Lever Finance: An Ecosystem of Decentralized Autonomous Protocols for NFT DeFi

An Introduction of Lever Pools: Loan-Based Purchasing of NFTs

By: Dominic Cischke and Prathik Malireddy

Version 1.0
August 2022
leverfinance.xyz

Introduction

Lever Finance is an ecosystem of decentralized, autonomous protocols for leveraged financial transactions of non-fungible, blockchain-based assets. While the financial services available in the decentralized finance ecosystem are ever-growing, the leveraged purchasing of blockchain-based assets, particularly of non-fungible tokens, remains largely inaccessible at scale. Unlike other centralized lending alternatives, the Lever Finance protocol introduces loans for NFT purchases to the ecosystem in a decentralized manner where user assets are governed by auditable code and its community, not a central entity. Lever Finance aims to empower and expand the bounds of the DeFi ecosystem for NFTs by further developing the financial underpinnings for both the current and future states of NFTs.

The core product of Lever Finance is the “Lever Pool.” Lever Pools are pools of user-deposited funds (ether) which are allocated to loans for borrowers to purchase NFTs of the pool’s designated NFT collection with leverage according to parameters set by Lever Finance ecosystem community members via governance. Lever Pools grow in nominal ether value with regular interest payments from borrowers. The Lever Finance protocol autonomously maintains the outstanding loans of its Lever Pools with a liquidation mechanism used to protect the funds of its Lever Pools.

Upon helping to begin building the financial service infrastructure for NFT DeFi with the introduction of Lever Pools, the Lever Finance protocol will continue to introduce further financial services to the ecosystem under the guidance of its community through a decentralized governance model.

Loans and Blockchain-Based Assets

Loans are commonly used to purchase assets at scale in practically every industry from homes to art to couches, except for decentralized finance and particularly

for non-fungible tokens. NFT transactions have largely been forced to occur in a one time, full value manner of payment. There has been good reason to necessitate this in a young, growing ecosystem in which knowledge and trust of a counterparty are entirely removed for perhaps the first time in human history (to this degree). However, the mutual trust of network participants in the code governing transactions can be used to introduce complex financial services that are commonplace in traditional finance to this trustless ecosystem.

The availability of loans offers many benefits to all parties involved. Loans increase accessibility to costly assets, allowing those traditionally priced out from all-cash purchases to gain utility of the asset today and pay for the asset over time. The lowering of barriers to entry increases the total market demand, having a positive impact on asset valuation. Loans also allow buyers to make use of leverage to increase the scale of their asset ownership and to gain further asset diversification with the same initial capital outlay.

The Maker Protocol's important introduction of the ability to borrow against one's own blockchain-based assets showed that traditional financial services, considered by many to be absolutely necessary for a financial ecosystem, could be incorporated, and thrive, in a decentralized ecosystem. For many years, Maker's $DAI has held an important position in the Ethereum ecosystem: providing equal access to a decentralized stablecoin.

The availability of loans, at scale, to purchase assets is a core component of any mature financial system. It is time to introduce loans to the DeFi space for NFTs in a truly decentralized manner. Loans for NFT asset purchasing will bring the aforementioned benefits of loans to the ecosystem. As a result of the recent meteoric rise in the popularity of NFTs, many people have been entirely priced out of popular NFT collections or the large, one-time payment for NFT purchasing is too much capital for many others to allocate at once.

The introduction of loans will help to ease these issues and increase accessibility to NFTs by lowering the barriers to entry. By introducing loans to the ecosystem as part of a decentralized, autonomous protocol, the risks for current ecosystem issues such as poor centralized management and lender insolvency are avoided. Because of the protocol's inherent mechanisms and autonomous nature, all network participants willing and able to place the required minimum deposit can obtain equal accessibility to loans without compromising the safety of the protocol's assets.

Core Product: Lever Pools

Pool Mechanics

Lever Pools are established with a paired NFT collection. The primary function of a given Lever Pool is to take in user deposits and fund loans for NFT purchases of the designated collection. Lever Pools receive deposits of ether, serving as the single asset of a Lever Pool (besides its NFTs of outstanding loans). New Lever Pools are introduced to the protocol through governance by the protocol's community, ideally creating new Lever Pools for the NFT collections for which liquidity providers and borrowers have the greatest demand.

Similar to a liquidity pool, users depositing funds into Lever Pools receive Lever Pool tokens that represent their proportionate share of the pool. As the Lever Pool grows in size via loan interest and fee payments, so does the ether value of a liquidity provider's share of the pool, just like a liquidity pool does with liquidity provider fees.

In order to ensure availability liquidity for liquidity provider withdrawals, while also focusing on originating loans for the pool's designated collection, Lever Pools will have a minimum reserve requirement of 10%. A minimum reserve requirement prevents an additional loan from being originated if the new loan would cause the pool's available (ether) liquidity to be less than 10% of the pool's total asset value (liquidity and outstanding loans).

The minimum reserve requirement, and all other protocol parameters, can be adjusted via governance. Lever Pools do not all have to possess the same reserve requirement. For example, the community, in its creation of new Lever Pools and maintenance of existing Lever Pools, may find that the pools of more volatile and less prominent collections should maintain a higher reserve requirement.

Loan origination

Borrowers can initiate a loan from a Lever Pool assigned to their desired NFT collection, under the presence of satisfied protocol parameters. New loans cannot be initiated from a Lever Pool if the loan would cause the pool's liquidity to fall below its aforementioned minimum reserve requirement. Secondly, the desired asset must fall within an accepted range of the NFT collection's fair market value. Prospective borrowers can obtain loans for NFTs listed for sale up to 5% above the collection's calculated fair market value. Due to the volatility and undefined nature of value of many unique traits of popular NFT collections, a fair market value will be calculated for the

entire collection at this time to protect the assets of Lever Pools. The Collection Fair Market Value will be calculated as follows:

Collection Fair Market Value = 0.6*min(Floor Price, Sale Price) + 0.4*max(Floor Price, Sale Price)

Two important components will be considered in the initial valuation of collections: active listings and recent sales. The floor price of active listings on major marketplaces will be collected as a 48 hour moving average in order to calculate the Floor Price component of the Collection Fair Market Valuation. More recent floor price values will receive higher weighting. Recent sales will be used to calculate the Sale Price component of the Collection Fair Market Valuation. The Sale Price component will be calculated as the average sale price of *qualifying sales* within the last 48 hours across major marketplaces.

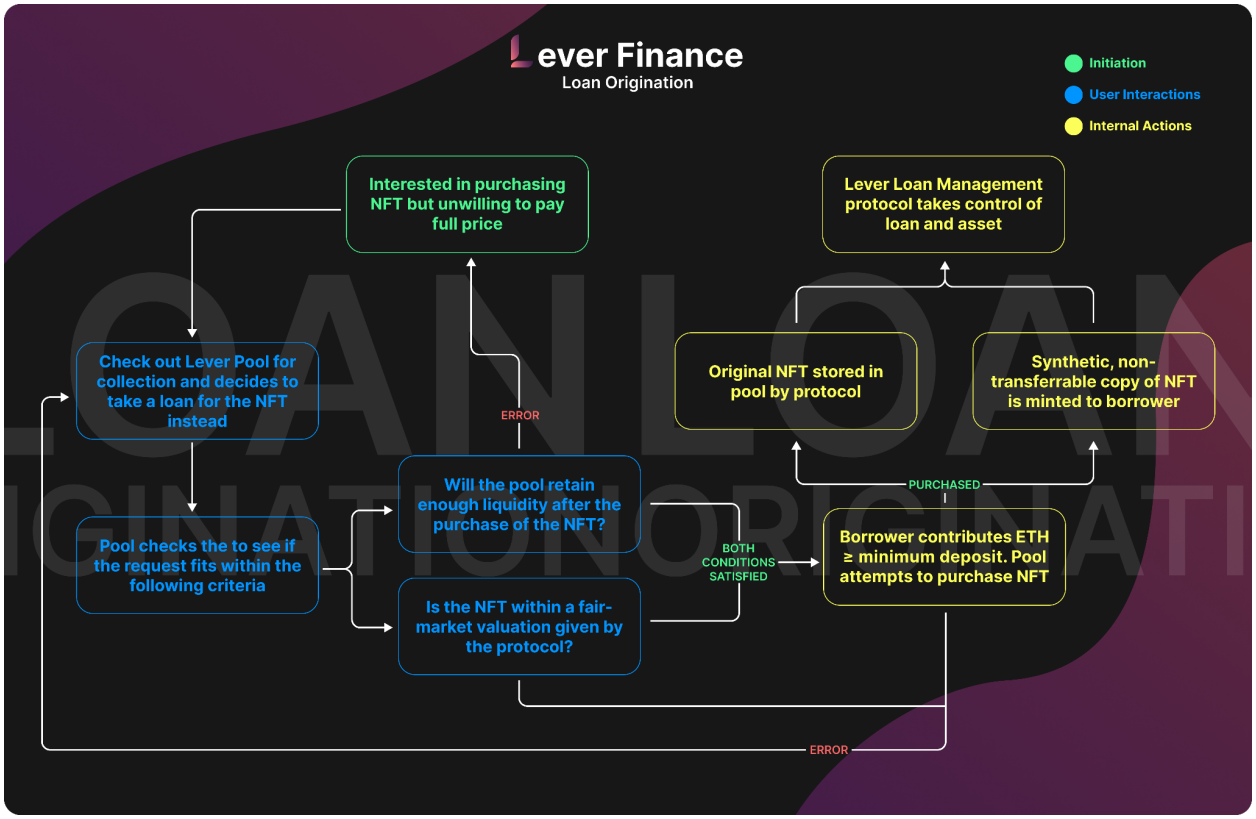
As a protective measure to the integrity and accuracy of Collection Fair Market Value calculations, qualifying recent sales ±15% of the Floor Price calculation at the time of sale will be considered outliers and will be disregarded in the calculation of the Sale Price component of the collection fair market value. “Qualifying” recent sales are recent sales that occur within the ±15% range. In the case that there are not at least 5 qualifying recent sales in the past 48 hours, the Floor Price calculation will be used in full weight for the calculation of the Collection Fair Market Value due to the lack of sufficient data points for qualifying recent sales.

In a future time of a more established ecosystem, governance by the community could decide to alter the valuation mechanism of NFT collections to factor in unique traits of certain assets.

If the selected NFT of the prospective borrower satisfies all protocol parameters for loan origination, the protocol will take in at least the required minimum deposit of the Lever Pool governing the collection from the prospective borrower (which can vary depending on the prominence and stability of the collection in its determination through governance).

The protocol will purchase the desired NFT, using a combination of pool liquidity and borrower contribution, and will take safe ownership of the asset. Once purchased, the protocol will mint a synthetic, non-transferrable NFT asset of the purchased NFT to allow the borrower to reap the full utility of the asset without having ownership of the original asset, for the term of the loan. The synthetic asset will be minted to the official Lever Finance collection and will reflect the attributes of the purchased NFT.

Adoption of the synthetic NFTs into the collection ecosystem will be managed by those in charge of the collection's operations. Collections are incentivized to incorporate Lever Finance loans to purchase their assets to reap the aforementioned benefits of loans for the collection itself, current owners of the collection's NFTs, and prospective buyers of the collection's NFT. While the loan is active, the protocol will maintain safe possession of the "real" NFT. The NFT will be forwarded to the borrower upon successful loan repayment.



Loan management: Payments and Borrower Actions

Borrowers are responsible for paying back the loan principal on an agreed upon schedule at the time of loan origination, along with any applicable interest and fees to be stated at the time of origination. The funds in addition to the principal amount help to grow the ether holdings of the Lever Pool and incentivize liquidity providers to deposit ether. Borrowers must maintain the predetermined loan payment schedule and the collateral status of their loan, or they will face liquidation (described below). While borrowers must make (at least) minimum payments on a predetermined schedule, early payments can be made to decrease total interest paid and to improve the collateral status of their loan. Interest is assessed on the current outstanding loan balance at a Lever Pool-specific rate displayed at the time of loan origination. Borrowers will be

responsible for covering the gas fees associated with transactions of their loan such as purchasing the desired NFT and minting the synthetic NFT.

Section on automatic, approved payments. Can opt into both or a select few of the automated payment triggers. Scheduled payments to avoid default and additional payments to avoid liquidation due to insufficient collateralization (see section below).

Upon full repayment of the loan and any applicable interest or fees, the synthetic NFT will be burned and the originally purchased NFT, held by the protocol, will be transferred to the borrower, concluding the loan.

Borrowers may also decide to sell the NFT during the term of the loan. In this case, the borrower will initiate a sale of the NFT with the protocol. The NFT will be listed on the borrower-selected marketplace from a list of compatible marketplace options with a borrower-selected price, provided the net proceeds of the chosen listing price is greater than what is owed to the protocol. Upon the successful sale of the NFT, the Lever Pool will receive the remaining principal balance and any accrued interest and fees at the time of the sale. The synthetic NFT will be burned and the borrower will receive the remaining funds, concluding the loan.

Loan Management: Liquidation

The Lever Finance protocol protects the funds of its pools through a novel liquidation solution. There are two scenarios for which the protocol may initiate the liquidation of a loan under its autonomous management of outstanding loans: borrower default and insufficient collateralizalization.

If a borrower fails to make a required payment per the loan terms outlined at origination, the loan will go into default and liquidation will be initiated. The NFT held by the protocol will be liquidated immediately, being sold on a compatible NFT marketplace to recoup the funds of the Lever Pool. Upon sale of the NFT, the Lever Pool will receive the remaining principal balance and any accrued interest and fees at the time of the sale. The synthetic NFT will be burned at this point and the borrower will receive any remaining funds, concluding the loan.

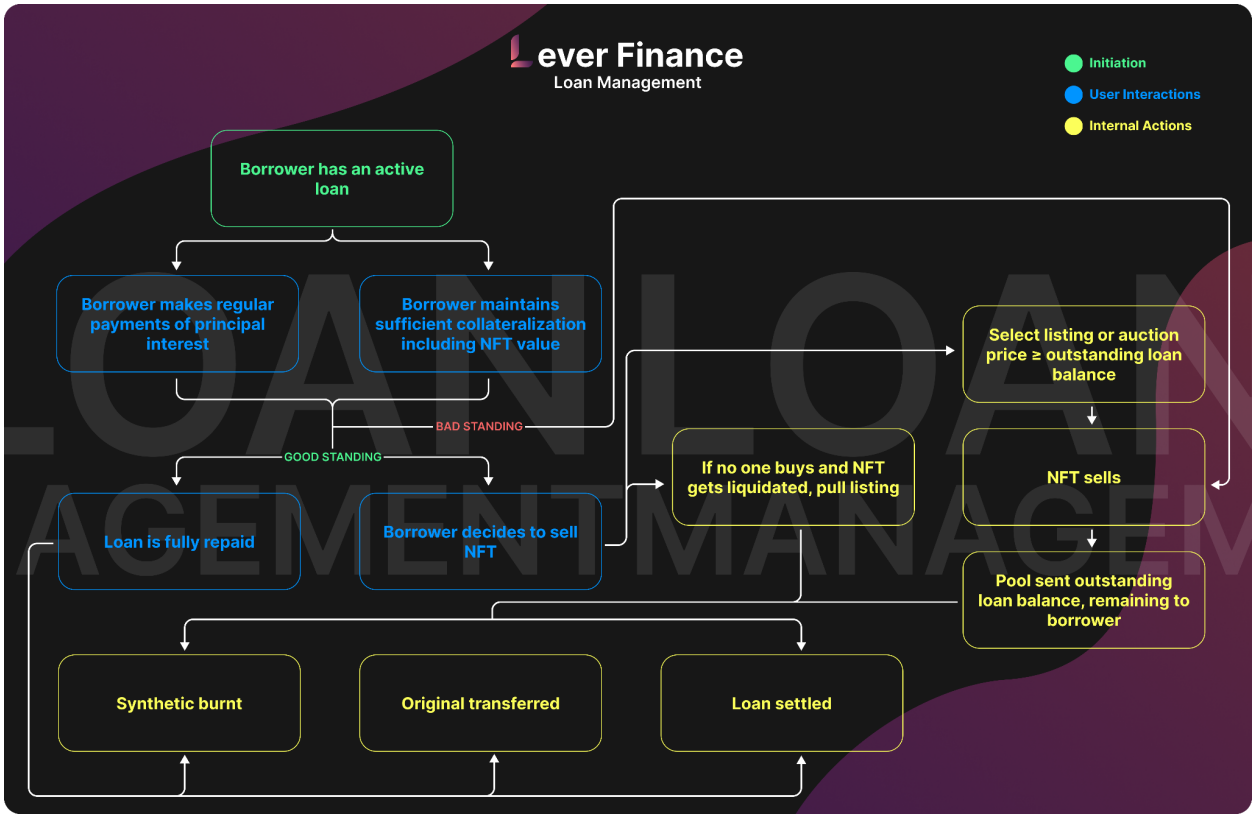
Liquidation can also be initiated due to insufficient collateralization. Similar to the Maker Protocol, if the loan's Collateralization Factor falls below 125%, then the loan will be considered by the protocol to be of heavily increased risk and will subsequently initiate liquidation. The Collateralization Factor is measured as the ratio between the current calculated Collection Fair Market Value and the outstanding loan principal balance plus any accrued interest and fees. Borrowers are strongly encouraged to

maintain a greater Collateralization Factor to ensure that rapid, sharp movements in the collection's assets on marketplaces do not initiate liquidation of their NFTs under loan.

Just as with the minimum pool reserve requirement and the minimum deposit requirement, the community can set different required minimum collateralization levels for different Lever Pools of the protocol as the volatility and of available collections can vary greatly. Also similar to the Maker Protocol, borrowers can contribute ether to their outstanding loan balance, effectively making early payments, to maintain sufficient collateralization if the value of the collateral (the fair market value of the NFT in question, as described above under *Loan Origination*) is falling towards the liquidation level.

The liquidation solution includes a variety of actions to prevent any operational bottlenecks. Two automated actions can occur for liquidation: attempt to accept a collection-wide offer on the Lever Finance marketplace or compatible secondary marketplaces (CSM) or attempt to sell the NFT via Dutch auction on CSM. Liquidation aims to sell the asset at the highest possible price as soon as possible to protect the funds of the protocol's Lever Pools.

For immediate asset liquidation to successfully occur, only one condition must be met prior to the liquidation trigger: the asset must have an existing offer on either the Lever Finance marketplace, or some other compatible marketplace for a post-sale value at or above the remaining balance on the loan. If the asset fails to sell at or above the outstanding loan balance (principal + interest), a dutch auction approach will be initiated starting at the calculated fair asset value and it will be allowed to fall below the outstanding loan balance to recover any and all funds possible. The auction will be terminated if the price falls to the highest outstanding collection-wide offer and the asset will be sold at that price.



Governance

The direction and facets of the decentralized and autonomous Lever Finance protocol will be controlled by its community via governance. Governance proposals and community voting will handle all important decisions regarding the protocol from new NFT collections to introduce new Lever Pools to adjusting loan terms and pool reserve requirements to new financial services offered under the Lever Finance protocol.

In making sure that the protocol's community has governing power over the protocol's decision making process, a large majority of governance tokens will be allocated to those using the platform: both liquidity providers and borrowers.

Governance Process

All changes and improvements made to the Lever Finance Protocol will follow a governance process initiated and passed by the community. Two proposal types are used to govern the Lever Finance Protocol: the Lever Finance Protocol Improvement Proposal (PIP) and the Lever Finance Protocol Update Proposal (PUP).

A Lever Finance Protocol Improvement Proposal is used to alter protocol-wide features and parameters. Lever Finance PIPs govern the most impactful decisions

regarding the Lever Finance protocol. Examples of decisions that fall under a PIP include protocol-wide loan parameter changes impacting all Lever Pools and the addition of new products to the protocol. A Lever Finance PIP begins with a community member putting forth an official proposed change to the protocol. Once the official PIP is posted to the Lever Finance Governance Platform, a deliberation period of 5 days for community discussion of the proposed change will occur. A 2 day voting period will then immediately follow the deliberation period for governance token holders to cast their vote in favor or against the PIP.

A Lever Finance Protocol Update Proposal follows a similar, but simplified process. A Lever Finance PUP is used to alter existing, exact product offerings. While a PIP governs decisions affecting all pools, a PUP governs decisions that impact one pool such as a decision to increase the required minimum deposit percentage for the loans of a specific Lever Pool. A Lever Finance PUP also begins with a community member putting forth an official proposed change to (a specific aspect of) the protocol. Once the official PUP is posted to the Lever Finance Governance Platform, a 2 day deliberation period will occur. A 1 day voting period will then immediately follow the deliberation period.

All Lever Finance governance tokens will be assigned an equal weight of 1 for voting purposes. A snapshot of governance token ownership will be taken as the voting period begins to determine the voting power of an address for the PIP or PUP at hand.

In the event of emergencies that place the protocol and/or its assets in imminent danger, core contributors can take immediate actions as necessary to protect the protocol and its assets. Emergency actions require multisignature approval from core contributors to take emergency actions. Within 24 hours of action taken, an emergency report will be published that outlines the emergency addressed, actions taken, and the next steps moving forward.

Governance Token Allocation Approach

The governance tokens used to direct the future of the Lever Finance protocol will be distributed to a variety of protocol stakeholders. Firstly, governance tokens will be allocated for a seed investment round. The funds received from the seed investment round will be used for the auditing of all smart contracts prior to being deployed on mainnet, smart contract deployment transaction fees, and other necessary costs to launch the public beta. Additional funds from the seed investment round will be put toward the protocol development fund and liquidity bootstrapping. A separate allocation will also be established for the protocol development fund and liquidity bootstrapping of

both the governance token liquidity pool and Lever Pools. Funds allocated for the protocol development fund and liquidity bootstrapping will be under full control of the Lever Finance community via governance.

Governance tokens will also be allocated to the founding team to tie team compensation to the success of the protocol. A majority of all governance tokens will be allocated to the users of the protocol: both those providing liquidity to Lever Pools and those utilizing Lever Pools to purchase NFTs. It is an important, fundamental tenant that the direction of the Lever Finance protocol is controlled by its community.

Governance Token Tokenomics

There will be a maximum supply of 100 million Lever Finance governance tokens. Beyond governance of the protocol, governance token owners are incentivized with a share of interest payments made to the protocol's Lever Pools. 15% of interest payments made to Lever Pools will be allocated to the Lever Finance protocol, with the remaining share of the interest payments remaining in the given Lever Pool and growing its ether holdings to originate more loans. 5% of the interest payments (1/3 of the 15% of interest given to the protocol) will go to the Lever Finance Treasury which is managed by the community through governance. Treasury funds can be authorized towards the Lever Finance Protocol Development fund as funds for the core contributors to use for necessary payments for the protocol to operate such as gas fees for implementing new Lever Pools and processing protocol-level transactions as well as funds for continued development of the protocol's product offerings.

The remaining 10% of interest payments will be dedicated for rewarding the owners of the protocol's governance token. Given the current and short to mid-term foreseeable costs of transacting in mass on the Ethereum network, the governance token share of interest payments will be initially used to purchase, at random times performed autonomously by the protocol, governance tokens from decentralized exchange(s) and permanently burn the tokens from circulation. The community can vote to change the distribution mechanism of the governance token interest share via governance at a later date.

Conclusion and Thinking Forward

The technology of the Lever Finance protocol, both of Lever Pools and future products, is built to serve all instances of non-fungible tokens. As the blockchain space expands to serve more industries, it is crucial to possess the traditional financial infrastructure that others are accustomed to. By laying the necessary groundwork in terms of financial infrastructure now, Lever Finance is positioned to serve future

newcomers to the blockchain space and to drive adoption by decreasing barriers to entry and increasing familiarity in a space that can sometimes appear complex and unapproachable to outsiders.

Once necessary financial services are available to blockchain users, more complex services can be built by utilizing existing infrastructure and the data generated by these services. One example of a service that can be created from this fundamental infrastructure are wallet address credit histories. With loans being originated and regular payments being made by borrowers all on chain, blockchain-based credit histories for pseudonymous public keys can be generated and assigned utility. Users that have proven to be good actors in the past can gain access to special product offerings by the Lever Finance protocol and other decentralized applications that can benefit from knowing a user was, at least, a good actor in the past. With adequate safety measures put in place such as those that protect the assets of Lever Pools, users can be rewarded for good behavior without introducing additional attack vectors to protocols.

The decentralized and autonomous Lever Finance protocol, governed by its users, exists to serve a simple purpose: empower and expand the bounds of the DeFi ecosystem for NFTs. The first step toward realizing this purpose is the introduction of the Lever Pools product which brings decentralized, at-scale loans to NFTs for the purchasing of assets. Lever Pools are designed to offer loans to users looking to gain a buy-in to NFTs at a lower price point and to offer a place for other users to provide liquidity toward loans for their favorite NFT collection(s).

The decentralized and autonomous nature of the Lever Finance protocol works to distance the protocol's future from the recent woes of many centralized cryptocurrency lenders. The ideal state for Lever Pools are pools originating loans for community-championed assets in a way that the pool's ether balance will never decrease, apart from liquidity provider withdrawals. While easier said than done, inherent mechanisms of the protocol such as the novel liquidation mechanism designed to protect Lever Pool assets in instances of default or insufficient collateralization, modeled after the long-time successful Maker Protocol, are core components of the protocol working toward this state.