ALCHEMIX

Alchemix Q4 2022 Report

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Introduction to Alchemix

Established in February 2021, Alchemix is a DeFi lending protocol that offers Self-Repaying loans without the risk of forced liquidations. Alchemix's value proposition is that it enables its users to access tokenized value against their deposits, while those deposits harness the power of DeFi to automatically pay down a borrower's loan balance over time. Conceived as a new tool for people to take advantage of the time value of money, Alchemix is tested and audited and then deployed on-chain using smart contracts to provide security, transparency, immutability, and uncensorable access to all.

A borrower's loan comes in the form of synthetic tokens known as alAssets. Alchemix currently offers alUSD to borrow against DAI, USDC and USDT, and alETH to borrow against ETH, rETH, and stETH. Alchemix establishes a 1:1 pairing between collateral types (DAI/USDC/USDT and ETH/rETH/stETH) and their pair alAssets via deep exchange liquidity and the Alchemix Transmuter, which provides a backstop for the alAsset price.

Alchemix is currently deployed on the Ethereum Mainnet, Optimism, and Fantom networks.

This report provides relevant data for Q4 2022, 1 October 2022 to 31 December 2022. A bridge to Arbitrum has been deployed as well, but no strategies have been implemented as of yet.

Data sources for the numbers provided below include, but are not limited to, the Alchemix SubGraph, the Etherscan API and Bitquery.

This report was released on 2023.02.06.

Highlights

The fourth quarter of 2022 brought many developments into the crypto space and into the Alchemix world, including the following:

- The FTX exchange and Alameda Research collapsed in early November, with fallout throughout the entire crypto space, including Alchemix and its alAssets.
- Launch of Alchemix Vesper vaults on Mainnet.
- 12 governance proposals went to a vote in the quarter.
- Alchemix published <u>an update</u> on the progress of the development of veALCX and the DAO.
- Launch of alUSD/alETH Uniswap v3 Pool with Arrakis.
- Alchemix has purchased carbon credits through KlimaDAO to offset historic emissions caused by the protocol.
- Price support for Alchemix tokens was added to DeFiLlama.
- In collaboration with Multifarm, Treasury and Elixir dashboards were added to <u>alchemix-stats.com</u>.
- Because of the FTX fallout that spread to USDT, certain transactions involving USDT were temporarily paused on Alchemix.
- Beefy added the alETH/ETH liquidity pool.
- v1 vaults were officially deprecated.

Protocol Metrics

In this section we cover the most important metrics that indicate the sustainability and health of the protocol.

alAsset Prices

The main challenge for the protocol is to maintain a strong price for the alAssets, meaning that they converge towards the price of the assets with which they are paired. If the protocol is successful in achieving and maintaining a strong price, then it enables the Alchemist deposit caps to be increased. In turn, with growing deposits, protocol revenue increases.
In essence, a good price results in growing revenues and profit for Alchemix.

Without a robust and healthy price for the alAssets, Alchemix's value proposition diminishes, as a lower price would mean an effective lowering of the LTV ratio of a user's deposit. A sustained exact 1:1 peg between alAssets and their pairs is not possible, but it is the stated goal of the protocol to ensure that the prices remain at reasonable levels.

The price and liquidity for alUSD and alETH are achieved by establishing liquidity pools in Curve, Saddle, Velodrome and Beethoven X.

The alUSD and alETH price history charts can be seen below.

Shortly after the launch of Alchemix v2, the protocol deployed a new mechanic called the Elixir, which is intended to help bolster the prices of alAssets. The Elixirs have also been called the AMOs. The mechanisms by which the new Elixirs and the Transmuters help maintain alAsset prices is detailed in the *System Components* section below.

aIUSD Price vs. Dai

Trade size	Oct 1st	Jan 1st
$1M	0.9986 (-0.14%)	0.9822 (-1.78%)
$10M	0.9977 (-0.23%)	0.9108 (-8.92%)

aIUSD price vs. Dai

aIETH Price vs. ETH

Trade size	Oct 1st	Jan 1st
500 ETH	0.9902 (-0.98%)	0.9806 (-1.94%)
5000 ETH	0.982 (-1.8%)	0.9473 (-5.27%)
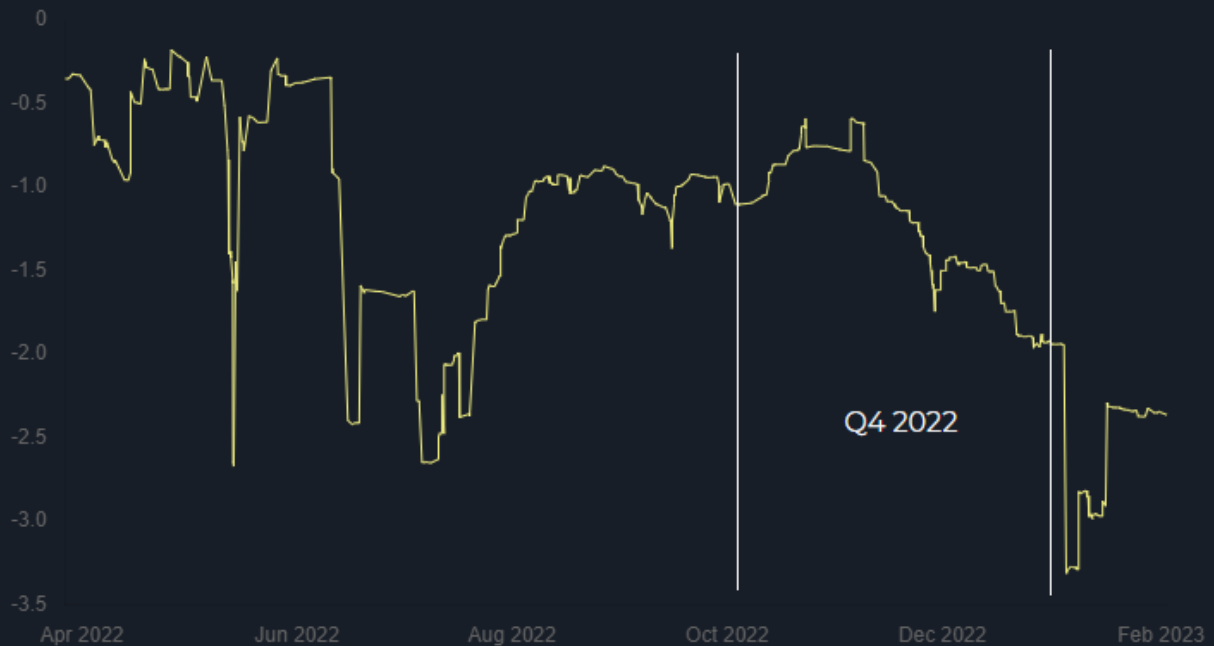
aIETH price vs. ETH

FTX and Alameda

This section is to discuss alAsset prices during the events of the FTX and Alameda incident and to highlight the performance of the protocol and Elixirs during the incident.

FTX is a bankrupt crypto exchange, and Alameda Research is FTX's sister trading firm that was an early investor in Alchemix. Following Binance's announcement that they would sell their holdings in FTX's token, FTT, FTX faced a liquidity crunch as their customers lost confidence in the exchange and tried to sell their FTT tokens and withdraw their funds. This also caused most, if not all, of Alameda's investments to collapse, as much of their collateral was denominated in FTT. Based on documents that were made public during the course of these events, it appears that Alameda's exposure to Alchemix was minimal.

This turmoil, including revelations of fraudulent activity within FTX, amplified an already generally bearish market. There was a contagion effect from this chaos

that caused further tumult throughout the broader stablecoin markets, a tumult to which Alchemix's stablecoin, alUSD, was not immune. In the charts above, one can see discernible volatility in the prices of alUSD and alETH during the turmoil of the FTX incident.

alAsset Liquidity Pools

The other key metric to consider with regard to the price is the depth of the liquidity pools. In essence, the total size of the liquidity pools needs to be large enough to support larger trades, so that these trades can be fulfilled at reasonable prices. If there is not enough liquidity, participants with larger amounts of capital are practically unable to use the product as it is intended, and Alchemix would become less attractive as a DeFi tool.

For Q4 2022, Alchemix's relevant liquidity pools contracted. As a result of the following repeated market downturn, prices of ALCX, CRV and CVX have fallen, reducing liquidity pool incentives and causing liquidity to leave the alAsset pools.

aIUSD Liquidity Pools

Total size in all pools

	Oct 1st	Jan 1st
	$128.08M	**$68.7M**

	Oct 1st	Jan 1st
alUSD3CRV	**$107.31M**	**$56.72M**
Curve FRAXBP	**$11.97M**	**$9.17M**
Saddle D4	**$1.01M**	**$0.39M**
Fantom Beethoven X	**$4.04M**	**$1.79M**
Saddle FRAXBP	**$2.75M**	**-**
Optimism Velodrome	**$0.99M**	**$0.63M**

alETH Liquidity Pools

Total size in all pools

	Oct 1st	Jan 1st
	37651 ($50.93M)	**32216 ($38.53M)**

	Oct 1st	Jan 1st
alETH Curve	**34979 ($47.31M)**	**29925 ($35.79M)**
alETH Saddle	**1489 ($2.02M)**	**1263 ($1.51M)**
alETH Velodrome	**1183 ($1.6M)**	**1028 ($1.23M)**
Ether price	$1,331	$1,196

Total Deposits vs. Liquidity

The size of liquidity pools can also be examined in relation to the amount of user deposits in Alchemix vaults. The liquidity pools should be sufficiently large to facilitate movement of alAssets across the ecosystem, so the protocol aims to keep the size of the pools healthy, relative to deposits.

This calculation is expected to change as more use-cases are added for alAssets across the ecosystem; the relative size of liquidity pools can decrease without impacting the health of the protocol.

Also, for simplicity, we are disregarding the fact that some liquidity pools are set to an alAsset : externalAsset ratio of 1 : 1 and others are set for lower ratios. The latter happens when multiple assets are pooled together; for example, the Saddle D4 pool, where alUSD only makes up 25% of the pool when balanced.

As demonstrated by the table below, the deposit : liquidity ratio decreased for alUSD as a result of the contraction of the liquidity pools and increased slightly for alETH as a result of deposit growth and slightly lower liquidity.

Deposit : Liquidity ratio

	Oct 1st	Jan 1st
alUSD	1 : 5.47	1 : 3.4
alETH	1 : 2.06	1 : 2.33

alAsset Utility

Becoming embedded as part of the DeFi ecosystem substrate is of paramount importance for Alchemix.

Without a direct use for the alAssets (alUSD, alETH), the only action for users after taking an Alchemix loan is to swap their alAsset into something more "usable." This puts the protocol under constant pressure to devote resources to maintaining the price and liquidity of these alAssets by utilising ALCX emissions or its own non-native assets, both of which are value extractive for the protocol and for ALCX holders.

However, if the alAssets themselves can be used in a productive manner without requiring a swap, then it makes sense for users to hold these alAssets, which in turn takes pressure off of the protocol to maintain the prices. The fewer resources that Alchemix needs to devote to maintaining alAsset liquidity, the more resources are available to grow the protocol and generate revenue.

These protocols provide direct use-cases for alAssets, where the assets themselves can be used in a productive manner, or make it possible for Alchemix to provide liquidity cheaper than it would be possible otherwise.

Please note that we decided to exclude aggregator services that allow users to invest in the base alUSD and alETH liquidity pools but provide no additional incentives or special use-cases.

Premia Finance

Premia Finance is a decentralized options protocol, enabling anyone to buy and sell options in a fair and liquidity-efficient way.

Premia currently has two pools for Alchemix, the ALCX/DAI and the alETH/alUSD options pools. Users are able to deposit ALCX, DAI, alETH and alUSD and become the underwriters for these assets.

Traders buy options to speculate on the price of ALCX and alETH, and the depositors earn the fees paid by the traders.

Website: https://premia.finance

Mover

Mover DAO focuses on bridging DeFi and traditional finance via the crypto debit card. It allows holders to top up their debit card balance using alUSD, alETH, ALCX and gALCX.

Website: https://viamover.com

Curve & Convex

Through the Curve/Convex gauges $1 of ALCX spent as bribes provides more than $1 worth of CRV/CVX emissions to liquidity providers. Curve and Convex are the most important protocols, as the main alAsset liquidity pools reside on Curve.

Websites: https://curve.fi and https://www.convexfinance.com

Saddle

Similar to Curve, Saddle also has a gauge system where veSDL holders can direct SDL emissions to Saddle pools. As of January 1st, there were two pools deployed on Saddle where alAssets are present, the D4 stablecoin pool for alUSD and the Saddle alETH pool.

For more details please refer to the *Strategic Token Accumulation* section in this document.

Website: https://saddle.finance

Beethoven X

alUSD liquidity on Fantom resides on the Beethoven X AMM, where BEETS (the governance token of Beethoven X) tokens are provided to liquidity providers, along with gALCX rewards.

Website: https://beets.fi

Stake DAO

Stake DAO allows Alchemix to increase its veCRV voting power by the usage of their own veCRV tokens.

For more details please refer to the *Strategic Token Accumulation* section in this document.

Website: https://stakedao.org

Frax Finance

Frax Finance has been a partner for Alchemix for some time, setting up and rewarding liquidity pools together, including the Saddle D4 and Curve D3 pools. Rewards to the Curve D3 pool have been terminated, but multiple alUSD pools are being set up with a FRAXBP (FRAX Base Pool) pairing on Ethereum, Fantom and possibly elsewhere, where Frax essentially pays for their own side of the liquidity.

Website: https://frax.finance

Velodrome

Velodrome Finance is a new AMM on the Optimism L2 chain. As part of their launch campaign they airdropped NFTs that provide voting power to notable projects, including Alchemix. Alchemix uses this voting power to direct rewards to the two alAsset pools (alUSD-USDC, alETH-ETH) that have been set up in Velodrome.

For more details please refer to the *Strategic Token Accumulation* section in this document.

Website: https://velodrome.finance

Idle Finance

Idle Finance is a decentralized rebalancing protocol that allows users to automatically and algorithmically manage their digital asset allocation among different third-party DeFi protocols. Users can choose to maximize their interest rate returns through the Junior Tranche strategy or minimize their risk exposure through the Senior Tranche allocation strategy. The Senior Tranche is insured by the Junior Tranche in case of a partial loss of funds of the strategy.

Idle currently supports the aIUSD3CRV Curve pool, meaning users can earn the yield provided by the aIUSD3CRV pool with higher or lower yields, depending on their risk appetite.

Website: https://idle.finance

Gro Protocol

Gro provides access to automated yield strategies for stablecoins.
They create a basket of stablecoin LP tokens staked in Convex and the aIUSD3CRV pool is part of this basket.

They have a pair vault structure where users can choose between higher yields or capital protection.
Users depositing in the capital-protected vault give up a portion of their yield to the high-yield vault, but should the underlying strategies suffer a loss, the high-yield vault will take on the losses of the capital-protected vault.

Gro also provides additional APY in the form of GRO rewards for both vaults.

Website: https://www.gro.xyz

Pickle Finance

Pickle Finance is a yield aggregator.
Pickle makes it easy to earn compounding yields on deposits, when one does not have the time to compound it daily or the gas fee is too high for frequent compounding to be done.

Pickle supports the Saddle D4 and Velodrome alUSD and alETH pools and provides additional Pickle (and OP) rewards on top of the base yields.

Website: https://www.pickle.finance

Beefy Finance

Beefy Finance is a yield aggregator.
Beefy makes it easy to earn compounding yields on deposits, when one does not have the time to compound it daily or the gas fee is too high for frequent compounding to be done.

Beefy currently supports the alETH/ETH Curve pool on Mainnet and the alETH/ETH and alUSD/USDC Velodrome pools on Optimism.

Website: https://beefy.finance

Bent Finance

Bent Finance is a protocol built on top of Convex. Using an analogy, it is to Convex, what Convex is to Curve, so essentially a third layer in the Curve ecosystem. Liquidity providers can stake their Curve LP tokens in Bent instead of Convex and they will receive what they would in Convex plus BENT rewards on top, pushing alAsset LP yields higher.

Website: https://app.bentfinance.com

ALCX Governance Token

The governance token of the Alchemix protocol is ALCX. It allows users to influence protocol direction by voting on submitted proposals.
The continuous issuance of the ALCX token follows a pre-defined schedule. Alchemix provides various staking options for holders to minimize the effects of token inflation.

Below, we provide information on current inflation numbers, future total supply expansion and the emission allocation.

A portion of ALCX emissions are currently being redirected to the treasury, effectively reducing the amount of new ALCX that enters circulation.

Emission Schedule
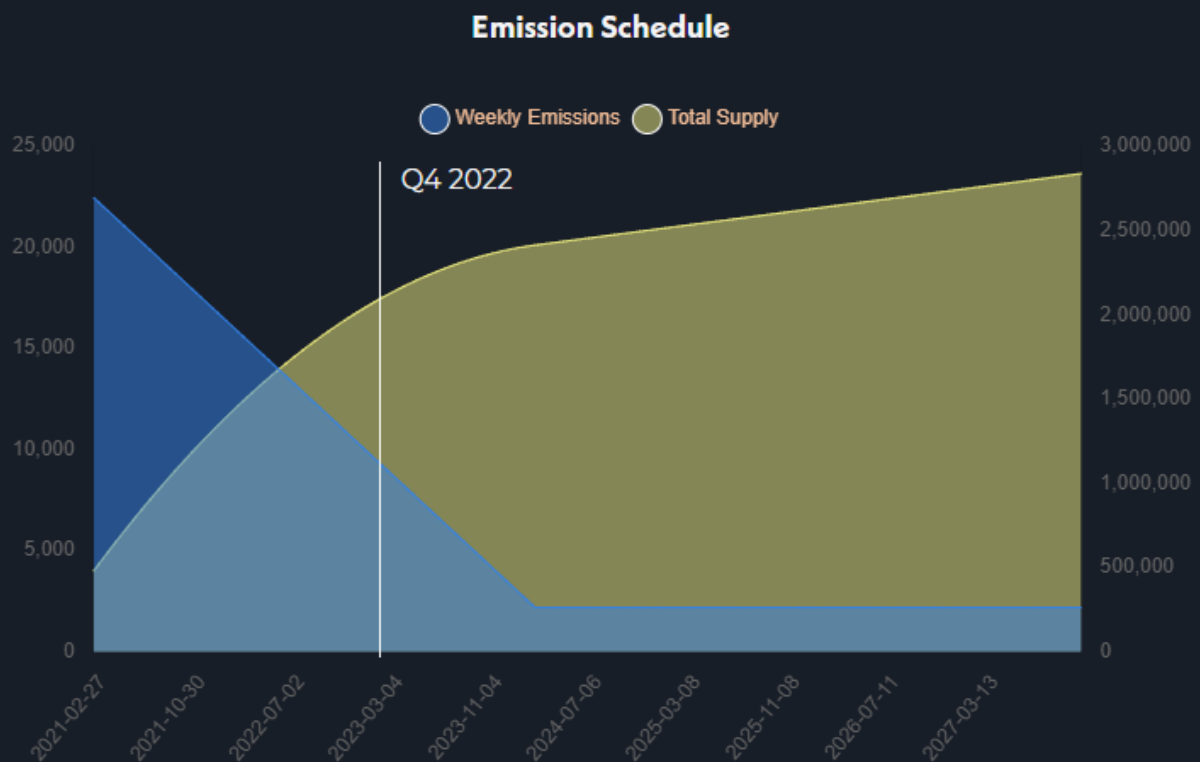
As shown on the chart, the initial high token issuance rate decreases in a linear fashion, dropping to the baseline 2200 tokens emitted per week at the 3-year mark.
At this date, annual inflation will be ~4.7%, very slowly decreasing in perpetuity.

Effective Annualized Inflation Rate

This calculation compares new ALCX issued vs. the total supply. This includes all ALCX in existence, including treasury holdings that are outside of circulation.

2022.10.01.	2023.01.01.	2023.04.01. (Projected)
31.96%	**25.44%**	**19.97%**

Projected ALCX Supply Growth Compared to 2023.01.01.

2024.01.01.	2025.01.01.	2026.01.01.
16.6%	**22.34%**	**27.91%**

ALCX emissions are used to support the strategic goals of the protocol. The biggest challenge, as laid out in the sections above, is sustaining a stable price for alAssets. In order for the protocol to be sustainable long term, it cannot rely solely on token emissions to support the alAsset prices. For this reason, the treasury started accumulating strategic assets, such as CRV, CVX, TOKE, VELO and SDL to be able to support the liquidity pools without emissions.

The protocol is still incentivizing single-sided staking, ALCX liquidity, and alAsset liquidity by using ALCX emissions. However, it has begun the transition to using emissions for the purpose of accumulating strategic assets.

Direct liquidity incentives through emissions may be wound down while the protocol becomes self-sustaining.

Change in the Emission Allocation from October 1st to January 1st

Fantom emissions have temporarily been lowered given the low interest, but there was no governance-approved change in the emission allocation this quarter.

Distribution of Emissions on January 1st

Staking (33%)

ALCX/ETH SLP		20%
ALCX		13%

alAsset liquidity (24%)

alUSD3CRV		11%
alETH Curve		9%
FraxBP Curve		2%
alETH Saddle		2%

Fantom (4%)

Beets alUSD		2.5%
SpookySwap gALCX/FTM		0.83%
SpiritSwap gALCX/FTM		0.66%

Index Cooperative Bankless DeFi Innovation Index

The Index Cooperative created a simple composite index token (GMI) that included promising early stage DeFi projects. ALCX was included as a component of this index, which also included 11 other DeFi tokens. In late October 2022, the Index Cooperative announced that they were deprecating the GMI index token. Read the announcement here. As a result, future quarterly reports will not include any information regarding the GMI token.

System Components

Three main components work in tandem to provide the functionality for the Alchemix system. These are the Alchemists, Transmuters and the Elixirs (AMOs).

User deposits are held by the Alchemist contracts. The Elixir and Transmuter contracts also hold a significant amount of funds that are responsible for providing a backstop for alAsset redemption. The Transmuters redeem alAssets for their underlying collateral pairs 1:1, but do this slowly, over a longer period of time.

The Elixirs, on the other hand, own a portion of the main alAsset liquidity pools and can take action to ensure that trades in their respective liquidity pools can be fulfilled at a reasonable level that is determined by governance. The Elixirs also provide a large portion of protocol revenue by farming the liquidity pool tokens.

Both the alUSD and alETH Alchemist contracts permit a maximum Loan-to-Value ratio of 50%. This means that users can borrow up to half of the value of their stablecoin deposits as an alUSD-denominated loan or half of the value of their ETH deposits as an alETH-denominated loan.

Excess funds are being deployed in the Transmuters or in the Elixirs to provide price stability and to earn additional protocol revenue.

This quarter the Elixir contracted by -$17.32M (-19.76%).

Caused by the further market downturn this quarter and the price drop of ALCX, CRV and CVX, incentives to alAsset pools decreased considerably. As a result, liquidity providers withdrew from the alAsset pools, causing alAsset prices to drop, which prompted the multisig to intervene and remove alAssets from the pools.

Elixir Contents

	Oct 1st	Jan 1st	Change
alUSD3CRV	46.68M	37.29M	-$9.39M (-20.12%)
alETH Curve	19700 ($26.18M)	17040 ($21.32M)	-$4.86M (-18.56%)
DAI	$14.78M	$11.66M	-$3.12M (-21.11%)
ETH	26 ($0.03M)	26 ($0.03M)	-
Total	$87.67M	$70.35M	-$17.32M (-19.76%)

Elixir Ownership of Main Liquidity Pools

As of January 1st, the protocol owned 66% of the alUSD3CRV pool and 62% of the alETH Curve pool. This means that out of all the CRV/CVX emissions that go to these pools, which are mainly incentivized by Alchemix itself, the protocol makes back a considerable portion. This also provides considerable power in defining the price of assets in these pools.

Curve Pool Ownership
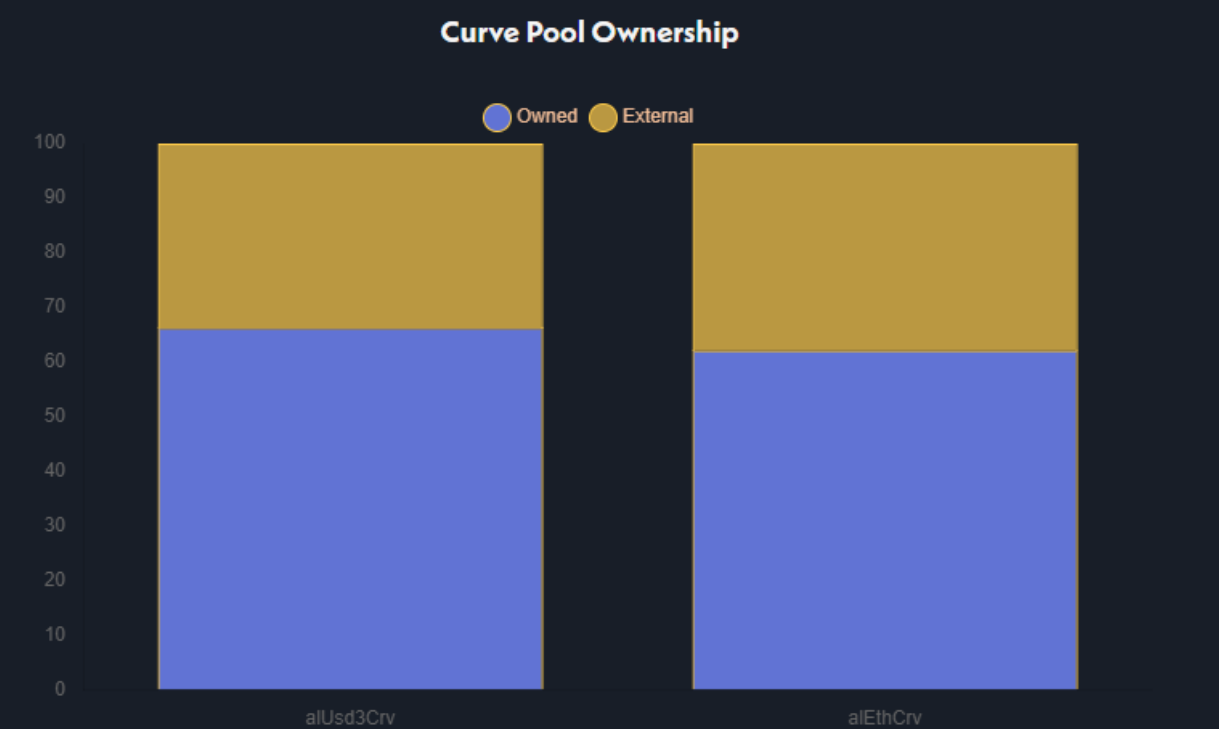
Aggregate Global User Debt Levels

This section shows aggregate global user debt across all Alchemists on Mainnet. The maximum LTV (Loan-to-Value) ratio in all Alchemists is set to 50%. This means that users can take an alAsset-denominated loan for up to 50% of the value of their deposited collateral. If every depositor were to always max out their debt allowance, the debt levels would be exactly 50% of the amount of deposits. Some users do periodically max out their debt, while other users plan to wait for their loans to self-repay instead.

The table and charts below only show v2 metrics, as v1 had been sunset as of October 1st. The table shows the state of the aggregate global user debt across all Alchemists on Mainnet on January 1st.

	Amount	USD value	Loan-to-Value
alUSD	3.35M	$3.35M	23.39%
alETH	5849	$7.1M	41.14%
Total		$10.45M	

alUSD Alchemist debt

Alchemist stablecoin debt on Ethereum

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alETH Alchemist debt

Alchemist ETH debt

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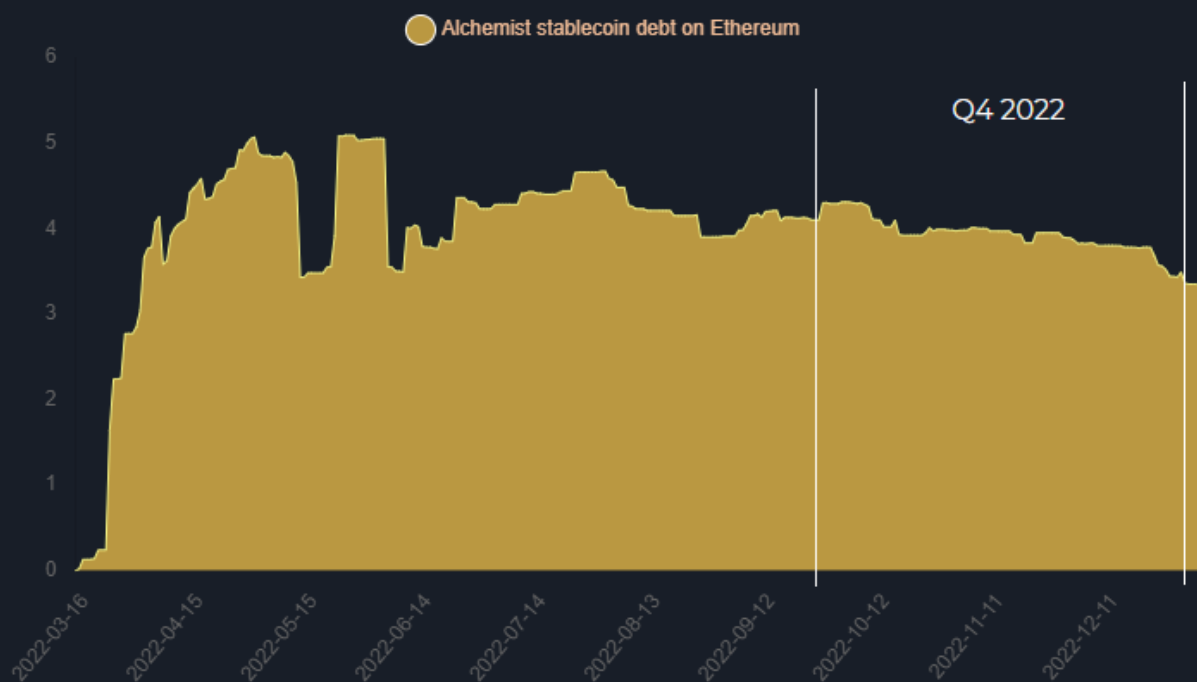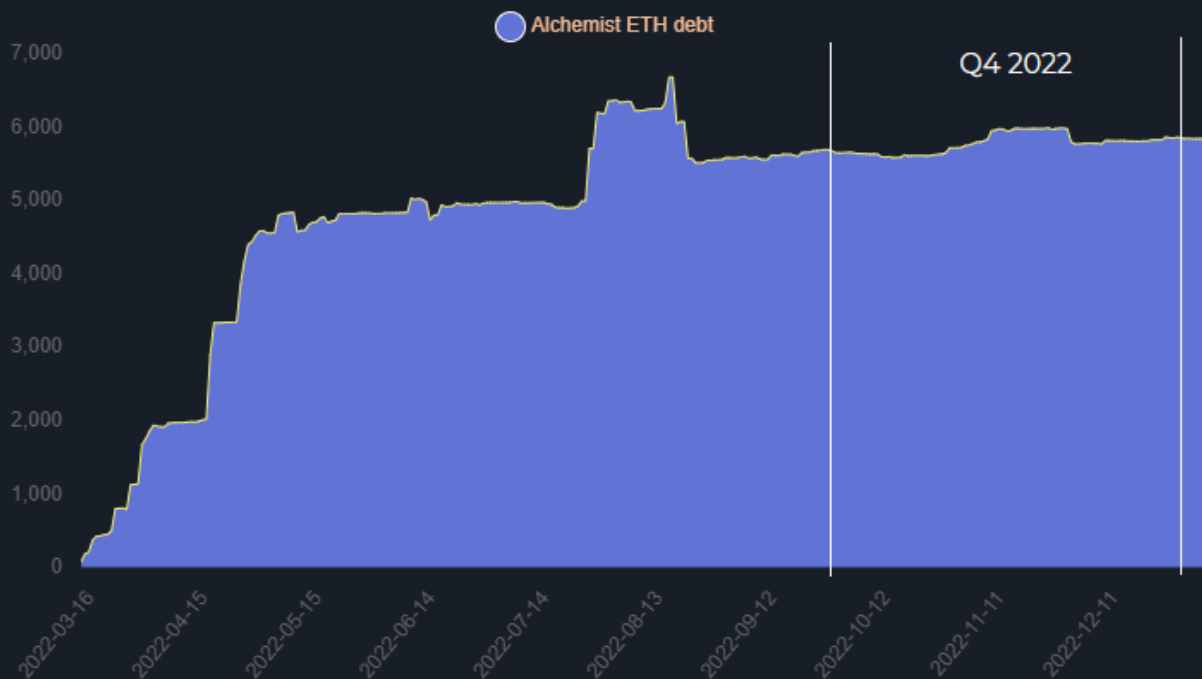
Treasury and Expenses

Strategic Token Accumulation

The main goal of the Alchemix treasury is to use its value to support and expand the protocol. It acquires assets that it can use to provide a sufficient amount of liquidity for the needs of the protocol, or use for some other strategic purpose.

As a baseline, this is done by investing protocol revenue into these assets.

For previous quarters, Olympus Pro had also been used to supercharge growth, but this has since been stopped.
Olympus Pro is a vendor for DeFi protocols that allows for protocols to use a bonding curve to essentially sell their native tokens in exchange for other strategic tokens that are of interest to said protocols.

CVX (Convex Finance)

Using Olympus Pro bonding services, Alchemix accumulated CVX tokens in exchange for ALCX tokens. Alchemix also earns CVX from staked liquidity pool tokens and locked CVX tokens. These CVX tokens are used with Convex Finance to direct Curve Finance emissions. This, in turn, incentivizes liquidity, and earns revenue for the protocol.

ALCX/ETH Sushi Liquidity Pool

Using Olympus Pro bonding services, Alchemix accumulated ALCX/ETH SushiSwap liquidity pool (SLP) tokens in exchange for ALCX tokens. These SLP tokens are held by the protocol and provide stability to ALCX by making it less susceptible to mercenary capital and market fluctuations. The protocol accrues trading fees from the pool, as well as ALCX and SUSHI staking rewards.

TOKE (Tokemak)

Using Olympus Pro bonding services, Alchemix accumulated TOKE tokens in exchange for ALCX tokens. These TOKE tokens are used with Tokemak to direct liquidity, provide stability for Alchemix tokens and to earn additional revenue for the protocol.

At the end of the quarter, Tokemak had $0.5M of the ALCX/ETH pair deployed on SushiSwap.

sdCRV (Stake DAO CRV)

CRV (Curve) tokens can be permanently locked as sdCRV tokens in Stake DAO's smart contracts, similar to how CRV is permanently locked in Convex as cvxCRV. Stake DAO then enables holders to vote on Curve gauges through their platform. Stake DAO itself also holds CRV tokens, and they use these assets to boost the voting power of sdCRV holders, if they also hold the protocol's (staked) governance token veSDT.

For this reason, the Alchemix treasury holds veSDT tokens alongside a large stack of sdCRV tokens.

VELO (Velodrome)

Velodrome Finance is an AMM on the Optimism L2 chain. As part of their launch campaign they airdropped NFTs that provide voting power to notable projects, including Alchemix. Alchemix uses this voting power to direct rewards to the two alAsset pools (alUSD-USDC, alETH-WETH) that have been set up in Velodrome.

As per AIP-59, additional VELO was purchased and locked as veVELO.

SDL (Saddle)

Similar to Curve, Saddle also has a gauge system where veSDL holders can direct SDL emissions to Saddle pools. As of January 1st, there were two pools deployed on Saddle where alAssets are present, the D4 stablecoin pool for alUSD and the Saddle alETH pool.

Using ALCX to bribe veSDL holders or purchasing SDL and using the veSDL voting power will result in cheaper liquidity than paying directly in ALCX.

A token swap was performed with Saddle to acquire SDL as per AIP-65.

YFI (Yearn Finance)

Yearn is a decentralized suite of products helping individuals, DAOs, and other protocols earn yield on their digital assets.

The largest Alchemix vaults are the Yearn Dai and Yearn WETH vaults, which provide the yield for the "self-repaying loans".

Yearn is launching a new ve system for YFI, their governance token, where lockers can direct YFI emissions to reward vaults.

As per AIP-64 the treasury has started accumulating YFI tokens to be able to participate in directing YFI emissions.

Treasury Contents

A Treasury dashboard that highlights revenues and expenses, as well as assets and liabilities, can be found at https://alchemix-stats.com.

As a result of the latest market downturn the treasury essentially returned to a state where it was 6 months prior. It contracted by $2.23M (-21.4%) as a result of the market downturn and partially counteracted by revenue contributions mainly from the Elixirs.

	Oct 1st	Jan 1st	Change QoQ
alETH+ETH LP	**$1.65M (1,238)**	**$1.49M (1,238)**	**-$0.14M (-8.5%)**
TOKE	**$0.25M (262,069)**	**$0.23M (270,126)**	**-$0.02M (-8%)**
CVX	**$1.64M (333,277)**	**$1.19M (369,420)**	**-$0.45M (-27.4%)**
ALCX/ETH SLP	**$1.32M (3,533)**	**$1.08M (3,533)**	**-$0.24M (-18.2%)**
SDT	**$0.41M (981,464)**	**$0.31M (981,464)**	**-$0.1M (-24.4%)**
sdCRV	**$3.39M (3,654,311)**	**$2.15M (4,002,912)**	**-$1.24M (-36.6%)**
VELO	**$0.11M (6,359,798)**	**$0.14M (7,721,000)**	**+$0.03M (+27.3%)**
Stablecoins	**$0.83M**	**$0.73M**	**-$0.1M (-12%)**
Other	**$0.83M**	**$0.88M**	**+$0.05M (+6%)**
Total	**$10.43M**	**$8.2M**	**-$2.23M (-21.4%)**

Data source for: ALCX/ETH SLP

Expenses

The DAO is currently approved for $450,000 in expenses per quarter to pay contributors, services, audits, bug bounty programs, transaction gas costs, etc. An additional 20% of all emissions go to the core development team, part of which also funds the business development and governance (bizgov) subDAO.

Total Addressable Market

In this section we aim to calculate the potential target market of Alchemix. Using Alchemix is (almost) always financially better than using any one of the integrated vaults directly. This is because Alchemix deposits the users' funds in the same vaults, but provides the yields up front.

So anyone that is directly depositing in the integrated vaults instead of using Alchemix is sacrificing their yield for some other (perceived) feature. This could be additional smart contract risk, not being aware of Alchemix, borrowing against their deposits in protocols such as Aave or Compound, being constrained by Alchemix deposit caps, etc.

	Market size	Protocol
TVL in integrated stablecoin vaults	**$1,650M**	**Total**
	$103M	Yearn
	$1,542M	Aave
	$5M	Vesper
TVL in integrated ETH vaults	**$6,985M**	**Total**
	$70M	Yearn
	$216M	RocketPool (rETH)
	$5,714M	Lido (stETH)
	$983M	Aave
	$2M	Vesper
Stablecoin TVL in potential new vaults	$1,492M	Others*
ETH TVL in potential new vaults	$491M	Others*
Total integrated	$8,635M	
Total in potential vaults	$1,983M	
Total Target Market size	**$10,538M****	

Potential new vaults include vaults from the protocols for which integration has been voted for by governance in AIP-47: Alpha Vaults: Yearn (non-integrated), Aave (non-integrated), Compound, Vesper, Stargate, Tokemak, Index Coop, Galleon, Idle Finance and Gearbox.

**Calculations exclude strategies that are included in multiple protocols (such as stETH), thus the total amounts cannot simply be summarized.

To highlight, the largest single "vault" by a large margin is Lido's stETH strategy ($5.7B), and the protocol with the highest TVL (excluding Lido) is Aave, whose value locked for integrated and potential vaults stands at $3.7B. Both stETH and Aave are already integrated into the Alchemix protocol. Note: As of January 1st, depositing Lido's stETH as collateral has been temporarily paused in Alchemix as a result of the instability of stETH's price relative to ETH, which was caused by the market downturn. As of the writing of this report, the vault has been reopened.

In theory, all TVL in these vaults could move into Alchemix. In practice, this will never happen partly because of the above-mentioned reasons. On the other hand, Alchemix also encourages new TVL to be deposited in these vaults, as it makes for a better value proposition.

The Yearn vaults are prime examples of this, where Alchemix currently owns a substantial share of the Yearn Dai vault and the Yearn ETH vault.

Ethereum, Optimism & Fantom

The following section provides information for protocol and user activity on the Ethereum Mainnet network, the Optimism L2 Network, and the Fantom Opera network

Yield Harvests

Yield harvests are what enable Alchemix's self-repaying loans. Harvests are periodic withdrawals of yield generated by funds deposited in the Yearn vaults and other strategies. These harvested yields are then used to proportionally pay down depositors' loans. Yield harvests are not on any set schedule. They generally happen when enough yield has been amassed and transaction fees are low enough for the harvest to make financial sense. 10% of the yield that is harvested is captured by Alchemix as a service fee.

Total Harvests in Q4 2022 on Mainnet

	yvUSDC	yvDAI	yvUSDT	aUSDC	aDAI	aUSDT	vaUSDC	vaDAI
Q1	644	1,728	27	-	-	-	-	-
Q2	7,793	27,733	465	-	-	-	-	-
Q3	2,323	46,112	0	0	0	0	-	-
Q4	7,542	65,650	0	0	0	0	0	0

	wstETH	rETH	yvETH	aWETH	vaETH
Q1	0.0002	0.0001	0.62	-	-
Q2	10.6	0.5	5.93	-	-
Q3	0	0	21.46	0	-
Q4	41.1	10.5	106.1	10.7	0

Total Harvests in Q4 2022 on Optimism

	aDAI	aUSDC	aUSDT	aWETH
Q3	-	-	-	-
Q4	0	0	0	0

On Optimism, issues were identified in the trading routes for harvests. Because of this, harvests on Optimism are not happening until these issues are resolved.

Total Harvests in Q4 2022 on Fantom

	yvUSDC	yvDAI	yvUSDT
Q2	0	567	100
Q3	200	300	100
Q4	300	368	100

In Q3 2022, there were 48,000 USD equivalents and over 21 ETH harvested. In Q4 2022, there were over 73,000 USD equivalents and over 168 ETH harvested. This quarter-over-quarter increase was partly due to the rETH and wstETH vaults having been reactivated. Additionally, on Mainnet, the aWETH vault had been active for sufficient time so as to have some harvest. Furthermore, these values are not representative of all of the yield that was captured in the vaults. On Optimism, issues were identified in the trading routes for harvests. Because of this, harvests on Optimism are not happening until these issues are resolved.

Deposits and User Metrics v1

The Alchemist v1 contracts were officially deprecated on the 13th of October 2022. The funds were moved to a temporary migration contract, and there were still considerable amounts of funds left in this contract at the end of the quarter, namely $6.43M of DAI and $6.25M of ETH.

A forced migration took place after the close of the quarter that permanently moved most of these funds into the v2 contracts.

Deposits and User Metrics v2

This section provides numbers for user activity in the protocol's v2 contracts. All data is for Q4 of 2022. Please note that the numbers in this section do not yet include a large amount of funds that were still in the temporary v1->v2 migration contract, as mentioned above.

v2 Mainnet Stablecoin Deposits

v2 Mainnet ETH Deposits

Legend: ● yvWETH ● aWETH ● wstETH ● rETH

Q4 2022

Y-axis: 14,000 / 12,000 / 10,000 / 8,000 / 6,000 / 4,000 / 2,000 / 0

X-axis: 2022-03-16, 2022-04-15, 2022-05-15, 2022-06-14, 2022-07-14, 2022-08-13, 2022-09-12, 2022-10-12, 2022-11-11, 2022-12-11

Fantom Deposits

Legend: ● DAI ● USDC ● USDT

Q4 2022

Y-axis: 0.6 / 0.5 / 0.4 / 0.3 / 0.2 / 0.1 / 0

X-axis: 2022-05-05, 2022-05-30, 2022-06-24, 2022-07-19, 2022-08-13, 2022-09-07, 2022-10-02, 2022-10-27, 2022-11-21, 2022-12-16
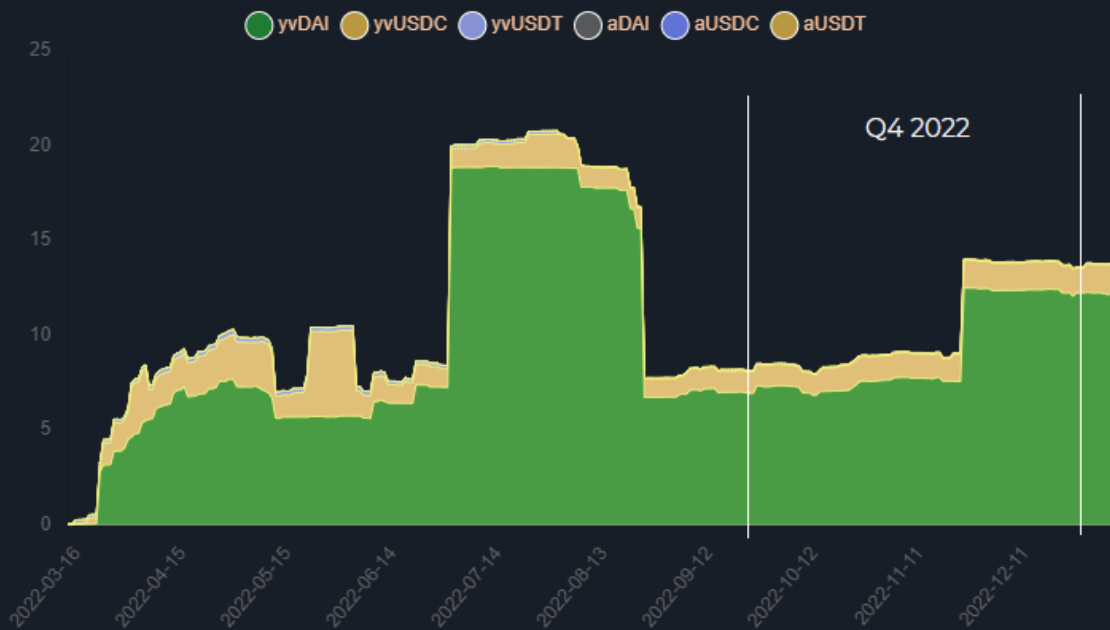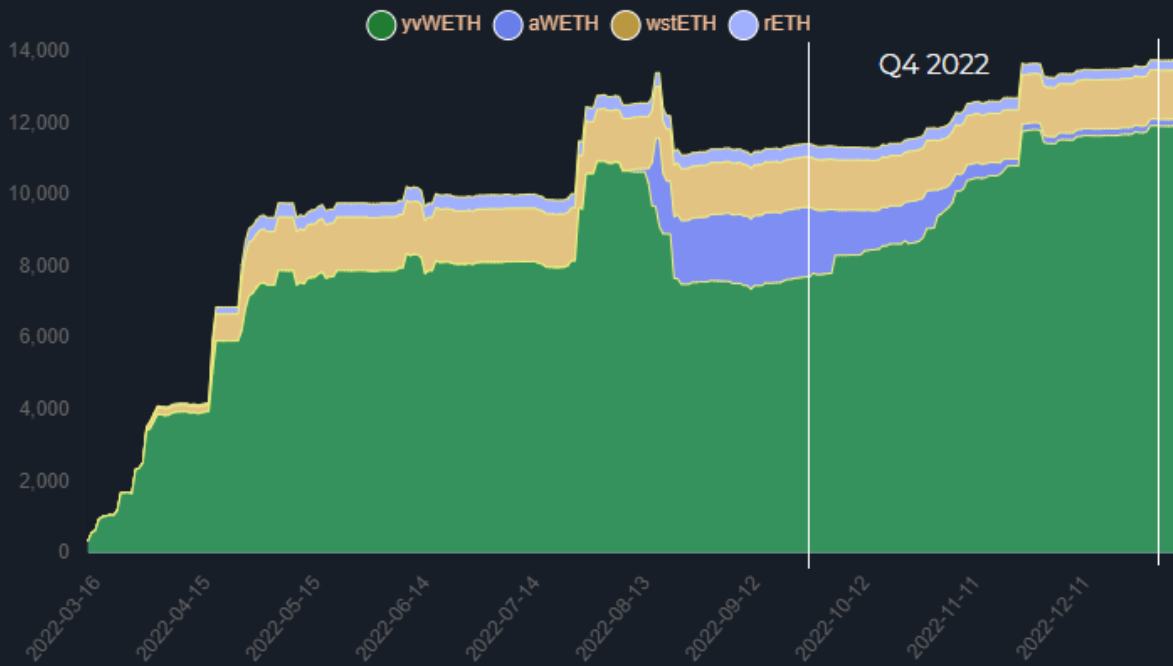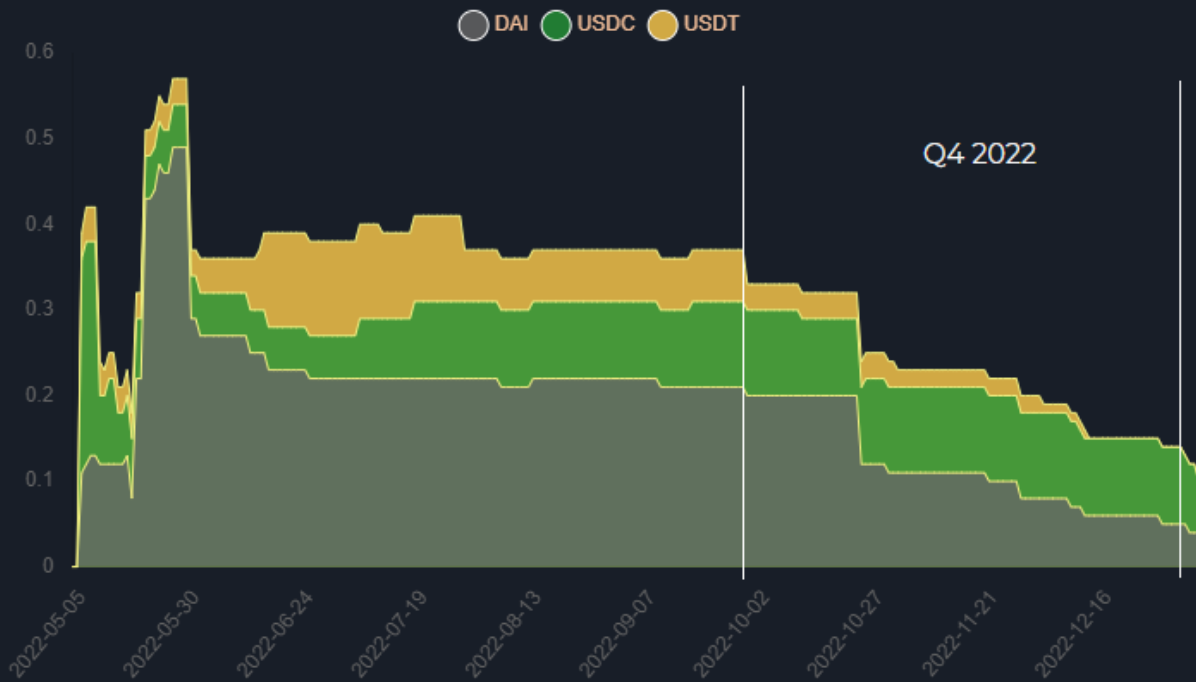
OP Optimism Stablecoin Deposits

Legend: aDAI, aUSDC, aUSDT
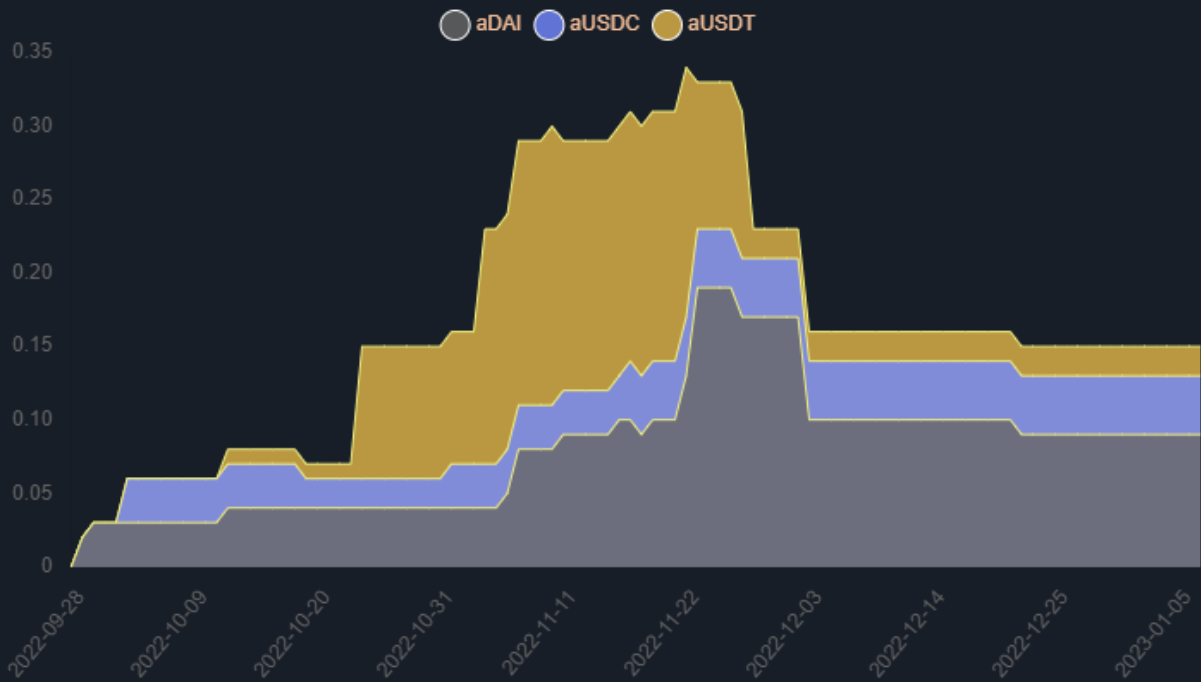
OP Optimism ETH Deposits

Legend: aWETH
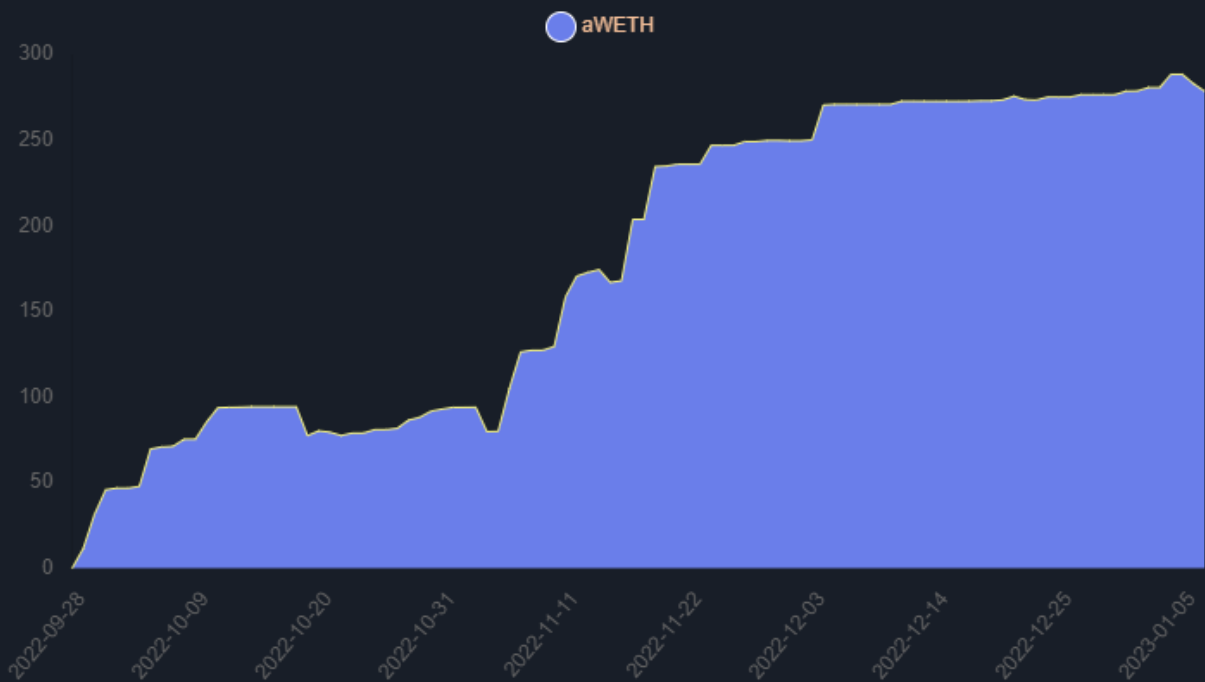
Net Deposits on Mainnet at Quarter End

	Oct 1st	Jan 1st	Change QoQ
Stablecoins	$8.48M	$13.81M	+$5.33M (+62.85%)
ETH	$15.12M (11357)	$16.54M (13830)	+$1.42M (+9.39%)
Total	$23.6M	$30.35M	+$6.75M (+28.6%)

Net Deposits on Fantom at Quarter End

	Oct 1st	Jan 1st	Change QoQ
DAI	$0.2M	$0.05M	-$0.15M (-75%)
USDC	$0.1M	$0.09M	-$0.01M (-10%)
USDT	$0.03M	-	-$0.03M (-100%)
Total	$0.33M	$0.14M	-$0.19M (-57.58%)

Net Deposits on Optimism at Quarter End

	Oct 1st	Jan 1st	Change QoQ
Stablecoins	-	$0.15M	+$0.15M
ETH	-	$0.33M (280)	+$0.33M
Total	-	$0.48M	+0.48M

Gross Deposits Mainnet

	yvUSDC	yvDAI	yvUSDT	aUSDC	aDAI	aUSDT	vaUSDC	vaDAI
Q1	1.55M	4.08M	0.17M	-	-	-	-	-
Q2	6.42M	9.32M	0.13M	-	-	-	-	-
Q3	1.2M	12.9M	24,128	41,060	8,104	558	-	-
Q4	0.77M	9.06M	3,300	0	44,000	0	6	0

	wstETH	rETH	yvWETH	aWETH	vaETH
Q1	93.52	16.48	4,012	-	-
Q2	1,464	481	8,802	-	-
Q3	1.91	36.24	4,916	3,104	-
Q4	0	0	5,337	141	0.55

Gross Deposits Optimism

	aDAI	aUSDC	aUSDT	aWETH
Q4	182,000	35,000	193,000	352

Gross Deposits Fantom

	yvUSDC	yvDAI	yvUSDT
Q2	0.79M	0.69M	0.13M
Q3	67,545	5,085	961
Q4	211,000	3,200	129

In Q3 2022, there were more than 14.2 million in USD equivalents, and more than 8,000 in ETH and staked equivalents deposited into the v2 contracts. Approximately 690,000 DAI and 140 ETH of the deposits for the quarter are accounted for by funds migrated from v1 to v2 using the migration contracts. In

Q4 2022, there were more than 10.5 million in USD equivalents and more than 5,600 ETH and staked equivalents deposited into the v2 contracts. Approximately 8.5 million DAI and 1,822 ETH of the deposits for the quarter are accounted for by funds migrated from v1 to v2 using the migration contracts. Additionally, vaUSDC deposits were paused when it was discovered that a decimal point discrepancy between vaUSDC and USDC was causing some issues.

Number of Unique Depositors Mainnet

	Q1	Q2	Q3	Q4
alUSD Alchemist	65	238	100	205
alETH Alchemist	134	377	146	194

Tokens Minted Mainnet

	Q1	Q2	Q3	Q4
alUSD	2.8M	7.8M	1.3M	0.68M
alETH	1,828	5,468	3,473	1,784

Number of Unique Depositors Optimism

	Q4
alUSD Alchemist	38
alETH Alchemist	61

Tokens Minted Optimism

	Q4
alUSD	181,500
alETH	149

Number of Unique Depositors Fantom

	Q2	Q3	Q4
alUSD Alchemist	182	28	14

Tokens Minted Fantom

	Q2	Q3	Q4
alUSD	2,027,383	43,121	240,300

In Q3 2022, 128 unique addresses deposited into the v2 alUSD Alchemists across all networks, and 146 unique addresses deposited into the v2 alETH Alchemist. In Q4

2022, 257 unique addresses deposited into the v2 alUSD Alchemists across all networks, and 255 unique addresses deposited into the v2 alETH Alchemists across all networks. Only addresses that made a deposit in each respective quarter are counted here. Addresses that made deposits in previous quarters, but did not make any deposits while still carrying a balance in Q4 are not counted.

In Q3 2022, over 1.38 million alUSD debt tokens were minted across all networks, and over 3,400 alETH debt tokens were minted. In Q4 2022, over 1.1 million alUSD debt tokens were minted across all networks, and over 1,900 alETH were minted.

This quarter-over-quarter drop in user activity and issuance of alUSD and alETH debt is likely attributable to macro market conditions, whereby yields were generally very low, which likely lowered the value proposition of Alchemix's offerings for many users.

Withdrawals Mainnet

	yvUSDC	yvDAI	yvUSDT	aUSDC	aDAI	aUSDT	vaUSDC	vaDAI
Q1	75,285	4,118	509	-	-	-	-	-
Q2	4.9M	3.8M	0.1M	-	-	-	-	-
Q3	0.9M	12.9M	84,334	8,640	7,789	53	-	-
Q4	0.28M	3.1M	473	0	34,400	100	6	0

	wstETH	rETH	yvWETH	aWETH	vaETH
Q1	0.1	0.1	524	-	-
Q2	64	109	3,155	-	-
Q3	75	57	5,144	1,262	-
Q4	12.7	77	681	1,714	0.2

Withdrawals Optimism

	aDAI	aUSDC	aUSDT	aWETH
Q4	80,000	414	173,600	106.69

Withdrawals Fantom

	yvUSDC	yvDAI	yvUSDT
Q2	0.7M	0.4M	15,500
Q3	16,613	24,700	53,500
Q4	19,997	107,800	20,800

In Q3 2022, there were more than 13.8 million in USD equivalents and more than 6,500 in ETH and staked equivalents withdrawn from the v2 contracts across all networks. In Q4 2022, there were more than 3.8 million in USD equivalents and more than 2,500 in ETH and staked equivalents withdrawn from the v2 contracts across all networks.

Self-Liquidations Mainnet

	yvUSDC	yvDAI	yvUSDT	aUSDC	aDAI	aUSDT	vaUSDC	vaDAI
Q1	3,374	327	997	-	-	-	-	-
Q2	2.0M	2.3M	26,068	-	-	-	-	-
Q3	0.1M	0.3M	79,503	11	11	0	-	-
Q4	0.1M	1.0M	0	0	9,500	100	0	0

	wstETH	rETH	yvWETH	aWETH	vaETH
Q1	0	0	74	-	
Q2	22.39	0	982	-	
Q3	14.5	5.42	164.43	55.94	
Q4	0	6.93	463.94	56.17	0

Self-Liquidations Optimism

	aDAI	aUSDC	aUSDT	aWETH
Q4	39,000	384	0.01	10.18

Self-Liquidations Fantom

	yvUSDC	yvDAI	yvUSDT
Q2	453	84,657	7,698
Q3	2,316	8,405	20,991
Q4	3,167	55,800	14,500

In Q3 2022, users self-liquidated over 400,000 in USD equivalents, and over 240 ETH and staked equivalents from the v2 contracts across all networks. In Q4 2022, users self-liquidated over 1.2 million in USD equivalents, and over 530 ETH and staked equivalents from the v2 contracts across all networks.

Repayments Mainnet

	USDC	DAI	USDT	alUSD	ETH	alETH
Q1	110	56	466	1,500	0	82
Q2	0.5M	9,100	3,500	1.4M	685	478
Q3	1,195	66,500	0	0.5M	530.45	2,004.79
Q4	0	14,300	0	0.3M	20.02	936.6

Repayments Optimism

	USDC	DAI	USDT	alUSD	ETH	alETH
Q4	0	0	0	89,600	0.85	48.02

Repayments Fantom

	USDC	DAI	USDT	alUSD
Q2	1.2M	0.1M	443	0.3M
Q3	4,153	1,268	0	4,481
Q4	4,400	0.2M	0	52,500

In Q3 2022, users manually repaid over 500,000 in USD-equivalent debt, and over 2,500 in ETH-equivalent debt into the v2 contracts across all networks. In Q4 2022, users manually repaid over 660,000 in USD-equivalent debt, and over 1,000 in ETH-equivalent debt across all networks.

Transmuter Deposits Mainnet

	USDC	DAI	USDT	ETH
Q1	0.1M	2,316	73,317	1,258
Q2	7.7M	6.1M	0.1M	3,096
Q3	0.2M	8.4M	0.1M	4,256
Q4	2.4M	5.8M	34,800	3,172

Transmuter Deposits Optimism

	USDC	DAI	USDT	ETH
Q4	656	42,400	509	192

Transmuter Deposits Fantom

	USDC	DAI	USDT
Q2	0.3M	22,813	2,334
Q3	0.8M	1,387	6,500
Q4	0.5M	0.4M	47,700

In Q3 2022 over 9.5 million alUSD and over 4,200 alETH were deposited into the v2 Transmuters across all networks. In Q4 2022 over 9.2 million alUSD and over 3,300 alETH were deposited into the v2 Transmuters across all networks.

Transmuter Withdrawals Mainnet

	USDC	DAI	USDT	ETH
Q1	0.1M	1,324	71,852	1,240
Q2	5.0M	3.1M	81,005	2,553
Q3	0.2M	1.3M	39,300	979
Q4	2.3M	1.3M	34,800	3,172

Transmuter Withdrawals Optimism

	USDC	DAI	USDT	ETH
Q4	402	3,300	508	168.54

Transmuter Withdrawals Fantom

	USDC	DAI	USDT
Q2	0.3M	11,600	1,200
Q3	21,200	247	6,100
Q4	8,900	6,600	5,200

In Q3 2022, over 1.5 million alUSD and over 970 alETH were withdrawn from the v2 Transmuters before successful transmutation across all networks. In Q4 2022 over 3.6 million alUSD and over 3,300 alETH were withdrawn from the v2 Transmuters before successful transmutation across all networks.

Transmuter Claims Mainnet

	USDC	DAI	USDT	ETH
Q1	124	228	100	17
Q2	2.6M	2.3M	242	504
Q3	0.1M	7.6M	90,200	3,065
Q4	0.1M	4.2M	18,500	619

Transmuter Claims Optimism

	USDC	DAI	USDT	ETH
Q4	304	38,000	0	10.79

Transmuter Claims Fantom

	USDC	DAI	USDT
Q2	4,598	11,090	1,086
Q3	0.8M	1,144	312
Q4	0.5M	0.4M	42,500

In Q3 2022, over 8.5 million in USD equivalents and over 3,000 ETH were claimed from the v2 Transmuters across all networks. In Q4 2022, over 5.2 million in USD equivalents and over 620 ETH were claimed from the v2 Transmuters across all networks. Interestingly, of the 45 Transmuter claims that were made on Optimism, 36 were made by just 1 address, and of the 867 Transmuter claims that were made on Fantom, 842 were made by that same address. It is believed that this address was potentially automated to buy alAssets at a discount, depositing them into the Transmuters to claim 1:1, and then repeating the process.

Other Networks

The following section provides information for activity on other networks

Arbitrum Deployment

Alchemix launched a bridge for the Arbitrum Network. Arbitrum is an Ethereum Layer 2 (L2) solution. It is a form of an optimistic rollup. Read more about Arbitrum here. As of this writing, only a bridge has been deployed, but no strategies have been implemented. Reporting will begin once strategies are deployed.

Other Information

This section covers other non-numerical and/or interesting information, such as governance updates.

Governance

The following are Governance proposals that were voted on in Q4 2022:

- **AIP-66: Arrakis alUSD/alETH Univ3 Pool rewards.** This proposal was to incentivize a Uniswap v3 pool for alUSD and alETH using Arrakis.
  Read the proposal and discussion [here](#).
  The proposal passed with 95.03% of the vote. 15,000 ALCX voted for the proposal, 48 ALCX abstained, and 740 ALCX voted against.
  See the snapshot [here](#).
- **AIP-67: Historic Emissions Offset.** This proposal was to work with KlimaDAO to offset historic Alchemix-related emissions.
  Read the proposal and discussion [here](#).
  The proposal passed with 65.94% of the vote. 79,000 ALCX voted for the proposal, 38,000 ALCX abstained, and 2,400 ALCX voted against.
  See the snapshot [here](#).
- **AIP-68: Launch Yearn vaults and vault migrator on Optimism.** This proposal was to vote on the proposed configuration for implementing Yearn strategies and vault migrator on Optimism.
  Read the proposal and discussion [here](#).
  The proposal passed with 100% of the vote. 13,000 ALCX voted for the proposal, and 0 ALCX voted against.
  See the snapshot [here](#).
- **AIP-69: Alchemix x Idle - USDC Clearpool Senior PYTs Integration.** This proposal was for the launch of an Idle strategy for USDC Clearpool Senior Perpetual Yield Tranches (PYTs) .
  Read the proposal and discussion [here](#).
  The proposal passed with 94.98% of the vote. 4,800 ALCX voted for the proposal, and 252 ALCX voted against.
  See the snapshot [here](#).
- **AIP-70: Resume stETH Strategy.** This proposal was to re-enable the stETH strategy after it had been paused due to de-pegging.
  Read the proposal and discussion [here](#).
  The proposal passed with 99.33% of the vote. 63,000 ALCX voted for the proposal, 206 ALCX abstained, and 225 ALCX voted against.
  See the snapshot [here](#).

- **AIP-71: Migrate deposits from the temporary migration contract to v2.**
  This proposal was to migrate all funds that had not been migrated by users from the temporary migration contract to v2.
  Read the proposal and discussion here.
  The proposal passed with nearly 100% of the vote. 104,000 ALCX voted for the proposal, and 0.0073 ALCX voted against.
  See the snapshot here.
- **AIP-72a: Initiation of the alUSDFRAXBP AMO.** This proposal was to vote on the configuration for the launch of the alUSDFRAXBP Elixir/AMO.
  Read the proposal and discussion here.
  "Make alUSDFRAXBP the primary AMO" received 81.42% of the vote with 67,000 ALCX, "Split the AMO's 50/50 in size" received 17.51% of the vote with 14,000 ALCX, "Allocate the 11.6M DAI reserve to alUSDFRAXBP" received 0.88% of the vote with 730 ALCX, "Fraxchemical alUSD" received 0.12% of the vote with 97 ALCX, and "No alUSDFRAXBP AMO" received 0.07% of the vote with 55 ALCX.
  See the snapshot here.
- **AIP-72b: Addition of FRAX as alUSD collateral.** This proposal was to vote on the parameters for adding FRAX as a collateral for the alUSD Alchemist.
  Read the proposal and discussion here.
  The Aggressive configuration received 74.28% of the vote with 62,000 ALCX, the Moderate configuration received 18.4% of the vote with 15,000 ALCX, the Conservative configuration received 7.22% of the vote with 6,000 ALCX, and the No FRAX Collateral configuration received 0.1% of the vote with 84 ALCX.
  See the snapshot here.
- **AIP-73: Stake DAO Curve Incentive Platform Trial.** This proposal was to trial using Stake DAO's new incentivization platform.
  Read the proposal and discussion here.
  The proposal passed with 94.18% of the vote. 26,000 ALCX voted for the proposal, and 1,600 ALCX voted against.
  See the snapshot here.
- **AIP-74a: Optimism Grant Allocation for Vault Boosts.** This proposal was to set parameters for using half of Alchemix's Optimism grant to incentivize Alchemix vault deposits.
  Read the proposal and discussion here.
  50% yvWETH 25% yvDAI 25% yvUSDC received 98.01% of the vote with 56,000 ALCX, 33% yvETH 33% yvDAI 33% yvUSDC received 0.65% of the vote with 368 ALCX. The remaining options received a combined 1.35% of the vote with 766 ALCX.
  See the snapshot here.
- **AIP-74b: Optimism Grant Allocation for Liquidity Incentives.** This proposal was to set parameters for using the other half of Alchemix's Optimism grant to incentivize liquidity.
  Read the proposal and discussion here.

50% alETH 25% alUSD 25% MAI received 92.16% of the vote with 52,000 ALCX, 66% alETH 17% alUSD 17% MAI received 5.24% of the vote with 3,000 ALCX, and the remaining options received a combined 2.6% of the vote with 1,479 ALCX

See the snapshot here.

- **Ecosystem Grant: Unstoppable.** This proposal was to provide a grant to Unstoppable to help them build their product.

  Read the proposal and discussion here.

  "Do it Properly" received 76.7% percent of the vote with 76,000 ALCX, "Audit Only" received 23.16% of the vote with 23,000 ALCX, "Fund with Changes" received almost nearly 0% of the vote with 0.04 ALCX, and "Do not Fund" received 0.14% of the vote with 137 ALCX.
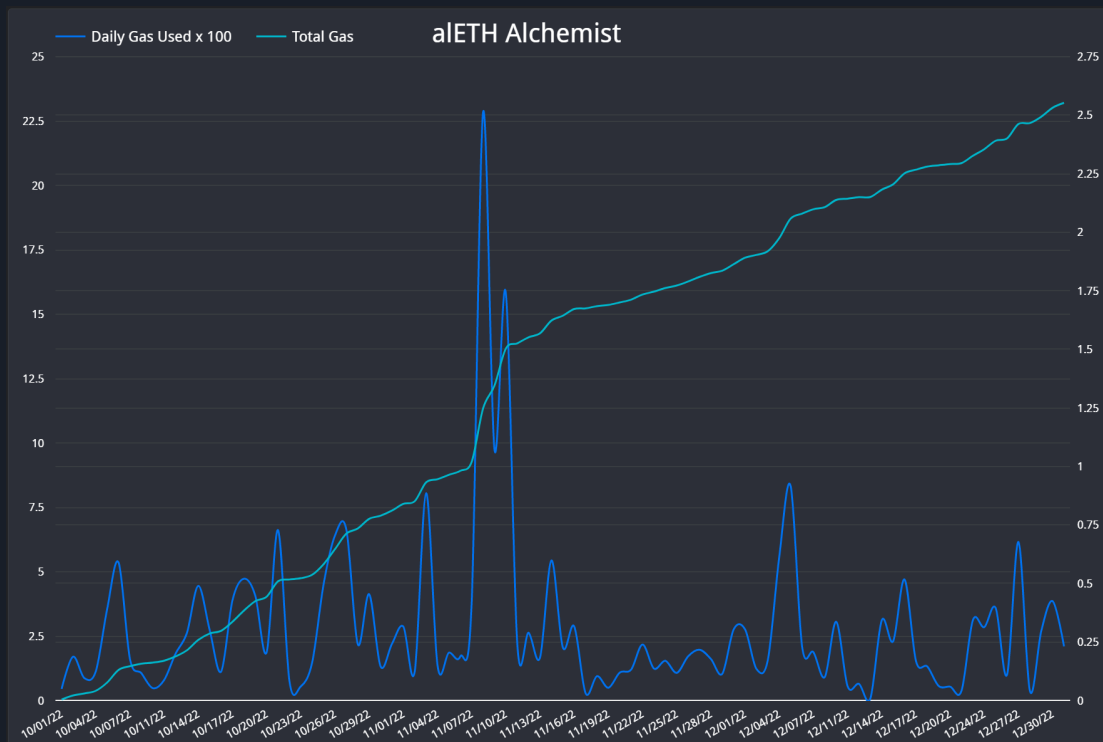
  See the snapshot here.

Other Stats

The following are some miscellaneous statistics:

- Gas: Between 1 October 2022 and 31 December 2022, on Mainnet, 2.84 ETH was spent on gas by users transacting with the alUSD Alchemist contract, and 2.55 ETH was spent on gas by users interacting with the alETH Alchemist contract.
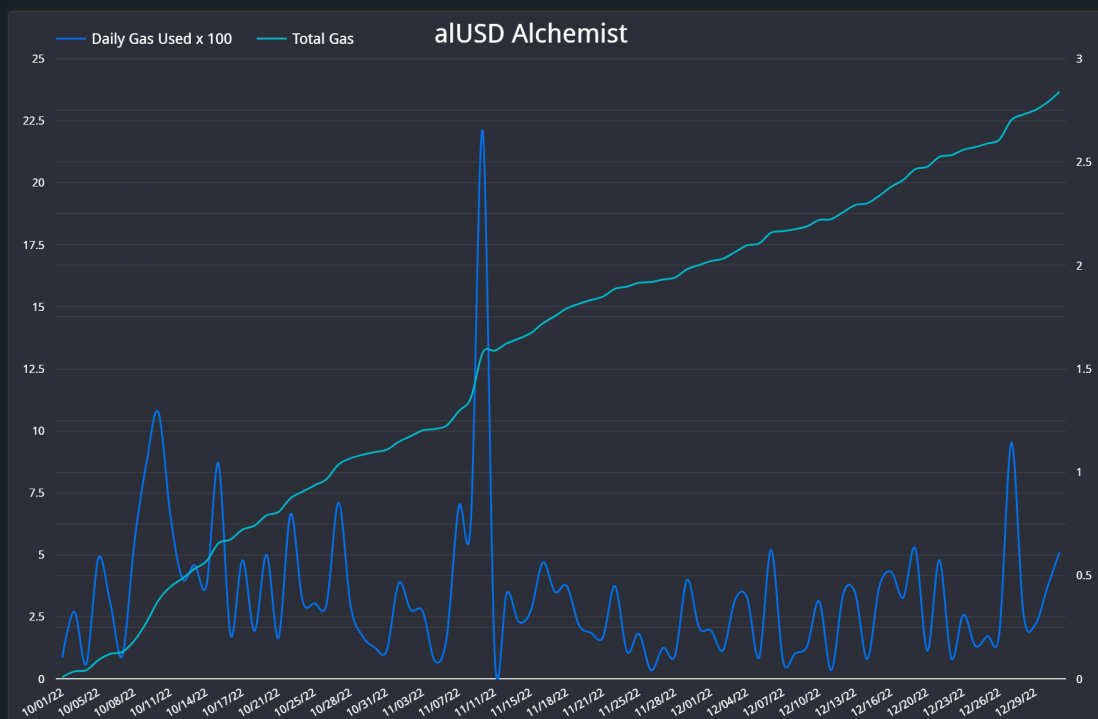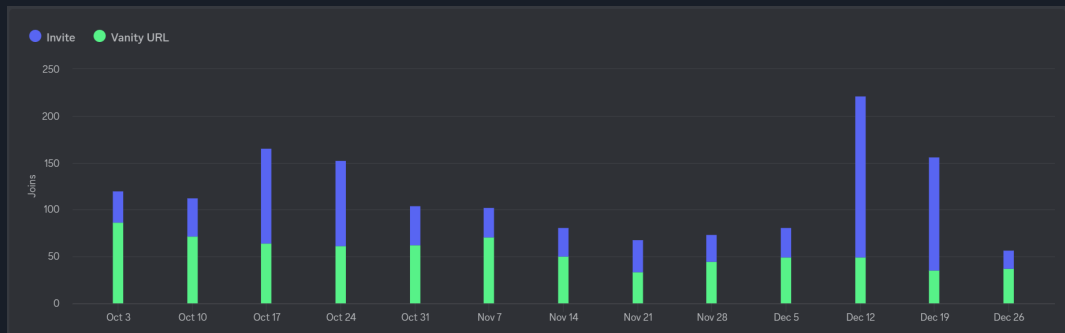
- Twitter: AlchemixFi went from 66,214 Twitter followers on 1 October 2022 to 65,828 Twitter followers on 31 December 2022.

- Discord: As of 31 December 2022, the Alchemix discord had 8,778 members. For the duration of the quarter, 18k messages were sent, and 3.7k minutes were spent on voice.[*]

  - Users who opted-out of analytics tracking will not show up in the discord data

This chart shows the different ways by which users have joined Alchemix's Discord server

- The numbers for some of this report's metrics are available for review here, here, and here.
- See Google Trends for Q4 2022 for Alchemix here.

Links

- Alchemix website
- Alchemix Newsletter
- Alchemix statistics
- Alchemix GitHub (includes contract addresses)
- Alchemix Development GitBook
- Alchemix user docs and quarterly financial reports