



# Annex Finance

Lending and Decentralized swap system

**V1.1**  
**April 6th, 2021**

## Introduction

### Abstract and mission:

This technical whitepaper explains the decisions behind Annex Finance, it covers the contract features and protocols which bring a complete decentralized-finance based lending system onto the Binance Smart Chain (BSC).

Annex Finance allows users to utilize their cryptocurrencies by supplying aToken (ANN) to the network to earn both passive income providing collateral and liquidity respectively. By utilizing ANN tokens, this enables the community to (1) Create a secure lending platform where lenders receive a compounded interest rate paid per block while borrower pays interest on the cryptocurrency borrowed (2) Supplying liquidity contributing to the continuation and sustainability of the ecosystem (3) Governance of select protocol features supporting flexibility and community ownership.

Unlike traditional finance systems, Annex Finance is enabled by an integrated DEX so that the community can swap tokens through a community-centric Defi platform. The community enhances the platform by detaining its governance through votes.



## Problems:

The blockchain in decentralized finance had created massive diversity in the crypto financial space. This can be extremely daunting for new users. For the model to be massively adopted the Defi space needs to be new-user friendly and secure across the network. In traditional financial lending systems, a borrower needs to provide credit or traceable income to a lender before consideration on lending funds. Annex Finance aims to solve this friction in the traditional lending system by utilizing digital assets and cryptocurrencies to be pledged and used as collateral while earning interest.



## Solution and Model:

Defi is essentially a borderless financial system, tackling inefficiencies in the global finance system. In order to create a secure network Annex Finance has adapted the Defi model, supporting liquidity provided by users. Wherein the more users, the more liquidity providers, the more stable and secure the native token will be.

When a user adds liquidity to a pool he/she becomes a liquidity provider (LP), the token can then be utilized for either lending/borrowing within the blockchain or compound itself to earn higher interests. Due to the nature of this borderless system this is an enhancement of finance globally, allowing anyone to borrow funding unlike the traditional system where currently many countries and peoples are prevented from participation. Additionally, Annex Finance users would not have to worry about centralized institutions manipulation of user funds unlike the traditional lending market where they would normally use their user's fund against users such as raising land value and utility cost.

Annex finance is not the first financial platform that is attempting to bridge the traditional lending platform with blockchains. However, Annex Finance will be the first to provide a DEX swap allowing users to create LP and liquidity itself to mint high apy returns and increase ANN price/volume while allowing users to borrow and supply assets through smart contracts.



## Annex Finance

### Key Features:

To enforce the project's commitment to benefit of the community. Annex Finance will be launched following a fair model.

- ▶ BEP20 tokens swap & Liquidity Mining
- ▶ Initial liquidity provider will get extremely high APY with ANN, see bonus structure below
- ▶ Annex Finance will feature a time lock system to control funds value. This feature will allow user to select a lock up time, the longer the assets are locked, the higher ANN apy will be paid out, see time lock structure below
- ▶ Annex Finance will utilize aTokens (ANN) to allow borrowing and lending of cryptocurrencies with no credit check, anyone can be a lender and anyone can borrow
- ▶ Supply native LP allows user to earn high APY for providing liquidity to the protocol.
- ▶ ANN will also act as a governance token designed to be a fair launch distribution to the community as well as other future development.
- ▶ There will be a total limited supply of 100,000,000 tokens release over the course of the platform's growth, the project token will be launched following a fair model with initial distribution supply of 50,000,000 tokens (XX % allocated for team development and lock up, XX% allocated to community)



- ▶ All liquidity will be controlled by smart contract, only stake holders will have access to their own funds, security audit will also be implemented as soon as possible to ensure investor with the ease of mind that all funds are safe.

## Annex Tokens(ANN):

### ANN (Annex Finance Governance Token)

The Annex Finance will be governed by the aToken (ANN), ANN will be mintable up to a maximum of supply of 50,000,000 tokens throughout the growth of the platform minted 10,000,000 ANN every year for 5 years. The Annex Finance will provide 40,000,000 tokens in LP Pools to mint ANN with LP tokens. 10,000,000 tokens for prior Liquidity price speculation auction (see section below for more detail), 30,000,000 tokens after product release, LP reward with initial lock. The release of the token will be based on a fair model through DEX swap with additional initial distribution supply to project development. Early investors who utilize the system lock up in the early stage will be rewarded with aTokens heavily thru bonus system. The token can also be used to vote on the governance system by Annex Finance token holders.



## 10,000,000 ANN - Prior Liquidity Price Speculation Auction

Auction LP contract will release deposited 10M ANN with ANN price fixed at \$2 prior to product launch. User will be able to deposit BNB to BNB-ANN auction LP, or BTCB to BTCB-ANN LP and will receive prior BNB-ANN or BTCB-ANN LP that can remove liquidity after mainnet launch. After the auction complete, the biggest invested user will have ownership to set price of LP from min \$1 to max of \$5 and migrate BNB and corresponded ANN amount to ANN swap LP. For example, if user invested \$2m with BNB as ANN \$2, 1m ANN to auction price speculation contract and win auction then user set price of \$5, ANN will need only 400k ANN for \$2m and the rest of 600k will be claimed to user.

If liquidity will reach only \$5m for \$20m, 10m ANN liquidity, the auction contract will burn the rest of \$15m, 7.5m ANN, after the auction is complete.

## 10,000,000 ANN - Development/Community Treasury

Development & Community allocation 10m ANN will be locked in community treasury and only 3m ANN will be released when governance will start to create the first proposal and 7m ANN will be released 1m every month after start governance and community operation.

### Bonus System:

First 15 days to add liquidity: 200% bonus ANN  
15-30th days to add liquidity: 70% bonus ANN  
30-45th days to add liquidity: 15% Bonus ANN

### Time Lock Structure:

1 month ANN LP lock up: 10% APY  
3 months ANN LP lock up: 70% APY  
6 months ANN LP lock up: 150% APY

## Contract Address:

<https://bscscan.com/token/XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX>

Chain: Binance Smart Chain

Chain ID: 56

Token type: BEP20

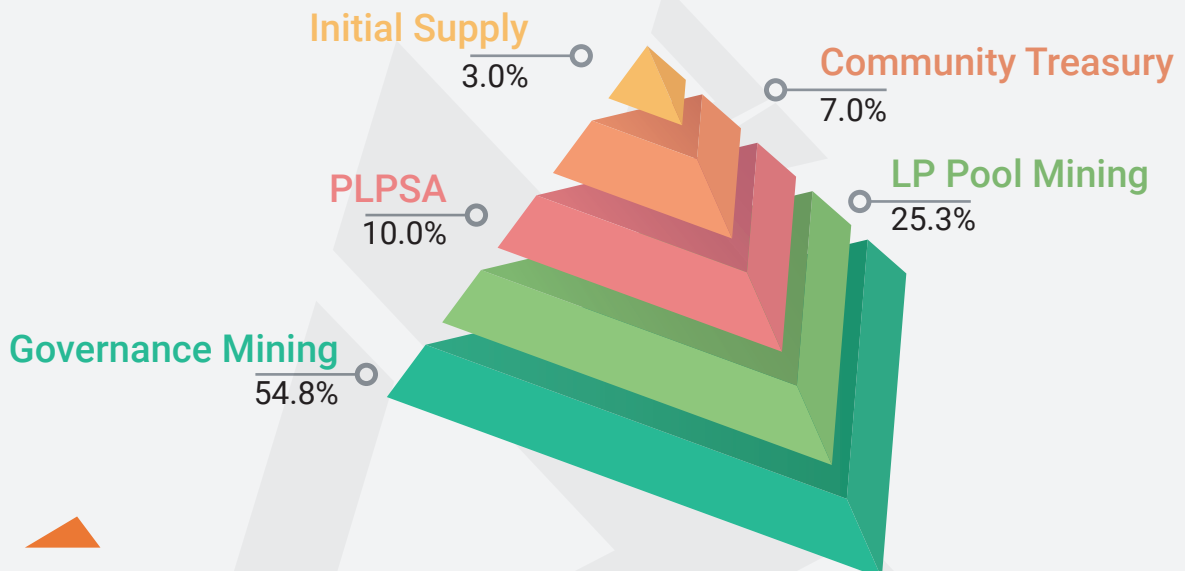
## Distribution Overview:

- ▲ Initial supply: 3,000,000 ANN
- ▲ Community Treasury: 7,000,000 ANN
- ▲ Prior Liquidity Price Speculation Auction: 10,000,000 ANN
- ▲ LP Pool Mining: 29,525,000 ANN
- ▲ Governance Mining: 50,475,000 ANN
- ▲ Total supply: 100,000,000 ANN
- ▲ Initial Marketcap: \$20m

Emission rate: 10,000,000 ANN for 5 years, 30,000 ANN mint everyday

Initial price: 1 ANN = \$2 USD

## Point Scored





## Referral System:

Referee supply 6 months ANN LP will reward referrer bonus XX ANN

Referee supply 3 months ANN LP will reward referrer bonus XX ANN

## Lending

### aTokens

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

Emission rate: 10,000,000 ANN for 5 years, 30,000 ANN mint everyday



Contract ABI	Description
<code>mint(uint256 amountUnderlying)</code>	Transfers an underlying asset into the market, updates msg.sender's aToken balance.
<code>redeem(uint256 amount) redeemUnderlying(uint256 amountUnderlying)</code>	Transfers an underlying asset out of the market, updates msg.sender's aToken balance.
<code>borrow(uint amount)</code>	Checks msg.sender collateral value, and if sufficient, transfers the underlying asset out of the market to msg.sender, and updates msg.sender's borrow balance.
<code>repayBorrow(uint amount) repayBorrowBehalf(address account, uint amount)</code>	Transfers the underlying asset into the market, updates the borrower's borrow balance.
<code>liquidate(address borrower, address collateralAsset, uint closeAmount)</code>	Transfers the underlying asset into the market, updates the borrower's borrow balance, then transfers aToken collateral from the borrower to msg.sender

## Supplying Assets

Annex Finance users 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. Supplying assets such as cryptocurrencies or digital assets to Annex Finance gives the users the ability 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 time, given that the protocol balance is positive. Users who supply their cryptocurrency or digital asset to Annex Finance will receive aToken, such as aBTC and aBNB, 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 that support Binance Smart Chain.



## Borrowing Assets

Users who want to borrow any of the platform supported cryptocurrencies from Annex Finance will be required to pledge aTokens or collateral that are locked on the protocol. The locked up assets will enable users to borrow up to XX% of the collateral value.

Once a user supplies their collateral asset, the user will be able to borrow a collateral ratio range of the asset depending on the assets. For example, if a user supplied \$1000 worth of BNB, the user will be able to borrow up to XX% of the value of your asset from the lending platform. However, if a user's collateral value drops below their collateral ratio percentage of their asset, a liquidation event will occur. Users need to be aware of their asset ratio value to avoid liquidation in the case that their locked up collateral asset took a dip while borrowing.



## Market Dynamics

Each time a transaction occurs, the Interest Rate Index for the asset is updated to compound the interest since the prior index, using the interest for the period, denominated by  $r * t$ , calculated using a per-block interest rate:

$$Index_{a,n} = Index_{a,(n-1)} * (1 + r * t)$$

The market's total borrowing outstanding is updated to include interest accrued since the last index:

$$totalBorrowBalance_{a,n} = totalBorrowBalance_{a,(n-1)} * (1 + r * t)$$

And a portion of the accrued interest is retained (set aside) as reserves, determined by a `reserveFactor`, ranging from 0 to 1:

$$reserve_a = reserve_{a,(n-1)} + totalBorrowBalance_{a,(n-1)} * (r * t * reserveFactor)$$

## Liquidity Mining

Liquidity mining model will be implemented to provide exclusive yield farming for aTokens. In the essence of DEX (decentralized exchange), DEX needs liquidity from its user, community, and participants. Therefore by utilizing DEX, the liquidity provided by users will have the opportunities to enhance their capital. Users who provide aTokens in liquidity will also receive high APY for lending.



## System Architecture:

The platform's DEX will utilize a codebase fork from sushiswap for token farming. When users use the platform, they are using an underlying asset to first bond with aTokens. These assets held as collateral will have dollar values that are tied to the native tokens. Due to the nature of crypto currency. The collateral values are pulled from market rates in real time through the use of Chainlink protocol for market pricing update to assure fair market value.



## Token access:

Users will be able to open an account with Annex Finance using Metamask, Trust wallet, and Wallet Connect wallets. Our goal is to grow the platform as quickly as possible so that we can apply for crypto exchange listings such as Binance.com as soon as the platform meets all the exchange's requirements.



## Liquidations:

It is entirely up to the user to monitor their collateral assets, the collateral could be liquidated if it falls below the threshold rate required for the borrowing. These liquidations are subject to liquidation fee and satisfy the outstanding debt. The remaining collateral, if any, will then be returned to the user if available.



## Token Reserve:

Depending on the collateral asset with aToken. Stable collateral will have a reserve factor of 10% while non-stable collateral will have a reserve factor of 20%. These reserve factors will be captured from the spreads of the lending platform and can be used for project development, protections, etc. These Reserve Factor funds are controlled by the Governance process and can be used in a variety of ways such as rewards mechanisms.

## Interest rates:

The platform will utilize interest rates that are designated per market from both supply and borrowing side of the protocol. The interest rate provided for the markets will be determined by a yield curve that varies based on assets liquidity.



## Liquidity Incentive Structure:

The protocol does not guarantee liquidity; instead, it relies on the interest rate model to incentivize it. In periods of extreme demand for an asset, the liquidity of the protocol (the tokens available to withdraw or borrow) will decline; when this occur, interest rates rise, incentivizing supply, and disincentivizing borrowing.





## Price Feeds

A Price Oracle maintains the current exchange rate of each supported asset; the Annex Finance delegates the ability to set the value of assets to a committee which pools prices from Chainlink. These exchange rates are used to determine borrowing capacity and collateral requirements, and for all functions which require calculating the value equivalent of an account

## Governance:

All aToken can be used to participate in Annex Finance Governance and Proposals system. The users can participate in the poll section and cast their votes on different proposals. The proposal threshold will be 1million ANN and Quorum votes at 2million ANN.

- ▲ The ability to list a new aToken market
- ▲ The ability to update the interest rate model per market
- ▲ The ability to update the oracle address
- ▲ The ability to withdraw the reserve of a aToken
- ▲ The ability to add LP farms with ANN reward
- ▲ The ability to add staking pool with ANN reward

Annex Finance build:

Annex Finance V1 will utilize Binance Smart Chain due to three main advantages:

- ▲ Fast transaction block time
- ▲ Secure transfer
- ▲ Lower fees compared to others

Binance Smart Chain has a record of trustworthy entities where users can report malicious projects, freezing project's assets so that the user's fund will always be safe. V2 of the development will utilize network such as Ethereum and Cosmos



## References

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