

EVERY

[Subscribe](#)

Almanack

Tokenomics 101: The Basics of Evaluating Cryptocurrencies - DeFriday #19

Supply, Demand, and Memes. Lots of Memes.

BY [NAT ELIASON](#)

DECEMBER 17, 2021

♥ 227



“Tokenomics” has become a popular term in the last few years to describe the math and incentives governing crypto assets. It includes everything about the mechanics of how the asset works, as well as the psychological or behavioral forces that could affect its

Projects with well-designed tokenomics are much more likely to succeed in the long term because they've done a good job of incentivizing buying and holding their token.

Projects with poor tokenomics are doomed to failure, as people rapidly sell the tokens at the first sign of trouble.

If you're considering whether or not to buy a crypto asset, understanding the tokenomics is one of the most useful first steps you can take to make a good decision.

So as someone who's been writing about DeFi for nearly a year now, and who designed the tokenomics for a popular [crypto videogame](#), here's what I look at when I'm evaluating the tokenomics of a new project.

It All Comes Down to Supply and Demand

As in normal economics, the two forces we are most interested in are Supply and Demand. Understanding how those are baked into the tokenomics give us a good sense of how desirable a given token or cryptocurrency should be.

Supply: Emissions, Inflation, and Distribution

Let's start on the supply side since it's a little easier to understand. The main thing you're trying to figure out is:

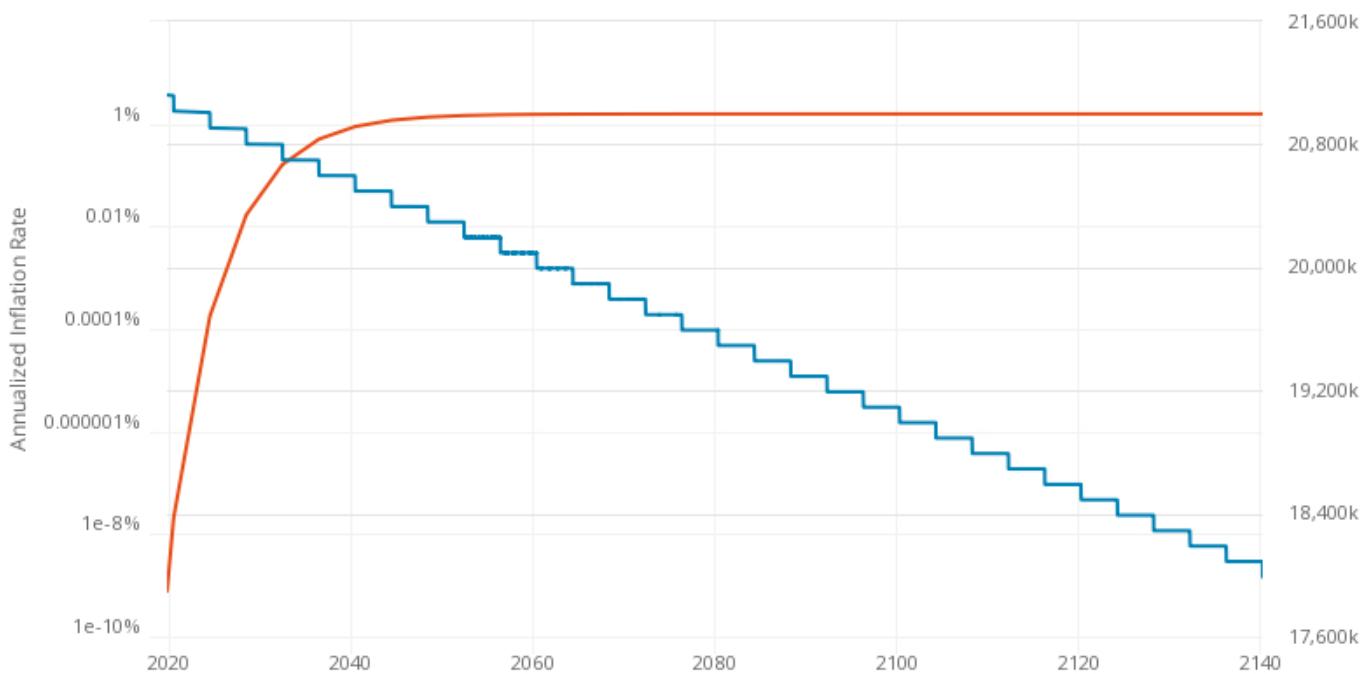
Based on supply alone, should I expect this token to hold or increase its value? Or will that value be inflated away?

On the supply side, a token will increase in value if fewer of those tokens exist—we call that deflation. A token will decrease in value if more of them exist—that's inflation. When you're evaluating the supply side you don't have to worry about things like whether the token has any utility, or whether it will generate income for its holders. You're really just thinking about the supply and how it will change over time.

The questions you want to ask are:

1. How many of these tokens exist right now?
2. How many will ever exist?

Bitcoin was created with a simple supply curve that is emitted over about 140 years.



Source

There will only ever be 21,000,000 bitcoin , and they're released at a rate that gets cut in half every four years or so. Roughly 19,000,000 already exist, so there are only 2,000,000 more to be released over the next 120 years.

That means 90% of the supply is already in circulation, and there will only be 10.5% more bitcoin 100 years from now, so you shouldn't expect any serious inflationary pressure bringing down the value of the coin.

What about Ethereum? The circulating supply is around 118,000,000, and there's no cap on how many Ether can exist. But Ethereum's net emissions were recently adjusted via a burn mechanism so that it would reach a stable supply, or potentially even be deflationary, resulting in somewhere between 100-120m tokens total. Given that, we shouldn't expect much inflationary pressure on Ether either. It could even be deflationary.

Dogecoin has no supply cap either, and it is currently inflating at around 5% per year. So of the three, we should expect inflationary tokenomics to erode the value of Doge more than Bitcoin or Ethereum.

The last thing you want to consider with supply is allocation. Do a few investors hold a

[Subscribe](#)

EVERY

~~TOKENS TO THE COMMUNITY. HOW FAIR DOES THE DISTRIBUTION SEEM. IF A BUNCH OF INVESTORS~~

have 25% of the supply and those tokens will unlock in a month, you might hesitate before buying in.

What about some DeFi tokens? Yearn, one of the first DeFi protocols I wrote about, has a fixed supply of 36,666 YFI. There are no emissions and no inflation, so you shouldn't expect the value of 1 YFI to decrease from inflationary pressure.

Meanwhile, Olympus, a protocol I wrote about more recently, has an insanely inflationary printing schedule with huge amounts of new OHM tokens being printed every day. So theoretically you should expect holding OHM to be a bad bet. But as we'll see shortly, Supply alone is not enough to understand whether holding a token is worthwhile.

Those are the main considerations for Supply. Now demand is where things get more interesting.

Demand: ROI, Memes, and Game Theory

I could go into my backyard, break a few rocks, and then say they're the only rocks I'm ever going to break and put up for sale. I have a fixed supply of 10 rocks. 0 inflation rate. So they should be worth millions, right?

Well, no, because no one wants my broken rocks.

At this simple level, there's nothing inherently different between my rocks and Bitcoin. Having a fixed supply alone does not make something valuable. People also need to believe it has value, and that it will have value in the future.

If you want to know whether a token will have demand-side value in the future, you'll want to look at return on investment (ROI), memes, and game theory. Let's start with ROI since it's the easiest.

Return on Investment

ROI in this case is not how much you think the token price will go up. It's how much income or cash flow the token is able to generate for you simply by holding it.

For example, if you hold Ether you can stake it to help secure the network once Proof of

Some tokens allow you to tap into the earnings of the protocol they represent. If you hold SUSHI, you can stake it to earn a share of the Sushi protocol revenues, currently for about a 10.5% APR.

Maximize yield by staking SUSHI for xSUSHI



For every swap on the exchange on every chain, 0.05% of the swap fees are distributed as SUSHI proportional to your share of the SushiBar. When your SUSHI is staked into the SushiBar, you receive xSUSHI in return for voting rights and a fully composable token that can interact with other protocols. Your xSUSHI is continuously compounding, when you unstake you will receive all the originally deposited SUSHI and any additional from fees.

Staking APR

10.60%

Yesterday's APR

[View Stats](#)

Stake SUSHI

Unstake

Stake SUSHI

1 xSUSHI = 1.2192 SUSHI

⚠️ 0 SUSHI

Balance: 0 **MAX**

Enter Amount

Balance

 0 xSUSHI

Unstaked

 0 SUSHI

Your SushiBar Stats

Another form of ROI comes from “rebasing,” similar to a stock split where by holding a token and staking it, you continue to get more of that token as the protocol inflates its supply. This is how Olympus works and is why their heavy inflation rate is not necessarily a bad thing since you can retain the share of the protocol that you own.

Single Stake (3, 3)

3 hrs, 13 mins to next rebase

APY	Total Value Deposited	Current Index
4,309.8%	\$2,026,043,282	47.9 OHM

EVERY

[Subscribe](#)[STAKE](#) [UNSTAKE](#)

*First time staking OHM?
Please approve Olympus Dao to use your OHM for staking.*

[Approve](#)

ROI is important to consider because if a token has no intrinsic ROI or cashflows, then it's harder to justify holding it. You have to believe other people's belief in the number going up is enough to sustain it.

Or, you have to believe the memes.

Memes

The other reason people might want a token is simply the belief that other people want the token, and will want it in the future.

You can call it faith, conviction, or memes, but, whatever you call it, the machine that generates belief in the growth of future value is always going to be an important consideration.

How do you evaluate this though? Everything else in the tokenomics has been pretty measurable, but memes? This is one that requires you to hop into the community and get a feel for it.

What's the energy like in their Discord? How active are they on Twitter? Do people make this token or protocol part of their identity? How long have people been active in the community?

Belief in future value is often one of the most powerful drivers of demand. Bitcoin has no cash flow, no staking rewards, nothing. It just has the belief that it could be a long term store of value to rival gold. Or more ambitious beliefs like definancialization and hyper-bitcoinization. But it's all beliefs at the end of the day.

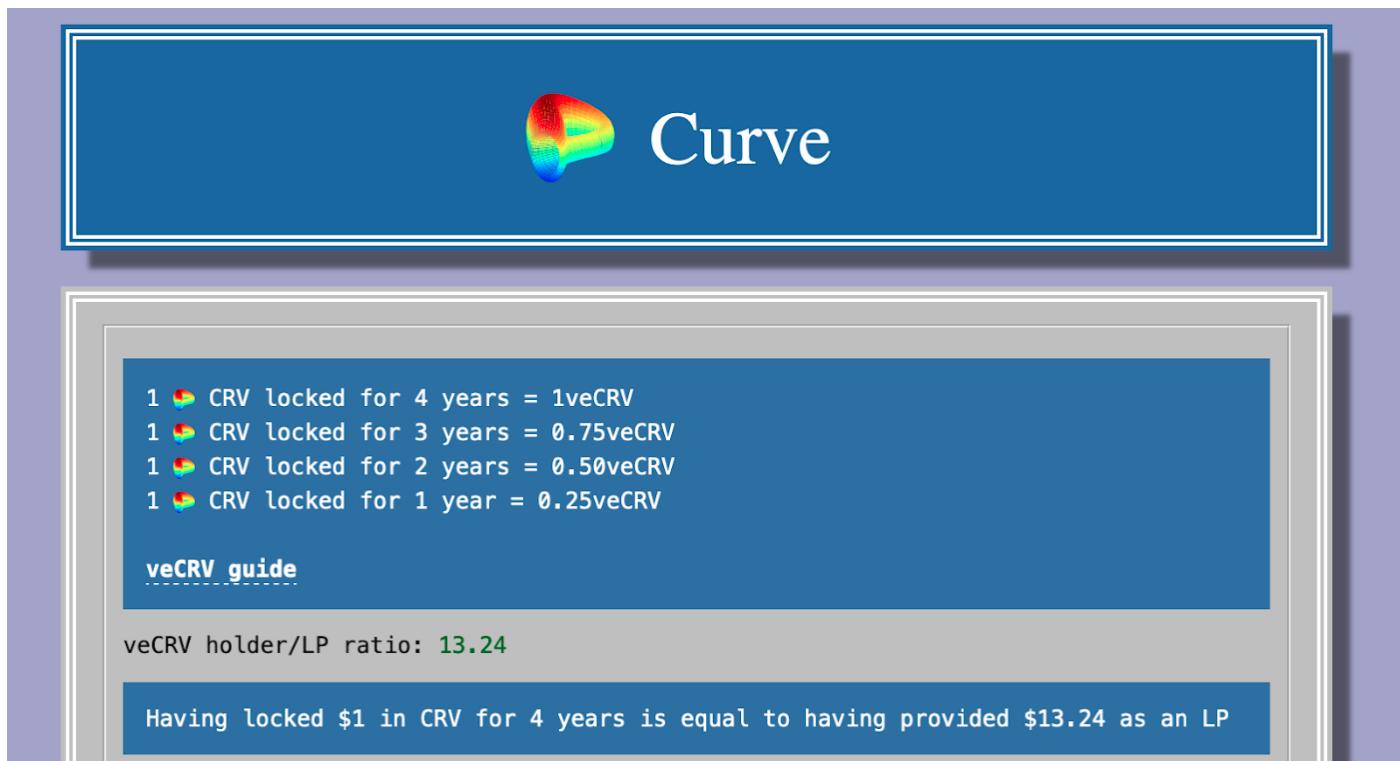
So while it's tempting to be purely analytical, don't discount how far a token can get with faith, clever memes, and a cult-like following.

There's a third element here to demand which can combine parts of memes and parts of ROI. Let's call it Game Theory.

Game Theory asks you to consider what additional elements in the tokenomics design might help increase the demand for the token. This is where tokenomics can get particularly complex, and is the main area I'll focus on in the followup "102" version of this post.

But one common version of good tokenomic game theory is lockups. The protocol creates an incentive for locking your tokens in a contract, usually in the form of greater rewards.

The classic example of this is Curve.



Similar to Sushi, you can lock your CRV tokens to earn a share of the protocol revenue. But the longer you lock your tokens for, up to 4 years, the greater your rewards.

In addition, the more tokens you have locked and the longer you have them locked for, the lower your fees when you use all the other parts of Curve.

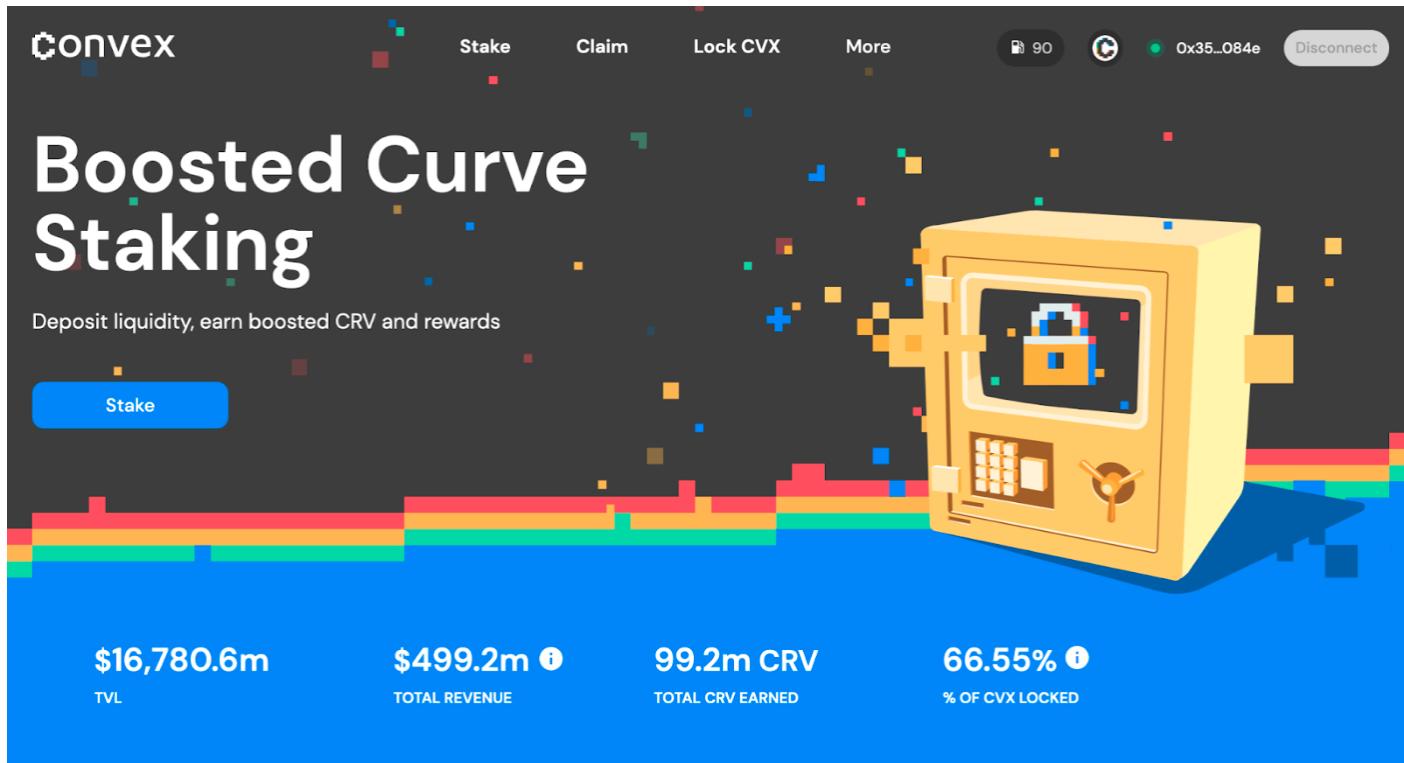
So Curve has exceptionally strong incentives and game theory around holding its token. You can earn a decent ROI from staking it, and you can earn a higher ROI from all other parts of the app. And you earn the most by locking up your tokens for four years, which dramatically reduces the incentives to sell CRV.

Now that you know the main questions to ask, let's go through the process of evaluating a project.

We'll start with one of my favorites: [Convex Finance](#).

Convex Finance

Convex is a platform that sits on top of Curve (above) and helps you earn a higher yield by aggregating many investors together. It lets you earn most of the higher yield you would get on Curve if you had locked up thousands of CRV tokens for 4 years, without having to do the locking yourself.

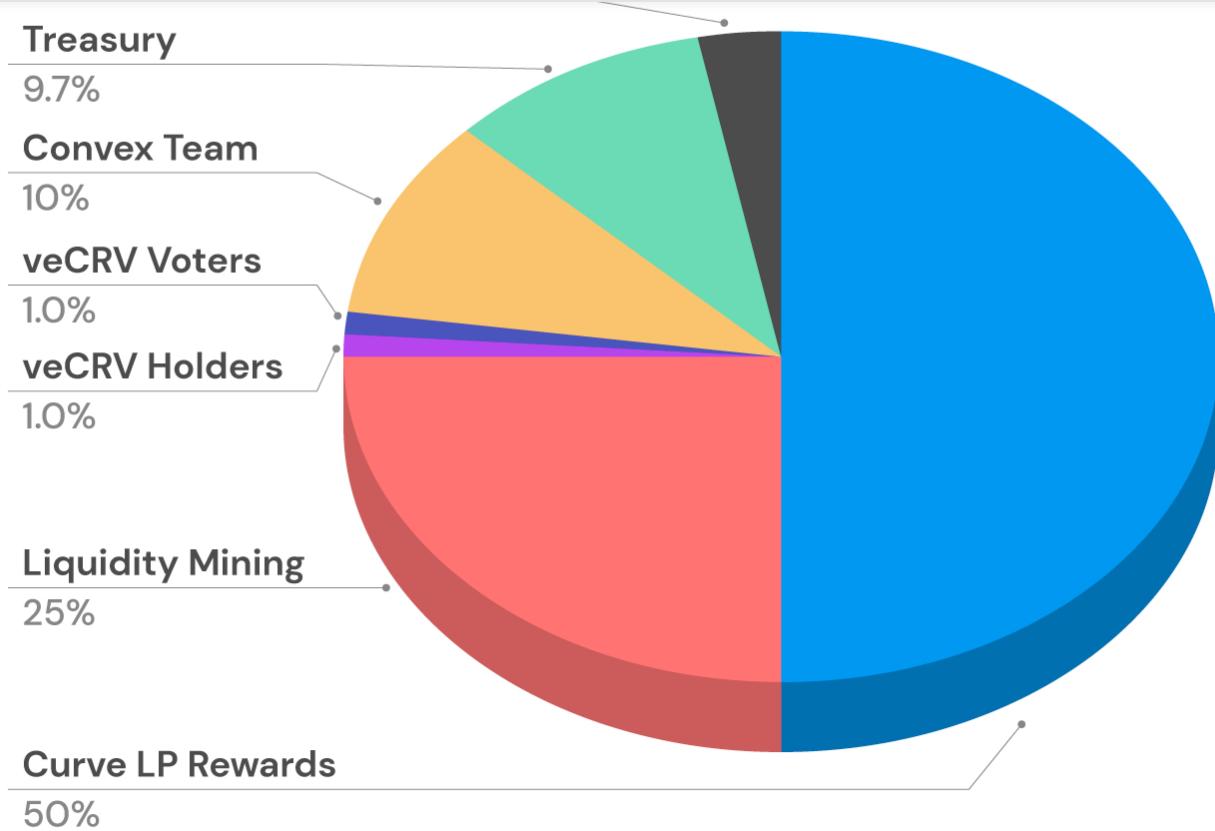


By hopping [into their docs](#), we can start to answer the questions I laid out in this article.

Supply

Convex has a fixed max supply of 100m which will be released overtime at a decreasing rate, depending on CRV deposits.

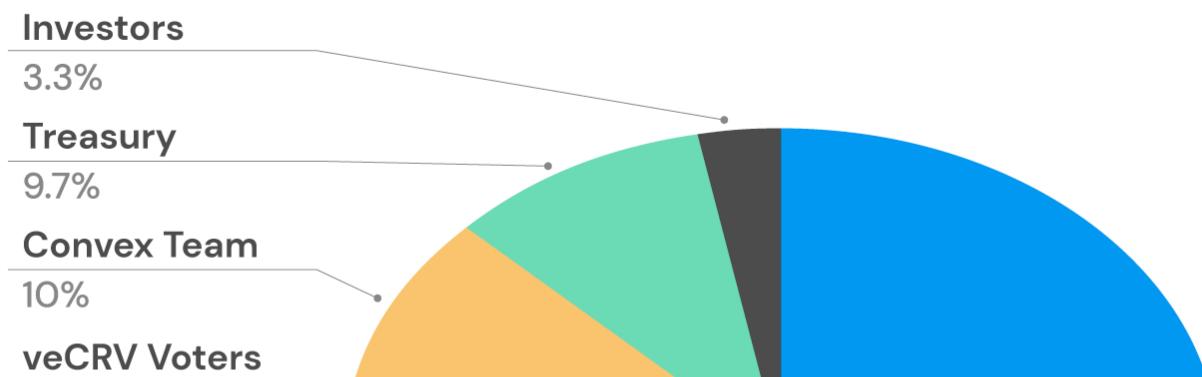
Token Distribution

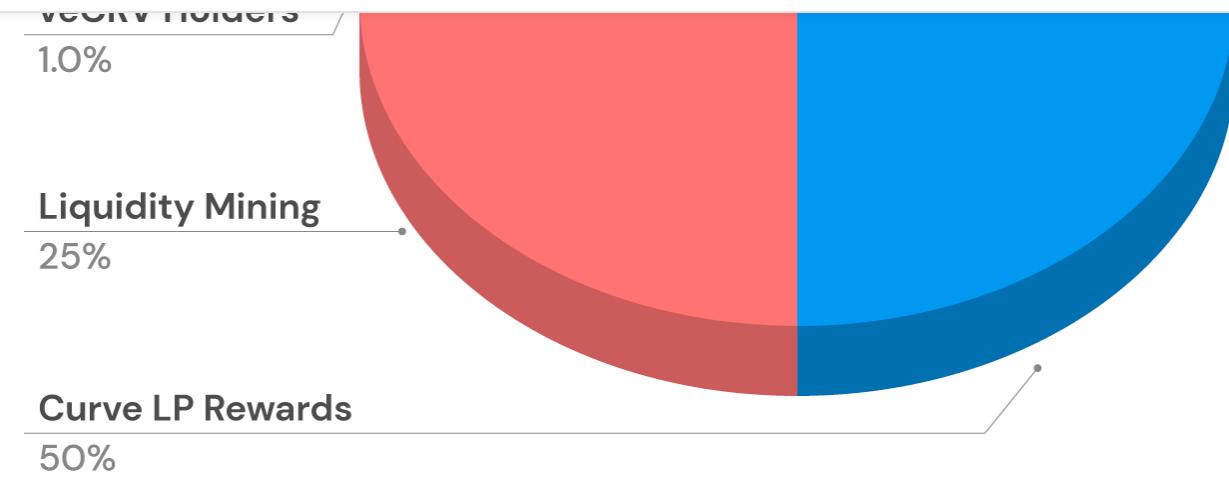


According to Coingecko, 78.5m of those 100m have already been created, meaning the current supply will inflate by another ~33%.

Of those tokens, the vast majority are going to the people using Convex. So this is a very fair token distribution, only a comparatively small amount is being retained for the team and investors. For comparison, imagine if Amazon gave away 75% of its stock to people who used Amazon:

Token Distribution



EV~~E~~RY[Subscribe](#)

So there's a fixed supply, the remaining supply is being released at a decreasing rate, most of the tokens are going to the community, and there's a max 33% dilution from here. Things look pretty good on the supply side.

What about demand?

Demand

To evaluate demand you need to ask: why would you hold the CVX token?

By holding the CVX token, you get a share of all Convex Finance revenue. That's not a huge amount, but it earns about 4% right now:

The screenshot shows the "LOCK" tab of the CVX lock interface. It displays the following information:

- CVX icon and text "CVX".
- Earned (USD value): \$687.99.
- vAPR: 4.95%.
- My CVX Locked: A progress bar showing 2 out of 8 segments filled.
- Total Locked: \$899.8m.
- INFO tab is also visible.
- Text: "Lock CVX for 16 weeks + 6 days. Locked CVX will earn platform fees as well as give voting weight for proposal and gauge weight voting."
- Amount of CVX to lock: 0 (with Max button).
- Available: 0 CVX.
- Approved button with a checkmark.
- Lock CVX button.

EV~~E~~RY~~when you do so, you get bonus rewards from various protocols who want to reward~~

Convex stakers:

[Subscribe](#)

The screenshot shows the 'Lock CVX' section of the Convex interface. At the top, there are two buttons: 'Lock CVX' (white background) and 'View pool info' (dark background). Below this, there's a summary card with the following data:

- CVX** icon
- Earned (USD value)**: \$687.99
- vAPR**: 4.95% ⓘ
- My CVX Locked**: [progress bar]
- Total Locked**: \$899.8m

Below the summary card, there are two tabs: 'LOCK' (selected, blue background) and 'INFO' (grey background). A large text block below the tabs states: "Lock CVX for 16 weeks + 6 days. Locked CVX will earn platform fees as well as give voting weight for proposal and gauge weight voting." To the left of this text is a input field labeled "Amount of CVX to lock" with a value of "0". To the right is a button labeled "Approved" with a checkmark icon and a progress bar indicating step 2 of 2.

Here the APR is still just 5%, but that's not including the bonus rewards you get from other platforms:

The screenshot shows the breakdown of claimable earnings for locked CVX. At the top, it displays:

- Locked CVX** icon
- Earned (USD value)**: \$1,052.28
- vAPR**: 4.95% ⓘ
- Claim All** button

Below this, there are three sections with 'Claim' buttons:

- cvxCRV**: 161.11 cvxCRV ≈ \$687.99
- Extra incentives**: \$364.29
- Breakdown of claimable earnings:**

Under the breakdown, there are three items with 'Claim' buttons:

- SPELL**: 26,119.21 SPELL ≈ \$358.54
- BADGER**: 0.23 BADGER ≈ \$3.35
- OGN**: 3.96 OGN ≈ \$2.4

And on top of that, you can delegate your Convex to other voters, in return for “bribes” using the service Votium.

The screenshot shows the delegation interface on Votium. It lists two tokens with delegation options:

- Token**: CRV, **Earned**: 0.0690 ≈ \$0.3
- Token**: ALCX, **Earned**: 0.8157 ≈ \$160.21

For each token, there is a 'Single Claim' button and a checkbox input field.

EVERY

[Subscribe](#)

Your rewards			
Token  SPELL	Earned 15692.9681 ≈ \$214.68	Single Claim	<input type="checkbox"/>
Token  EURS	Earned 21.4400 ≈ \$24.66	Single Claim	<input type="checkbox"/>
Token  MTA	Earned 16.5382 ≈ \$12.36	Single Claim	<input type="checkbox"/>
Token  CVX	Earned 7.4561 ≈ \$241.88	Single Claim	<input type="checkbox"/>

So there is a pretty significant ROI on staking your CVX tokens, even if the value doesn't change at all. And it has very strong game theory supporting holding the token, since you only earn these rewards if you lock your tokens for 16 weeks at a time.

The memes aren't as strong since it's a somewhat boring back-office DeFi protocol. But they don't need to be. It's a cash flow machine.

So Convex has a fixed supply, which is mostly allocated to the community. Most of the tokens are in circulation, and there won't be much more inflation. Holding CVX is heavily rewarded via protocol fees and other rewards to token holders, so there's less reason to sell if the price dumps.

To me, this is one of the better tokenomics designs out there, and a fantastic example of a well designed project. All the pieces come together to design a robust financial incentive system that doesn't rely on faith to prop up the value.

Evaluating on Your Own

This should give you a good initial foundation to evaluate any new project you come across. By reading the docs or whitepaper, you should get a good sense of how the supply is going to be managed, and what forces will drive demand for the token or cryptocurrency.

And the question to keep in the back of your mind isn't necessarily "will this appreciate against the dollar?" but "Will this appreciate against (BTC, ETH, SOL, whatever you prefer)". Most crypto assets are highly correlated and move together, and if you're holding anything besides the big foundational coins, it should be based on some belief

EVERY
ALMANACK[Subscribe](#)

In the next part of this series on Tokenomics, I'll get more into the various Game Theory strategies protocols employ to drive demand for their tokens.

What did you think of this post?

[Amazing](#)[Good](#)[Meh](#)[Bad](#)

Like this?

Become a subscriber.

[Subscribe →](#)

Or, [learn more.](#)

Read this next:



 Almanack

Field Guide to the Curve Wars:
DeFi's Fight for Liquidity

EVERY

[Subscribe](#)

♥ 107 Feb 4, 2022 by Nat Eliason



A Almanack

Goodbye Gas Fees: Hello Layer 2 Living

It's like driving a Prius but cooler

♥ 46 Dec 10, 2021 by Nat Eliason



A Almanack

The Mental Model Behind Every High-Performer I Know

During my first college internship, I completely replaced myself with Visual Basic scripts. Let me explain. I had been working in Excel for

♥ 65 Oct 14, 2020 by Nat Eliason



D Divinations

Means of Creation #4: Leah Culver & Erik Berlin

The co-founders of Breaker, on podcasting, platforms, and media

♥ 4 Jul 30, 2020 by Nathan Baschez

E The Sunday Digest

Big News for Napkin Math! + Investing in Peloton, Giving Feedback, & Bored Apes

Here's everything we published this week.

♥ 9 Mar 27, 2022



Write a comment

Post



@Learner about 1 month ago

Good article, thanks! How did you calculate the max 33% inflation?

"According to Coingecko, 78.5m of those 100m have already been created, meaning the current supply will inflate by another ~33%."

♡ 0 · Reply



@yovela_luo about 1 month ago

@Learner would it be a typo? Would it be $100 - 78.5 = 21.5\%$ max inflation?

♡ 0 · Reply



@Learner about 1 month ago

@yovela_luo Thanks! The article also mentions a "max 33% dilution", which I assume is related to the 33% inflation.

My understanding of dilution using an example:

Company issues initial 1000 shares at \$1 which equals \$1000 total market cap (owns 100%).

Company issues new additional 100 shares at \$1 to Investor.

Total shares equals 1100 and total market cap equals \$1100.

Now, the Company owns 1000 / 1100 shares, which equals 91% ownership (down from 100%).

The Company was diluted 9%.

Using the same approach, the Current Token Holders own existing tokens that equals 78.5m (owns 100%).

New additional tokens of 21.5m are issued, which equals 100m total tokens.

Now, Current Token Holders own 78.5m / 100m total tokens, which equals 78.5% ownership (down from 100%).

Current Token Holders were diluted 21.5%.

The 21.5% matches your calculation result. However, I am unsure if I am missing something.

♡ 0 · Reply

EV \mathcal{E} RY

Subscribe

