

# ChumHum

The Money Market &

Synthetic Stablecoin Protocol

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## ABSTRACT:

ChumHum Protocol (“ChumHum”) is an algorithmic-based money market system designed with an intent of enabling a complete decentralized finance-based lending and credit system. ChumHum helps users make efficient use of their cryptocurrencies by supplying collateral to the network which can be borrowed by pledging over-collateralized cryptocurrencies. This helps in creating a secure lending ecosystem where the lender receives a compounded interest rate annually (APY) which is paid per block, while the borrower pays interest on the cryptocurrency borrowed. The interest rates are defined by the protocol using a curve yield, where the rates are automated based on the demand of the specific market, such as Bitcoin. The main difference of ChumHum from other money market protocols lies in the ability to use the collateral supplied to the market to not only borrow other assets but also to mint synthetic stablecoins with over-collateralized positions that helps in protecting the protocol. These synthetic stablecoins are just backed by a basket of fiat currencies but also by a basket of cryptocurrencies.

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# Introduction

The ChumHum Protocol is designed for a complete algorithmic money market protocol. The protocol designs are architected and forked based on Compound and MakerDAO and synced into the ChumHum platform, thus incorporating the advantages of both systems into one.

## Problem Statement

The evolution of decentralized finance has led to a diverse financial environment, built directly on blockchains, which are transparent/verifiable through cryptography and pre-defined coding, also known as smart contracts. These platforms are redefining the very structure of money markets without any requirement for a central authority or third-party decision-makers. In today's traditional world, users would be needed to provide credit-worthiness, provable income, and other factors to the lenders even when the user provides collaterals such as homes or cars. Traditional lenders do not allow digital assets and cryptocurrencies to be pledged and used to receive loans or earn interest rates for providing them to the banks and lenders.

ChumHum is not the only protocol to help bridge the gaps between traditional financial lending into decentralized protocols on top of blockchains. There have been other protocols as well that achieved this with billions in assets locked into the protocols. However, these protocols are mainly built on Ethereum, which is costly, slow, and thus has affected the user experience. These protocols also lack higher market cap assets to back them up such as XRP and Litecoin.

The current protocols such as Compound are also heavily centralized, where stakeholders and private equity funds seem to be in control of most of the decision-making and do not have a variety of other control mechanisms. Their distribution plan does not equate to decentralization.

Lastly, in today's landscape, a user who wishes to use their assets to mint stablecoins must remove it from a money market protocol and lock it up in a smart contract with absolutely no benefit of the underlying collateral asset.

## Solution

To create a protocol that allows a traditional money market tied into synthetic stablecoin generation will lead to benefits and allow accessibility of locked collateral. ChumHum will enable everyone to make use of a high-speed and low transaction cost blockchain by leveraging different Blockchains, earn interest on that collateral, borrow against that collateral, and mint stablecoins on-demand within seconds. All these solutions happen directly on the blockchain and may be utilized using a GUI. This protocol unlocks billions of dollars in value which are currently on-chains and have no lending markets such as Bitcoin, XRP, Litecoin, and more; while allowing the participant to access liquidity in real-time.

## Use Cases

Let's say that Miriam wants to buy her new dream house, but the bankers have declined her application. Miriam has been a cryptocurrency advocate for many years and has a good portfolio, but doesn't want to expose herself to capital gains tax by selling the assets and not earn any worthwhile appreciation. Then again, Miriam believes in the underlying technology of cryptocurrencies as she cannot but believe in the mid and long-term growth of the asset class. So what does Miriam do? She can't use her bank to borrow money from her asset class. She can't sell at the moment and expose herself to taxes and missing opportunities.

Miriam turns to the ChumHum Protocol by utilizing the token canal project to move her XRP from the XRP Ledger to the Blockchain where ChumHum is based. She then utilizes her browser and the internet to access the ChumHum Dashboard and supplies her XRP to the protocol. She is now benefiting from the potential price appreciation of her XRP while earning a modest APY on her supply. She then prepares to take a loan in USDC by calculating how much she needs, then utilizing the dashboard to take the loan. Without any bankers or third parties in between, the protocol will calculate her collateral value and then let her take an over-collateralized loan on it. She borrows USDC instantly and uses her crypto exchange account to convert it into local fiat currency. Now Miriam has enough corpus to buy her dream house while waiting for the markets. She is not obliged to any monthly payments, and her collateral appreciation can be used in her favor. She can also make payments at any time and pay no additional interest as interest rates are compounded per block.

Lastly, Miriam has been paying a great deal of attention to DeFi and all the new yield farming high APY returns that she could be earning. These potential earnings could be short-lived but are real for the time being. How does Miriam gain from this? Does she want to jump through hurdles to get some of her collateral out to mint a stablecoin in another protocol? The answer in short is, "No". Miriam needs a one-stop-shop solution so that she can participate in yield farming quickly. Within the dashboard or the smart contracts, she can easily mint stablecoins without any interference from central authority. She can use those newly minted stablecoins onto the latest DeFi yield farming project with ease.

# ChumHum

The Money Market & Synthetic Stablecoin platform.

## Key Features:

- Borrow cryptocurrencies and stablecoins without any credit check and fast origination directly
- Supply cryptocurrencies and stablecoins to earn a variable APY for providing liquidity to the protocol that is secured by over-collateralized assets.
- Mint stablecoins from your supplied collateral which can be used at over 60 million locations worldwide through the JustLiquidity platform and more.
- Controlled by the ChumHum Token, a governance token that is designed to be fair in launch distribution for the community.

## Supplying Assets

The users of ChumHum Protocol may supply various supported cryptocurrencies or digital assets onto the platform, which can be used as collateral for loans, supply liquidity and earn an APY, or to mint synthetic stablecoins.

Supplying assets such as cryptocurrencies or digital assets to ChumHum enables the users to participate as a lender while maintaining the security of collateral in the protocol. Users will earn a variable-based interest rate depending on the yield curve utilization of that specific market. All user assets are pooled into smart contracts so that users can withdraw their supply at any given time, given that the protocol balance is positive.

Users who supply their cryptocurrency or digital asset to ChumHum will receive a vToken, such as vBTC, which is the only token that can be used to redeem the underlying collateral supplied. This will enable users to use these tokens to hedge against other assets or move them into cold storage wallets.

## Borrowing Assets

Users who want to borrow any of the supported cryptocurrencies, stablecoins, or digital assets from ChumHum, must pledge their collateral which will be in turn locked on the protocol. These assets must be over collateralized and will enable up to 75% of that collateral value borrowed. These collateral ratios are determined by the protocol and are controlled through the Governance process, which is documented in this Whitepaper.

Once the assets are supplied, you can borrow based on the collateral ratio of the asset. Generally, collateral ratios are set anywhere from 40% to 75%. For example, if Bitcoin has a collateral value of 75%, that means you can borrow up to 75% of the value of your BTC. If the user has \$100,000 in BTC supplied to the ChumHum protocol, that means they can borrow up to 75% of the value. However, if a user's collateral value drops below 75%, or whichever collateral ratio percentage that a certain asset has, it could cause a Liquidation event, which will be discussed later.

Users will have a compound interest rate which will be applied per block on these assets and thus will have no monthly payment obligations. To return the collateral, the user needs to pay off their origination balance and compounded interest back to the protocol.

Market interest rates are determined by the specific yield curve which is designated in the contract. Based on the market utilization, it will determine what the interest rate will be for that specified market.

## Synthetic Stablecoins

To begin with, The ChumHum Protocol, will enable users to mint BUM (BUM), a synthetic stablecoin based on the price of \$1 USD, by utilizing the vTokens from the underlying collateral that they have previously supplied to the protocol. Users can borrow all the way up to 50% of the remaining collateral value they have on the protocol using their vTokens to mint BUM.

Stablecoins on the ChumHum Protocol can be synthetically designed through Governance and with an added proposal. BUM will be the protocol's default stablecoin that can be minted by collateral already pledged in ChumHum.

These stablecoins will not have yielded curves that determine their interest rates, which are known in other protocols as stability fees. Interest rates shall be determined by the Governance process within the ChumHum Protocol.

### Pricing Mechanisms

Since there are no underlying fiat reserves that guarantee the value of the synthetic stablecoin on the ChumHum Protocol, it relies on market forces, the basket of collateral, and safety mechanisms to maintain its peg to the fiat currency. It is basically designed to synthesize. As an example, BUM will originally maintain a peg of 1:1 per BUM:USD.

The market is encouraged to maintain this peg so that the programmatic mechanisms designed to protect the peg shall not be initiated by the protocol.

If there comes a point where BUM or another synthetic stablecoin loses its peg value, the protocol will use the Governance process to initiate the Price Adjustment Module. This module will enable the change of parameters within the stablecoin system on ChumHum to disattach the peg; create a change in supply and demand; and to bring back the original stability.

This system will allow two main points. A benefit to hold/buy a synthetic stablecoin, or mint/borrow a synthetic stablecoin. This is decided based on whether the price peg has become positive or negative due to external market conditions.

### Stablecoin Parameters

Users who have the protocol's native tokens can create proposals to change specific parameters of the synthetic stablecoins on the platform by using the on-chain Governance system. These parameters are built up from a protocol-risk perspective to protect the growing interest of the users and the platform. The parameters that users can control are the following:



- **Max Supply:** This determines the maximum number of synthetic stablecoins units that can be minted at any given point to determine the synthetic stablecoins' maximum supply.
- **Interest Rate:** The interest rate parameter controls how much in interest fees the user pays for minting these synthetic stablecoins. These interest rates go directly into the Reserve Factor community funds.
- **Collateral Ratio:** Each synthetic stablecoin will have a liquidation price. These liquidation prices are controlled by the Collateral ratio for each synthetic stablecoin.
- **Penalty Ratio:** If a liquidation occurs, there will be a penalty percentage that you must pay the protocol. This penalty ratio is set by the protocol.

## Stablecoin Redemption

Synthetic stablecoins on the ChumHum Protocol are created by supplying and locking a single or basket of cryptocurrencies. Users can redeem vUSD for other assets by trading with them in the JustLiquidity Wallet platform. vUSD is exchangeable to all supporting assets.

## ChumHum Token (CHUM)

The ChumHum Protocol is governed by the ChumHum Token (CHUM), which is designed to be a "fair launch" cryptocurrency. The Protocol has no upfront founder, team, or developer allocations, and CHUM can only be earned through the Airdrop or through providing liquidity to the protocol.

There will be an initial 20% of the total supply of 122,500,000 (24,500,000 CHUM) allocated to the JustLiquidity/JulSwap Airdrop for all JUL(JULb) and JulD Holders and Stakers. The remaining Airdrop Amount is used only for Exchange Listings, Market Making and Marketing. The remainder of the supply will be exclusively available for the protocol and Team, which will result in 98,000,000 CHUM mined over a period of approximately 3.8 years; which begins after the protocol launch at a rate of 1.2 CHUM per block (43,200 blocks per day). The distribution of CHUM is based on liquidity mining, where 30% of the daily rewards get distributed to borrowers, 30% to suppliers, 30% for stablecoin minters and 10% for the Team.

## vTokens

The protocol-created pegged assets when collateral is supplied are called vTokens. vTokens represent the unit of the collateral supplied and can be used as a redemption tool. vTokens are created and implemented by Governance processes and voted by ChumHum Token holders.

# Protocol Architecture

The protocol has been developed as a fork codebase of MakerDAO and Compound and it is modified to enable both features into one.

## Controller Contract

The Controller smart contract deployed on the Blockchain is the decentralized version of a processor. This smart-contract creates all the interactions between other associated smart contracts. ChumHum does not natively support tokens by default. It will rely on specific markets to be whitelisted within the Controller contract. The protocol has access to whitelist markets by employing the admin function: `supportMarket` with parameters for address and interest rate models. For an asset to have a functional marketplace, there must be a valid price feed from the Value Oracles alongside a Collateral Factor. Every interaction with the protocol will be validated and verified through the Controller smart contract, which validates liquidity and collateral before a function is executed.

## Collateral Value

When a user borrows, supplies, or mints from the ChumHum protocol, they are using an underlying asset to the first bond to vTokens. These underlying assets held as collateral in the platform have dollar values that are tied to the vTokens as well. For this system to function properly, collateral values are extracted from market rates. To fetch these market rates efficiently, we will be utilizing Band Oracles to grab market prices and update the protocol on-chain.

## Value Oracles

Collateral Values are propagated from price feed Oracles, such as Chainlink, which pull market price data and dispatches these values on-chain, so they are transparent and verifiable. Due to the fast speed and robust architecture of different Blockchains, these price feeds are easily ascertainable at a low cost and high efficiency directly on-chain. Currently, there is a challenge of bottleneck issues from oracles, such as Chainlink, which are provided on Ethereum. With rising gas fees and congestion, these pricing oracles are not updating prices as efficiently or economically.

## Governance

ChumHum has been designed to enable community control in its core. Since there are no pre-mines for the team, developers and founders, this means the protocol will be controlled by those who decide to mine ChumHum Tokens. To create a proposal, a proposer must have 1,000,000 CHUM and the proposal must reach a minimum of 2,000,000 CHUM quorum to be approved..

Governance features include:

- Adding new cryptocurrencies or stablecoins to the protocol
- Adjusting variable interest rates for all markets
- Setting fixed interest rates for synthetic stablecoins
- Voting on protocol improvements/proposals
- Delegate protocol reserve distribution schedule

## Liquidations

A user's collateral can be liquidated if it falls below the thresholds needed to borrow or to the stablecoin side of a specific coin market. These liquidations are subjected to a liquidation fee in order to satisfy the outstanding debt. The remaining collateral, if any, is then returned to the user. A liquidator can stand to benefit from liquidating a collateralized position.

## Interest Rates

The protocol has interest rates that are determined per market from both the borrowing side and the supplying side. Interest rates are also applicable for synthetic stablecoins that are created on the ChumHum protocol such as vUSD.

The interest rates provided for markets that can be borrowed or supplied are dynamic and have a yield curve that varies based upon the utilizations. These interest rates are also set from a floor to ceiling basis on the Governance process of the protocol.

For synthetic stablecoins, the interest rates to mint these are fixed. There is no variable interest rate design in these interest rates. However, through the Governance process, users are able to control.

## Reserve Factors

Each vToken contract and underlying collateral will have a reserve factor from a basis of 0-90%. This means there will be reserves that the protocol captures between the spreads of borrowing and supplying. These reserve factors are added to the protocol and can be used for community development, improvements, safety, and more. These Reserve Factor funds are controlled by the Governance process and can also be utilized in a variety of protocol security distributions or reward mechanisms.

## Conclusion

The ChumHum Protocol has been designed to provide platform users a decentralized and secure marketplace to avail loans, earn interest, and mint synthetic stablecoins. The protocol runs entirely on the Blockchain, which removes current challenges faced on the Ethereum blockchain in terms of congestion, lack of cross-chain compatible assets, and high transaction fees. These standards are coupled to give a scalable solution on a money market that will be completely controlled by the community through its governance token CHUM. CHUM is distributed via a fair-launch mechanism with no upfront founder and team allocations.