](#) with its recognition of DAOs as a type of LLC.

It's not getting any easier, but I think we'll ultimately like the results:

- **New Business Models:** In Web2 there's a health-focused social network called [Patients Like Me](#). It specializes in helping patients with rare diseases find new treatments and connect with others like them. In crypto, there's [Vibe Bio](#), which aims to actually change the incentive structures in biotech. The protocol makes it easier for patients and families affected by rare diseases to fund (and profit from) the drug funding and research process.
- **Small SPACs:** ConstitutionDAO was the equivalent of a flash mob, a toy that showed how easily single purpose communities could rally around a given cause and fund an investment. In this case, it was the [Constitution of the United States](#). But could this concept extend the "SPAC" model to rescue a sports club? Or buy out a small business or crypto venture? What about funding litigation versus a deep-pocketed enemy? [The toy works](#). More innovations will follow.
- **Investment Clubs:** Syndicates make it easier to spin up [NFT and token investment clubs](#), which [don't require accreditation by members](#) for many on-chain assets.
- **Impact DAOs:** Bitcoin has remained one of the most innovative early DAO projects, having pioneered [quadratic funding](#) and helped [seed core ecosystem infrastructure](#) like ethers.js, Optimism, and Uniswap with over \$70 million in grants since 2017. Their [eight rules for creating Impact DAOs](#) are good commandments for DAO organizers.
- **Social DAOs:** LinksDAO will let you play golf with Mike Dudas (among other things). They raised \$10 million from 9,000+ members in January in order to DAO a golf course.
- **Network States:** Balaji wrote [his book y'all](#). "A network state is a highly-aligned online community with a capacity for collective action that crowdfunds territory around the world [DAO!] and eventually gains diplomatic recognition from pre-existing states." The network states [will be led](#) by leaders who write like storytellers and code like engineers.

These things actually work! Again, not at scale, but they work! How can you not be excited?

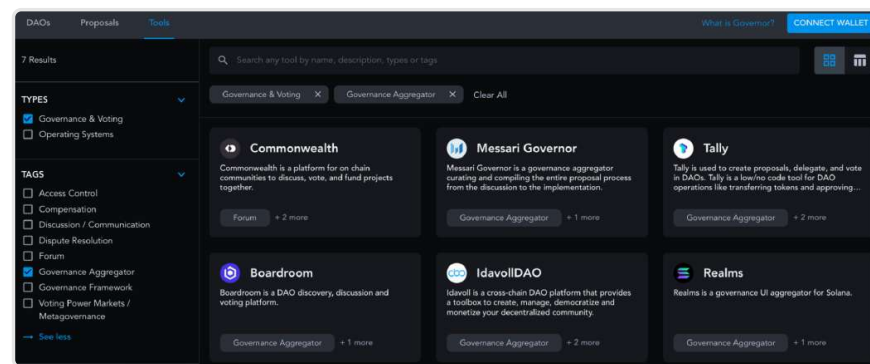
## 9.5 DAO Management

Calling DAOs "managed" is a bit generous if you know what I mean.

The political processes are messy, and conversations are chaotic. If you think email and Slack are time sucks, try [Discord](#). If you think political debates are tedious, wait until you have to try to debate every minor business decision in public. And ohh baby, if you think elections are rife with dark money conflicts, wait until you hear about [metagovernance and bribes!](#)

Suffice it to say, current DAO management structures are not sustainable. But the universe of governance tools that support them continues to grow fast.

In the spring, we introduced Governor V2, a product that lets you [search for DAOs](#), [monitor and vote on proposals](#), and quickly [discover the top tools](#) other DAOs are leveraging.



We want to help people parse signal from noise in DAOs more quickly. There are essentially two groups you should be paying close attention to: the delegates with real voting power and how they are concentrated, and the developers who hold the keys to the code base.

Everything else comes in a distant second.

You can think of most DAOs as boards of directors with unequal (token-weighted) voting power. Except that most of the board doesn't usually show up to quarterly meetings, and the tokenholders don't respond to proxy solicitations. Participation rates have ticked up slowly over time as delegation tools have improved, but we've also seen a rise in *\*literal bribes\** as a result of low quorums and high stakes: bribes have proven to be lucrative in moving votes and rewarding certain stakeholders.

This mechanism started to gain prominence last year. [Convex](#) was built on top of [Curve](#) in order to allow voters to decide where CRV token emissions should be allocated. Users were able to lock up liquidity in Curve pools in exchange for governance power, and protocols that wished to direct Curve liquidity for their pools were often willing to bribe Curve tokenholders for their voting power, creating



a synthetic voting asset (veCRV) on top of the base protocol.

There is admittedly some value in metagovernance as a tool to attract partners and protocol joint ventures. Communities can lobby for liquidity and better economics and share incentives, and it solves the voter participation issue by moving more DAO governance from apathetic individuals to DAO2DAO delegates.\*

Another solution to the DAO operations morass is improved subDAO infrastructure, and “pod” level decision making tools. [Metropolis](#) (formerly Orca Protocol) has created an access token protocol that wraps around community governed [Gnosis Safes](#) (multi-signature wallets) and makes it easier for DAOs to distribute responsibilities to subcommittees.

Harvard MBAs rejoice: there’s a place for you in crypto after all.

\*A few things to watch for, though!

The jury is still out on how much [big exchanges plan to engage](#) in governance on behalf of their customers. And whether VCs are being responsible when [they delegate their tokens](#) or simply covering themselves by not putting their thumbs on the scales. (Shadow governing token communities they’ve invested in could create liabilities.) And what roles protocol founders will play as voters and delegates should they find themselves in swing vote situations where they are potentially conflicted [during contentious votes](#).

These questions aren’t just theoretical anymore. The case of the Commodity Futures Trading Commission (CFTC) against Ooki DAO ups the stakes in the future of DAO governance.

## 9.6 The DAO Legal Liabilities are Spooky

First, let me say that for the third year in a row, I am thrilled to have the opportunity to make fun of bZx. Two years ago, I referred to them as a “[decentralized bug bounty program](#)” after they were hacked three times in mere months. When they got sore about the reference, I didn’t mind, I just made fun of them again for [hack #4 last summer](#) in the 2021 report.

Can you imagine my disappointment when I didn’t think they’d be eligible for a three-peat, followed by my absolute elation after realizing that WAIT A MINUTE OOKI DAO IS BZX.

Einhorn is Finkle. Finkle is Einhorn.

The CFTC sued Ooki DAO earlier this year for offering leveraged and margin trading products without registering as a Futures Commission Merchant. Ooki was one of those decentralized-in-name-only projects that thought they would be clever, wrap the old centralized bZx trading protocol in a DAO, throw in some voting tokens and a Discord, and then say “voila, can’t touch this.” Then the CFTC said, “lol, no.”

It would be fun, as it has been in prior years, to dunk on bZx, but for the high stakes and damaging precedent the Ooki DAO case could create for DAOs everywhere.

bZx and its founders [already settled charges with the CFTC](#), but the agency then complained that every Ooki DAO voting member should be held individually liable for the DAO’s purportedly illegal activities, since they were essentially running the same illegal business that the founders and predecessor company had already copped to. It seems like a stretch, but this concept of “joint and several” liability for DAOs (deemed unincorporated associations) would have a big chilling effect on DAO innovation and participation if it were to stand.

Indeed, that’s what’s led many to cry foul in this particular case.

Holding a 1% tokenholder individually liable for CFTC violations doesn’t seem to be a good use of the agency’s mandate, and it would turn into a logistical nightmare. Instead, if you’re the CFTC, you could use this as an opportunity to set legal precedent and win an easy case by default (regulation via enforcement). You could serve [DAO members via a chatbot](#) even though the protocol had ringfenced U.S. users, scare voting members into non-action and let their lack of response [lead to a default judgment](#), and simply hope that no one notices.

One commissioner dissented (and it’s worth [reading the dissent](#) in full), and fortunately, the crypto legal community sniffed this out and [came to the rescue in time](#), with a number of amicus briefs. Their primary concerns were not about the bZx founders or corporate entity (who had, again, settled), but rather the precedent this would set for decentralized communities. They would essentially be rendered guilty until proven innocent on all future enforcement actions affecting entities in which they had participated.

As the dissent noted: “I agree that conduct illegal under CFTC rules, is not acceptable whether done by a corporation or an unincorporated association. However, in its settlement Order and Complaint,



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ONGOING  
DISCUSSIONS

869

DAOS

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the Commission defines the Ooki DAO unincorporated association as those holders of Ooki tokens that have voted on governance proposals with respect to running the business...I cannot agree with the Commission's approach of determining liability for DAO token holders based on their participation in governance voting for a number of reasons."

She says the approach does not rely on any legal authority or case law (instead imposing governmental sanctions for violating federal rules based on an inapplicable state-law legal theory developed for contract and tort disputes between private parties); it arbitrarily defines the Ooki DAO unincorporated association in a manner that unfairly picks winners and losers, and undermines the public interest by disincentivizing good governance in crypto. It constitutes blatant "regulation by enforcement" by setting policy based on new definitions and standards never before articulated by the Commission or its staff, nor put out for public comment, and ignores an alternate, well-established basis for imposing liability (aiding and abetting) that is specifically authorized by Congress and that would solve all of these problems.

The CFTC bZx / Ooki enforcement action is interesting because of the last paragraph, namely that the CFTC just looked through the DAO and said it is an unincorporated association and the individuals are responsible. This is not decentralized and not autonomous and in absence of a legal structure, what regulatory authorities are going to do is exactly what is written below - go after (some) of the individuals in the DAO, in this case the organizers.

Calling your Discord group a DAO and voting your tokens does not reduce your legal liability. In some ways, it might increase it. Be careful out there!

(Supporters: [a16z](#), [Paradigm](#), [Haun Ventures](#), [Defi Education Fund](#), [LeXpunk](#), [Punk6529](#))

(Required Reading: [Ooki DAO vs. CFTC](#))

## 9.7 DAO "Corporate Actions"

If you want to understand how important the Ooki DAO case is, consider that it would likely chill all sorts of important community governance updates.

I remember reading Arca's overview of "corporate actions" in DAOs in late 2021 and thinking, "this is it, we're going to see DAOs become mainstream corporate structures." Last year, there was a major token merger ([Rari and Fei](#)), big token buy-back proposals (Fei and Nexus), DAO fundraises for unique assets (PleasDAO, ConstitutionDAO), and governance proxy battles ([Convex](#), [Curve](#)).

This year's DAO corporate actions didn't disappoint either. We saw communities that:

- **Countered Activist Tokenholders:** Balancer has been working to [resolve a standoff](#) with a whale that accumulated 35% of voting power. And the Juno community [voted to confiscate](#) tokens from a rogue airdrop farmer.
- **Amended Governance Bylaws:** Lido addressed [potential conflicts](#) that could have threatened the security of stETH holders with a dual class governance redesign. Because Lido DAO controlled the

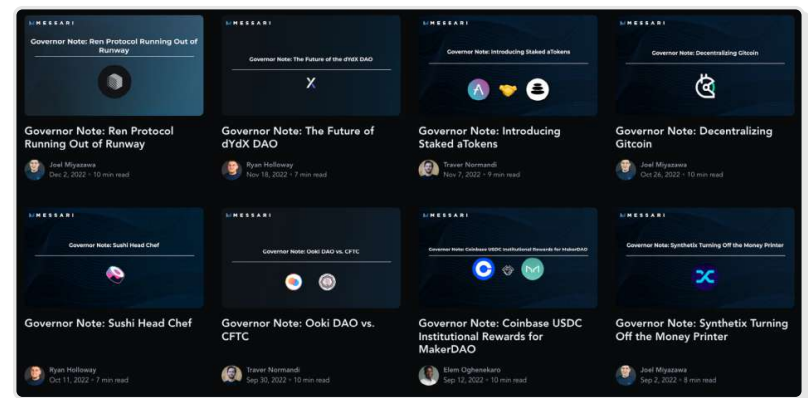
code behind the massive stETH pool, the protocol could have been modified to steal staked ETH from users. With a treasury worth about \$400 million, the DAO was an attractive target for governance attacks at the time, as DAO tokenholders didn't necessarily share the same interests or incentives as other stakeholders in its network.

- **Executing Large Buyback Programs:** The world's second largest DAO, BitDAO [is buying back](#) \$1.5 million tokens per day.
- **Restructures & Unwinds:** Sushi elected a stallion [of a new head chef](#) after a chaotic multi-month search, and FEI [wound down its DAO and \\$200 million treasury](#), completing a tumultuous 18-month experiment. ([Not everyone was happy](#) with the result.)
- **Gnosis Spin-Outs:** GNO tokenholders learned the value of spinouts! The GNO token spiked 50% (intra-day) after the [release of Gnosis' CowSwap token](#), and separation from CoW, an MEV-resistant decentralized exchange. Gnosis also voted to spin out its Gnosis Safe product [into a separately governed SAFE token](#). And to [burn 68% of its remaining treasury](#). A live restructuring of a \$500 million protocol.
- **More! Tokens Went Private:** Chain acquired [Measurable Data Token](#) for \$100 million; Helium voted to [migrate to Solana](#); Atom 2.0 was [rejected by the Cosmos community](#), and [Terra 2.0 was approved](#).

Though the OokiDAO case could cause a chill, I expect that we'll see even more novel protocol actions in 2023 as part of a broader industry consolidation.

Lots of protocol M&A, and maybe even more network "take-privates." I won't name names, but there are dozens of formerly high-profile projects with working products whose tokens now sit below \$50 million in market cap, and look like prime targets, à la [Chain's MDT acquisition](#).

We'll be tracking it all on [Messari Enterprise](#).



## 9.8 DAO Treasury Management

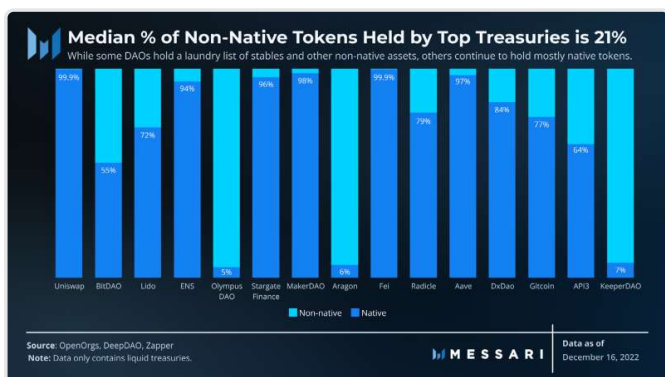
Despite the lessons of history, most DAOs still don't properly diversify their treasuries or spend much time on coherent community budgeting processes. That is thanks, in equal parts, to legal and organizational ambiguities, a lack of tooling, and a fairly blasé attitude toward professional management.

Last year, I wrote about how shocking it was that most big DeFi protocols hadn't capitalized on one of the top wealth generating events in crypto's short history after DeFi Summer in 2020.

*"You might think DeFi protocols are financially set for life, but a deeper look into the composition of each treasury suggests the opposite. The vast majority of the "value" in these token treasuries is coming from the reflexive belief that the market will always absorb the new supply. That may happen in bull markets, but things can unwind sharply when volumes subside. In fact, that's exactly what happened during May's market crash."*

Surely, other protocols had learned their lessons, and big exchanges wouldn't lever up on their trading tokens with customer funds.

Right, Anakin? Right?



According to [DeepDAO](#), DAO treasuries now hold just \$8.7 billion, with a mere 60 DAOs holding \$10 million or more in assets. Worse, native tokens still represent 80% of these treasury assets, making the projects highly susceptible to market downdrafts and highly illiquid when it comes to operating budgets.

It appears that the immediate future of crypto protocols will continue to flow through foundations and VC-backed corporate entities as the catastrophic downdraft in crypto prices this year has essentially relegated many high flying 2021 protocols from unicorn to Series A status.

There are some good reasons to hold large percentages of native tokens: governance sway, signals of health and alignment with other tokenholders, reserves for DAO2DAO M&A and partnerships, etc.

But it is clear that many communities did not take proper advantage to diversify their portfolios at the height of bull market mania last year, and now many may struggle to take advantage of opportunities in this new market.

(Vitalik is an exception. He's a god tier trader. [2017](#). [2021](#). All hail.)

We really need more adversarial thinkers in the DAO space. There are a lot of bull market newbies out there who are about to be unpleasantly surprised when they're thrown into a multi-year deep end without a life jacket. Expect major upgrades to community "banking" and financial management services such as [Coinshift](#), [Multis](#), and [Parcel](#) begin to proliferate.

The best time to diversify treasury was 12 months ago, when I wrote "the first recommendation most treasury managers would make today: start selling. A Q1 blow off top doesn't do a DAO any good if the asset nukes 90% mere months later." Communities that didn't heed those bear market warnings will now have to cut community spend, devolve into volunteer-led zombies...or consolidate?

(Required Reading: [The Health of DAO Treasuries](#), [What Protocols are DAO Treasuries Using?](#))

## 9.9 Crypto Talent Marketplaces

There's a lot of interesting stuff to talk about when it comes to the DAO labor force, but I'm running out of gas here, fam. Sort of like the DAO Treasuries above.

I don't want to pick on DAOs, though it is easier to do because communities need to learn the number one rule of running startups is You. Don't. F\*ck. Up. The Money.

I agree with Alex [here](#):

*"I think 2023 will be a bloodbath for crypto startups:*

1. Most '21/22 seed startups run out of money.
2. Some get acquired [We're on the prowl].
3. A few raise new rounds (>80% downrounds).
4. Tech salaries come down.
5. Tech job titles deflate [No Chief Fun and Chaos Officers].
6. VCs invest in other sectors (AI, etc.)."

Perfect. No notes. Except to say that it will be even worse in decentralized communities.

That said, I continue to be enthralled by crypto powered talent marketplace of all kinds. We just incubated one here at Messari called [Hirechain](#), which is a referral-based recruiting network. The "friends-refer-friends" model is 1000x better than the 73 unsolicited recruiting inbound emails per day model.

Do NOT tell me, you're going to read 145 pages and then bail on me now. Open your wallet or I'm going to come find you. Get in loser, we're going shopping.

(Read more about crypto talent marketplaces like [Braintrust](#) on [Messari Pro](#).)

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## 9.10 Media DAOs

It's wild that two of the top crypto media franchises might soon be up for sale due to the fallout of the FTX bankruptcy. For starters, there was the shocking news claiming that The Block's sitting CEO, Mike McCaffrey, [had quietly received \\$43 million](#) in loans (including \$16 million in slush funds that appeared to be used in part to purchase a luxury apartment in the Bahamas) from the disgraced FTX founder in order to [execute a 2021 coup d'etat](#) against The Block's original founder, Mike Dudas. McCaffrey immediately announced his resignation as CEO and stepped down as the company's sole board director, but as long as he remains the company's majority shareholder, there's risk of a talent exodus. Expect the company to get restructured. Soon.

On the other side of Manhattan, there's [CoinDesk](#), which was purchased in a distressed sale by Digital Currency Group in 2016. CoinDesk has reportedly grown to ~\$50-60 million in annual revenue, largely on the back of the [Consensus](#) franchise. (*Yours truly ran the acquisition and turnaround, and the original Consensus team that got CoinDesk to profitability is the Messari Mainnet team. [Get your tickets!](#)*)

In a stroke of irony, CoinDesk may become an acquisition target thanks to its reporting.

Its scoop on Alameda's financial health tipped over the first domino in the FTX bankruptcy, which helped spark a crisis at DCG sister company, Genesis Capital, and now threatens the health of the whole conglomerate (as we covered in Chapter 3). Though ["rumors" were flying](#) (I think it was a strategically planted story) that there were suitors who had approached the company with a \$300 million offer (haha) that was deemed "too low" (hahahahaha), it does seem like a healthy, but non-core business prime for a spinout in order to raise cash at the DCG parent level.

I would be very surprised if either business was profitable on a run-rate and projected basis. CoinDesk's Consensus franchise and video operation are capital intensive, and with ad dollars likely to plummet in the new year, DCG leadership might take a closer look at the CoinDesk operating expense lines to keep the company at break-even. The Block will face similar issues with respect to ad and subscription headwinds, not to mention the black eye (fair or not) from its CEO scandal.

If ever there were a time to build a Media DAO, this would be the time.

- Distressed, and potentially conflicted, corporate structures create a scenario in which talent starts

itching for a potential change of scenery. You could address the "cold start" problem of a Media DAO thanks to a perfect storm of attrition.

- With 150+ employees each, these companies likely carry over \$20 million in payroll, but you could trim those costs considerably (and give journalists a raise and more ownership) if you spun out the core editorial products from the larger operations.
- Innovations in AI like GPT-3 will change the economics of media, but you'll still need to own the copyrights and data sources in order to create good content, and you'll need professional investigators, fact checkers, and analysts to curate clean data.

This could be structured in a way in which journalists make most of the money, but don't feel conflicted in their coverage. A community funding model with a diverse contributor base could create a good editorial firewall, as you could structure the original raise based on lifetime subscriptions and pre-paid ad impressions, but otherwise limit editorial governance rights

I think for \$10 million per year you could fund a crypto journalism juggernaut with 50 of the industry's top researchers and journalists via a DAO.

Wouldn't you know it, this is the last section of my report! Looks like I've got some free time!

Funding a media DAO is one thing. Operating it successfully is another thing entirely. Remember Civil? Steem?

Don't give me that nonsense about curation of quality and measuring truth on-chain, etc. A media DAO is something that could work, but it's just a funding mechanism and subscription access token at wild scale. Don't muddy things with exotic structures that no one wants. Just give us the news (Ok, and maybe some [writing NFTs](#)).

I think there are two ways to make a Media DAO work:

1. Create a Constitution DAO-like community that receives an access token for lifetime subscription rights. You could use [Juicebox](#) or something to raise \$10 million from 10,000 lifetime members. Use that to bid on the company. Funds are held in escrow and returned if there's no deal. Given the execution challenges (NDAs with non-solicitation provisions) and the completely untethered valuation expectations the current crypto market leaders seem to have, you've probably got to try Door #2.
2. Do the same thing, but open up the application process to a critical mass of journalists you want to poach from multiple entities. Offer a 20% raise to their 12/1 paystub, and only execute the DAO if you can concurrently hire 25-50 of the very best people in the industry on Day 1.

If you are worried about the health of our trade journals without something like this...do it.

As for me, I'm signing off until 2023, if not forever.

My work here is done. Namaste.



## 10.0

# BONUS: YO DRE, I GOT SOMETHIN' TO SAY

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### 10.0 Intro

As I did last year, I'll share some final thoughts for anyone interested in how the horrible monkey inside my mind works and processes the world - inside and outside of crypto.

### 10.1 Why You Must Write

I've been asked how I can write this annual report and still run a company. As I said in the introduction, this is a good marketing asset for attracting [enterprise customers](#), partners, and [recruits](#); it should drive good conversion to our Pro product ([ahem](#)), and it doubles as my annual crypto deep dive and product ideation session. "What did I miss, and where are we headed?"

I'd flip the question back to you: how can you survive the remote-first, globally-distributed, hyper-growth, crypto chaos without writing well? Reading helps me identify blind spots, but it's writing that helps me focus and streamline my thoughts.

Whether it's code or prose, you must get better at writing. And when you write, [be concise](#) and [write music](#). Last year, I wrote: "good code elegantly communicates your ideas to computers, and spits out products that delight users. Good prose elegantly communicates your ideas to other humans, incepting new ideas into their heads (through memes), and if you're doing it right, converting missionaries to your cause." With the advent of GPT-3, [the two are going to merge](#).

Get busy writing – brilliantly – or get used to becoming obsolete.

### 10.2 No Idols

Never become the main character on Twitter. If you want a case study in the perils of a high profile, just look at the number of "crypto billionaires" who are now on the lam, penniless, or in prison after overextending themselves and believing too many of their own press clippings.

Stay hungry and humble. Stay disciplined. Stay hard. [Merry Christmas](#).

### 10.3 Must Read

[High Output Management](#), [Shoe Dog](#), [Principles](#), [Crypto](#), [The Federalist Papers](#). Learn [the Cadence](#) of a SaaS startup, lessons from [vertical software investing](#), and [how to work backwards](#). Subscribe to Bankless, the top [crypto pod](#). Turn off Twitter notifications.

*"Don't follow your passion. Seriously. [Don't follow your passion](#). Your passion is likely more dumb and useless than anything else. Your passion should be your hobby, not your work. Do it in your spare time. Instead, at work, seek to contribute. Find the hottest, most vibrant part of the economy you can and figure out how you can contribute best and most. Make yourself of value to the people around you, to your customers and coworkers, and try to increase that value every day."*



## 10.4 Tips & Productivity Tricks

The most important productivity hack I recommend at work is surrounding yourself with good people who are insanely mission-driven, relentless, organized, communicative, and poised. I'm lucky to have found good, hard-working people who share my vision for the future, and help bring it into sharper focus each day, while allowing for the fact that there are some things I will simply never get better at, regardless of my best efforts. That is to say, thank you to the Messari team (especially [the leadership team](#)) for running a ship so tight that I can disappear for a month to write this damn thing. Here are a few other habits, for better and for worse.

**Communication:** I live by Gmail's snooze button and multiple inbox setup, which serves a similar purpose as software like Superhuman. I also use pinned Twitter lists, keep open DMs, maniacally filter, unsubscribe, and report negative messages on Twitter and email. I've significantly limited my time on Telegram and Discord this year, and I'm happier for it. Slack for the team, email for business, Twitter and Signal for play. That's it.

**Meetings:** I try to limit internal meetings to 20% of my time per week, which is not bad when you add up weekly leadership team and recruiting syncs, bi-weekly all hands, 1:1's with direct reports, monthly functional team meetings across eight different groups, quarterly skip-level meetings, and other miscellaneous strategy, product, and HR syncs that arise in the normal course of scaling.

**Mind, Body, Soul:** I have had [Headspace](#) installed on my home screen for five years and have used it ~12 times. (Once since last year!) I have also learned that I get a really good night's sleep when I read books before bed and turn off my phone without ending my day doomscrolling Twitter. I have even done this successfully three or four times, and I have completed the first chapter or two of dozens of books. I have gotten so out of shape sprinting to finish this report, so I'm going to go hit things now (Thanks, [Eightcamp](#)).

## 10.5 Life Advice

I'll end the same way I did last year: I don't know what I'm doing and neither do you.

But if you are fortunate enough to do so: get married, have kids, and move to the burbs. (Eventually). You will survive the winters and gain some valuable perspective when your day ends with a six-year-old laughing about one of his farts, a four-year-old telling you a story via a three minute run on sentence and a half-naked two-year-old tackling you at the knees during your final Zoom call of the day.

If you're reading this, you are (hopefully) a [time billionaire](#). That does not change the fact that you are at [The Tail End](#) of many of your relationships (I read this post once per year), and that it is always Day 1 and [everything is in your control](#).

2022 is in the books. [Good](#).

## 10.6 Disclaimers

We know this is obvious, but the Theses is neither financial nor investment advice. You should conduct your own research, and consult an independent financial, tax, or legal advisor before making any investment decisions. Nothing contained in this report is a recommendation or suggestion, directly or indirectly, to buy, sell, make, or hold any investment, loan, commodity, or security, or to undertake any investment or trading strategy with respect to any investment, loan, commodity, security, or any issuer. This Theses should not be construed as an offer to sell or the solicitation of an offer to buy any security or commodity. Messari does not guarantee the sequence, accuracy, completeness, or timeliness of any information provided in this Theses. Author(s) may hold cryptocurrencies or other assets named in this Theses, and each author is subject to Messari's [Employee Holdings Policy and Disclosures](#). Additional disclaimers apply - check out our [Terms of Service](#) for more information.

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