August 22, 2020



GROWTHDEFI

GROWTH DeFi Whitepaper V1.0

Abstract

This document describes the theory behind GROWTH DeFi's ecosystem and GRO's value proposition

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I Introduction

I. A GROWTH's Overview

GROWTH's purpose is creating an ecosystem where both GRO holders and gToken holders can benefit from the positive effects of compounded interest, high liquidity and a share of arbitraging profit without suffering from impermanent loss. It leverages the power of two of the most innovative DeFi protocols at the time this whitepaper was written, AAVE & Mooniswap.

I. B AAVE

AAVE is one of the biggest DeFi[1] CDP lending protocols[2] with over 1.2 Billion $ AUM[3]. Its main functionality is connecting lenders and borrowers through lending pools. For lenders this allows having their funds working for them while having the certainty of being able to withdraw at anytime. With the upcoming launch of AAVE V2 many features will be introduced including liquidity mining, gas optimization and credit delegation. This new version of AAVE will ensure its rapid growth continues and GROWTH will be using as the backbone of the ecosystem. For more information on AAVE it is highly recommended to read the Aavenomics and the original whitepaper for the lending protocol

I. C Mooniswap

Mooniswap is an AMM[4], a direct improvement from Uniswap[5] which is the most adopted AMM. Mooniswap focuses on fixing two of the biggest issues that Uniswap has, front-running and impermanent losses:

Front-Running & larger profits for Liquidity Providers:

Quoting Algalon's Capital article "Front running is when a trader stays with the trade, watching the price accumulation, and figuring out when to slip past the other traders at the very last minute in order to make a profit. While in traditional trading front running is considered illegal because the trader would be using non-public data, on a decentralized exchange (DEX), the trader is working with publicly available information on the blockchain, and is therefore technically not shorting the system. Front running as a DEX trading tactic is effective if you know the list of buy or sell orders ahead of time and can insert your order before other trades are inserted. For example, as a trader you know that there is an incoming buy order at 100 for 10 thousand, and currently, there are sell offers at 90 for the same volume. In this case, you can buy the asset at 90 for 10 thousand and immediately insert the sell order at 100. So your profit will be the difference between the buy price and the sell price minus exchange fees."

[1] Decentralized Finance

[2] Collateralize Debt Positions are used in most current DeFi lending protocols, the borrower has to over collateralize the amount they'll borrow, an example of this would be supplying ETH and borrowing DAI to buy more ETH and create a leveraged position

[3] Assets Under Management

[4] AMM stands for "Automated Market Maker"

[5] Uniswap is the most popular AMM, it uses the constant-product invariant formula

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This happens in Uniswap, front-runners are constantly scanning for an opportunity to quickly buy or sell a token before a large trade comes in, this activity fuels the gas price wars which make transactions on the Ethereum blockchain more expensive as a whole.

Mooniswap prevents this from happening through the implementation of virtual balances which was introduced by Vitalik Buterin back in 2016 in this post. In Mooniswap's case after a huge slippage swap is completed the price adjusts during a 5 minute time frame instead of doing so instantly, this minor detail makes arbitragers compete amongst themselves and provides part of that arbitraging profit to the liquidity providers instead of the arbitragers. Having LPs[6] earn bigger profits is essential to maximize GROWTH's ecosystem potential since permanently locked LPs and liquidity farming are the core of GROWTH.

For more information on Mooniswap and how it compares to other AMMs, you are encouraged to read its whitepaper.

[6]Liquidity Providers

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II gTokens

II. A gTokens Introduction

gTokens are a core part of GROWTH's ecosystem, they offer a unique value proposition since it combines the compounded interest potential of aTokens, some arbitrage profits from the minting & burning fees and higher LP profits through Mooniswap and additional GRO incentives for providing liquidity. In short, gTokens offer a higher yielding way of accumulating more of the underlying token.

II. B gToken Minting & Burning

Any gToken is minted with its underlying, in gDAI's case it would be minted using DAI or aDAI:

Minting formula:

$$\frac{(1+x)*y}{z} = c$$

where x = Minting Fee
y = aToken[7] balance of the smart contract
z = gToken[8] circulating supply
c = Cost in the underlying token to mint one gToken

Burning formula

$$\frac{(1-a)*y}{z} = b$$

where a = Burning Fee
y = aToken balance of the smart contract
z = gToken circulating supply
b = Amount received in the underlying token when burning one gToken

In the gDAI example, the DAI is deposited into the AAVE protocol, swapping it for aDAI which now accrues compounded interest, the minting fee is distributed between increasing the backed value of gDAI and adding permanent liquidity to the GRO/gDAI Mooniswap pool, GRO is bought back from Mooniswap and the liquidity is added to that pair's pool.

The default values for the Minting process are a 1% fee and a 50/50 distribution between increased gDAI value and increase in permanent liquidity.

[7] aTokens are the native lending token of the AAVE protocol, they are backed 1:1 by the underlying token and accrue interest. An example of an aToken would be aDAI.

[8] gTokens are the native tokens within the GROWTH ecosystem and they are backed by aTokens, this backed value is constantly growing when compared to the underlying.An example of an aToken would be gDAI.

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II. C Locked Liquidity Pools

A very important feature of gTokens are its Locked LPs, this concept was first introduced by the PoL experiment "UniPower", gTokens use this as a way to distribute profits generated by Locked LPs to GRO & gToken holders.

Locked LPs accumulation A portion of minting and burning fees go to increase the Locked LPs balances (by default this portion is 0.5% on all Minting & Burning volume), each gToken feeds its corresponding LP, gDAI fees go to the GRO/gDAI pair, gWBTC fees go to the GRO/gWBTC pair and so on...

Burning Profits... gToken holders are periodically rewarded by burning the fees that the locked LP generates, let's examine an example from the GRO/gWBTC pair:

100 gWBTC in circulation each backed by 1.2 WBTC (aWBTC to be precise) Locked LP contract of GRO/gWBTC holds 10k GRO and 5 gWBTC (besides the minting & burning fees the locked LPs also have a starting liquidity that comes from the 250k GRO reserved for this purpose)

During that week the proportionate share of profits of this LP within the pool was 240 GRO and 0.12 gWBTC, both amounts are burnt and the GRO & gWBTC supplies decrease.

In this scenario the gWBTC supply has decreased by 0.12% and that's the % in which the backed value per gWBTC is increased, this all comes from trading volume and market volatility and it is and additional profit/growth source for gToken & GRO holders.

II. D gToken growth factors

When considering gTokens, the growth factors need to be examined. When and how does a gToken profit and why GROWTH's ecosytem is setup the way it is, gDAI will be used for the following example.

aToken compounded interest: All tokens deposited in GROWTH smart contracts are converted to aTokens, which accrue interest overtime increasing gToken's backed value. In gDAI's case the smart contract holds aDAI to back it up which in the last 30 days average it's compounding at a 14% annual rate, this means that regardless of how well other factors behave for a certain time frame a gToken holder can always count on AAVE's interest.

gToken supply demand: The fluctuations in demand for gTokens creates an additional source of profits through the minting and burning fees, GROWTH's aim is to maximize the profits generated through the long-term to compensate for market uncertainties.

MBVS ratio	Extra APY
1%	1.84%
5%	9.5%
10%	20%
25%	57.77%
50%	248.77%
100%	617.47%

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$$(1 + MBVS * 0.5\%)^{365} - 1 = ExtraAPY \tag{II.1}$$

MBVS ratio is calculated with

$$\frac{M + B}{S} = MBVS$$

M = gToken Minting Volume
B = gToken Burning Volume
S = gToken Circulating Supply
MBVS = Minting & Burning Volume vs Supply ratio

Those gTokens with the highest MBVS ratio give the highest yields and compound it further with the interest accrued from aTokens.

gToken arbitraging: This is gToken's biggest strength, until now the only way to profit from arbitragers adjusting Liquidity Pools to market prices was to provide liquidity for that pool, however when providing liquidity the user faces impermanent losses which can result in the loss of funds even when collecting LP fees if the price moves heavily in one direction.

gTokens are created to solve the issue, this is when the creation of permanent liquidity pools become important, we shall first examine a hypothetical arbitrage scenario to explain how it works.

Hypothetical arbitrage scenario for USDT and WBTC

Market rate: 12,000 USDT/WBTC

gUSDT = 1.5 USDT (backed value in the example) gUSDT Minting cost = -1.515 USDT gUSDT Burning value = +1.485 USDT

gWBTC = 1.2 WBTC (backed value in the example) gWBTC Minting cost = -1.212 WBTC gWBTC Burning value = +1.188 WBTC

GRO/gUSDT rate = 20 gUSDT/GRO GRO/gWBTC rate = 0.0023 gWBTC/GRO

1. Mint 10,000 gUSDT for 15,150 USDT
2. Swap 10,000 gUSDT for 495 GRO (1% slippage)
3. Swap 495 GRO for 1.127 gWBTC (1% slippage)
4. Burn 1.127 gWBTC for 1.339 WBTC
5. Swap 1.339 WBTC for 16,020 USDT (0.3% slippage)
6. Net profit from the arbitrage of 870 USDT

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In this example the arbitrager profitted and generated 150 USDT in minting fees for gUSDT and 0.0134 WBTC in burning fees for gWBTC, essentially both gUSDT and gWBTC from this arbitrage without being exposed to impermanent loss.

This example shows the importance of high liquidity in the GRO/gToken liquidity pairs. The bigger the overall liquidity is the more fees gTokens will generate through arbitraging, in order to achieve the maximum level of liquidity possible GROWTH combines its permanent liquidity pools with incentives in the form of GRO rewards for providing liquidity for the pairs, this mechanism is also known as "Liquidity Farming".

Locked LPs: Having the locked LPs creates a profit source not linked to the TVL[9] which makes gTokens specially profitable after a large portion of the circulating supply has been burnt, this creates additional incentives and mechanics for users to mint gTokens.

Providing liquidity for GRO/gToken pairs Another way to earn some extra yield on top of gToken's profits is to provide liquidity for a GRO/gToken, which can be provided for any gToken (gDAI, gUSDC, gUSDT. gWBTC, gETH...).

By doing so the LP[10] will earn LP fees and farm GRO through liquidity farming, 250,000 GRO (25% of the total supply) is allocated towards rewarding liquidity providers of GRO/gToken pairs, here's the full list of all the profit sources LPs benefit from:

1. 50% of the liquidity pool is GRO which increases its value with the volume accross all GRO pools and the Minting & Burning fees of all gTokens.
2. The other 50% is from gToken's which are constantly accruing interest and compounding fees from supply fluctuations and arbitrage opportunities (it also appreciates after the periodic burns from the locked LP happen).
3. 0.3% of the volume in the pool is collected as LP fees.
4. Besides the LP fee Mooniswap also forces arbitragers to compete between them and giving a part of those profits to LPs.
5. When providing liquidity for a GRO/gToken pair the LP will also receive GRO as an extra reward for providing liquidity.

[9] Total Value Locked
[10] Liquidity Provider

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III GRO DAO

GRO is a governance token, its holders are the ones that control the core functionalities of the GROWTH DeFi ecosystem, by actively participating in the GRO DAO the ecosystem can grow as a whole.

III. A gTokens Governance

The GRO DAO controls what the minting & burning fee will be for each gToken and how it's distributed between the appreciation of the gToken and the liquidity of it, the default settings for all gTokens are a 1% Minting and Burning Fee with a 50/50 distribution between appreciation and liquidity, depending on market conditions GRO holders can adjust these percentages to maximize everyone's returns.

III. B Locked Liquidity Pools Governance

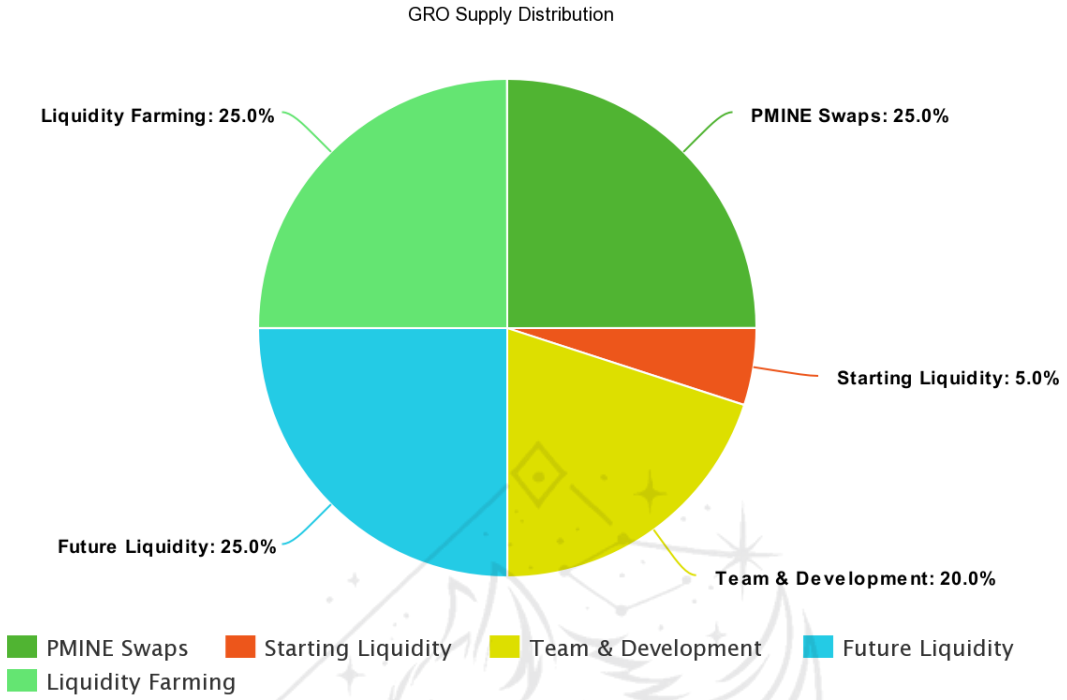
If the LP has a migration mechanism implemented for future upgrades of the protocol (to migrate from Mooniswap V1 to V2 for example) then the GRO DAO would be in charge of this.

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IV GRO Tokenomics

IV. A GRO Supply Distribution



PMINE Swaps (250,000 GRO): PMINE provides the ETH for the starting liquidity and for doing so they have the option of swapping their PMINE whenever they want at a fixed 12.5 GRO/PMINE ratio, PMINE's total supply is 20,000 which is why 250,000 GRO has been reserved for PMINE Swaps, the GRO that hasn't been swapped remains out of circulation till it is swapped.

Team & Development (200,000 GRO): The team's share is vested and released throughout two years to avoid dilution of the rest of GRO holders.

Starting Liquidity (50,000 GRO): 50,000 GRO & 500 ETH is the starting liquidity for GRO in Mooniswap.

Future Liquidity (250,000 GRO): As more gTokens are added this 250,000 GRO will be used to provide large initial liquidity for each pair, this will ensure that there is always enough permanent liquidity for all GRO/gToken pairs.

Liquidity Farming (250,000 GRO): In order to encourage users to provide liquidity 250,000 GRO is reserved to be distributed as Liquidity Farming rewards, 0.1% of the remaining balance is distributed per day ensuring that it never runs out.

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V GRO's Value Proposition

V. A Governance

As explained in the previous chapter the core functionality of GRO is to govern the GROWTH DeFi ecosystem, in order to encourage holding the token additional incentives have been designed to ensure GRO's stability and diminish the possibility of an attack to the DAO.

V. B Open Source

All code will be open source under the GNU General Public License v3.0 copyright license.

V. C Liquidity

The liquidity for gTokens is in the GRO/gToken pairs, by having this setup GRO will always have great liquidity relative to its marketcap, which makes it easier to buy and sell it without having to suffer from large amounts of slippage.

V. D Deflationary

The fees from the locked LPs of the GRO/gToken pairs are periodically burn, this results in a value increase of both GRO and the gToken, its a constant burning mechanism that works due to the volatile nature of the market, the larger the LPs get the more volume they will bring and the larger the burns will be.

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If you have any further questions regarding GRO and gTokens feel free to join our Telegram group and ask.

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