

NIOX

Token Restructuring

JUNE 2021

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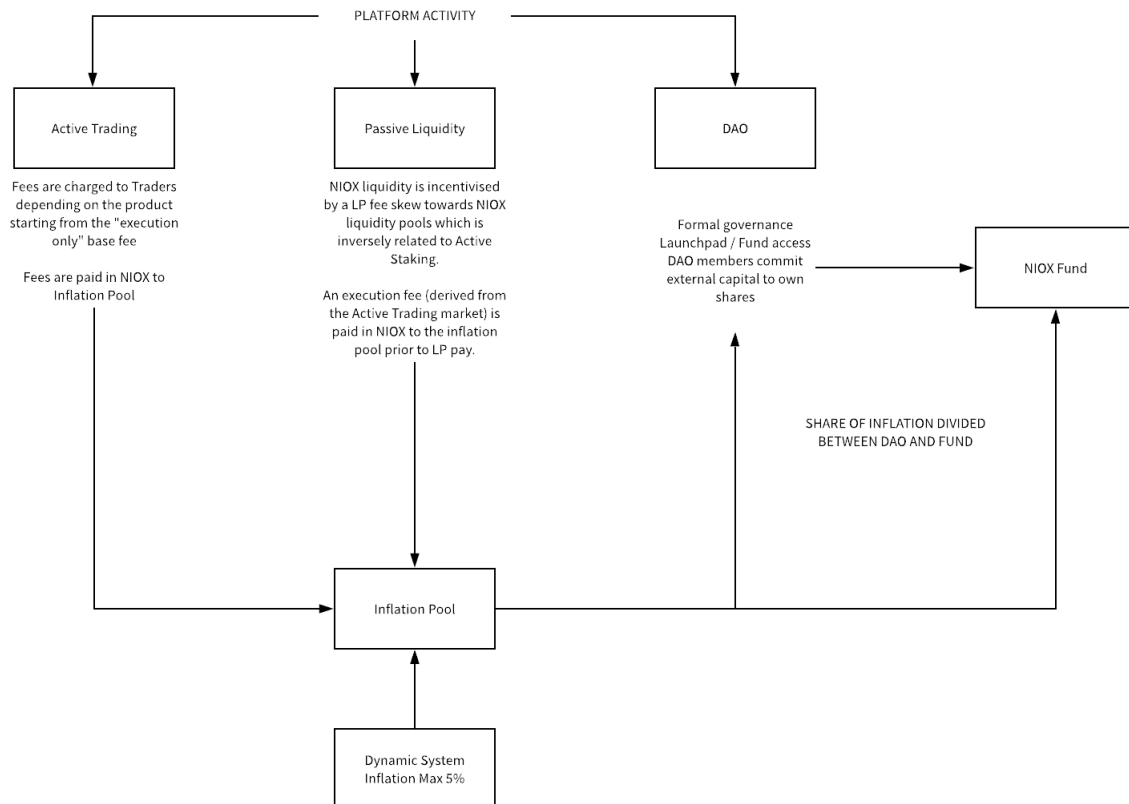
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Autonio NIOX Token

High level schematic of NIOX economy



Noting that the only system Staking function is to the DAO.



ACTIVE TRADING

We define Active Traders as those who are using the DEX order book or taking liquidity from the AMM.

The system sets fees for Active Traders by looking at the number of tokens Staked in the DAO:

F	Gross fee rate
S	NIOX staked to the DAO as a proportion of NIOX in issue – DAO Stake
f	Fee rate applicable

$$f = (1 - S) \cdot F$$

Therefore, if 40% of NIOX are staked to the DAO, and $F = 5$ bps, the Gross Fee Rate for Active Traders is 3 bps.

Setting F: The Gross Fee Rate

A standard rate for “Execution only” service of 5 bps. This is based on traditional finance models for historical execution-only service in equities and the compression path.

Premium fee rates, that replace a subscription model, can be set at either fixed basis points or as a multiple of f allowing it to float with system staking.

Premium services should enforce a minimum fee pay / balance to be held in accounts (again replacing subscription staking) which would be depleted if minimum fee per service was not reached.

Fee Balance

The Fee balance is converted to NIOX and paid to the inflation pool. Traders can pay fees directly in NIOX which would represent a small saving for them (cost of conversion/execution).

Fee Rebate

The DAO Stake determines a global rebate through reducing fees. Traders can achieve further rebates or credits by Staking to the DAO to benefit from the inflation pool.

INFLATION POOL

Inflation is comprised of two sources of NIOX.

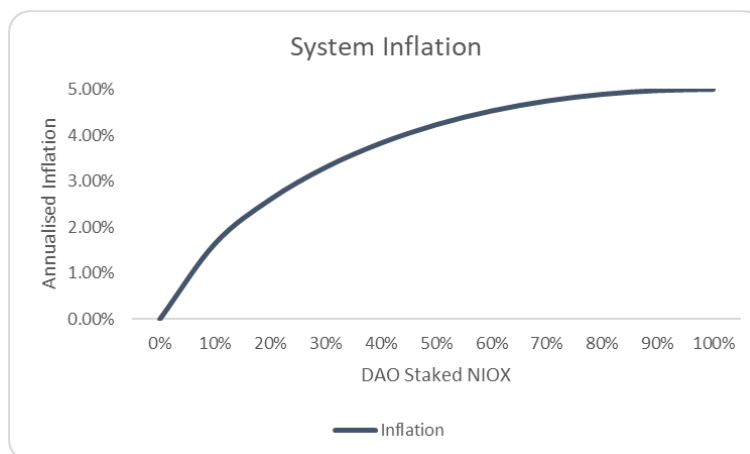
- (1) System inflation
- (2) NIOX trading fees

System Inflation

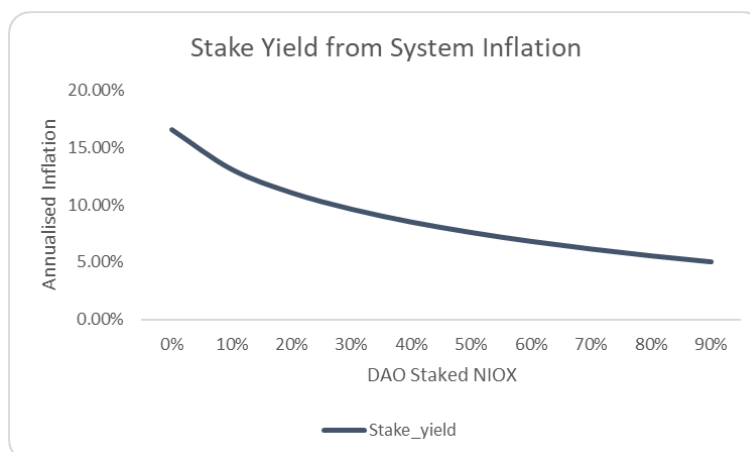
System inflation caps at 5% per annum as is calculated as a function of DAO staking:

I_{max}	Maximum inflation
S	NIOX staked to the DAO as a proportion of NIOX in issue (0,1]
I	Inflation rate

$$I = I_{max} \cdot S \cdot (1 - \ln(S))$$



This creates a Gross Stake Yield effect from System Inflation:





Trading Fees

Trading fees are collected from the platform, exchanged to NIOX tokens, and delivered to the Inflation pool. This also include fees from PASSIVE TRADING which are addressed later (execution-only fee deduction).

A proportion of NIOX Trading Fees are burnt which is calculated as: $(1 - S)$

In low Staking environments, more of the Trading Fees are burnt (100% if Staking was zero).

Burning allows economic tension to exist between non-staked NIOX liquidity, which is generating its own utility value yet is able to benefit from global fees as well through burning.

System Inflation and NIOX Trading fees are combined and distributed between the DAO and the NIOX Fund / Launchpad on a constant 80:20 basis.

DAO STAKE RULES

As above, 80% of Total Inflation is distributed to the DAO.

The minimum stake time for the DAO is 6 months. Tokens that are locked in that initial period accrue inflation rewards.

A time weighted factor is applied to DAO Stake tokens using the square root of time to adjust stake eligibility. Stake time is capped at 2 years for calculation purposes.

For example, a token that has been staked for twice the length of time as its peers receive $\sqrt{2}$ the amount of inflation received by the others.

Tiering and Minimum Stakes

DAO membership is subject to a series of minimum stake requirements.

Total DAO stake threshold to generate DAO inflation distribution: 5%

In the event this threshold is not reached, all Inflation is allocated in full to the NIOX Fund.

Minimum Account Stakes:

Action	% NIOX Minimum Stake	Current NIOX (Supply =315M)	Verification ID (KYC)
Vote	0.001%	31,500	No
Inflation Distribution	0.005%	157,500	Yes
NIOX Fund participation	0.020%	630,000	Yes



STAKING SUMMARY

Staking NIOX to the DAO drives the global Fee rate for the system. Transaction volume is generally negatively correlated to Fee rate and positively correlated to liquidity. More money can be made trading at lower fee rates and lower impact (higher liquidity).

Practically, Transaction volume will respond positively to declining Fee rates (increasing Staking), but \$ income will fall if Fee rates are too low (Staking is too high)

The relationship between Staking and Fee rate allows the system to maximise Fee income (Transaction volume * Fee rate) through capital arbitrage.

	System Inflation	Trading Fee Inflation	Burn	Fee Impact	Liquidity Value
Staked	Yes	Yes	Yes	Decrease	No
Non-Staked	No	No	Yes	Increase	Yes

The capital arbitrage seeks the equilibrium pay-off between Staked and non-Staked NIOX; when the Liquidity Value returns are equal to the Total Inflation income. More simply where the trading profits generated are equal to the inflation rewards.

This now allows the NIOX token capital to efficiently reflect the utility value of the system which is the capitalisation of perpetual fee income.

PASSIVE TRADING

The AMM liquidity pools contain various assets and AMM functions (to be determined). Currently LP providers earn a flat fee of 30 Bps. A dynamic risk model can be applied to this to calculate the volatility of the AMM price vs. DEX price to allow fees to respond. Too high a deviation would imply fees are too high to arbitrage price and vice versa.

The LP Fee rate (30 bps) is applied, and a deduction is made using the current Execution-only fee from Active Trading (f) which is paid to the NIOX inflation pool (in NIOX).

For example, at 40% Staking, a Gross Fee Rate of 5 bps, 3 bps is paid to the NIOX inflation pool leaving LPs with 27 bps from 30 bps.

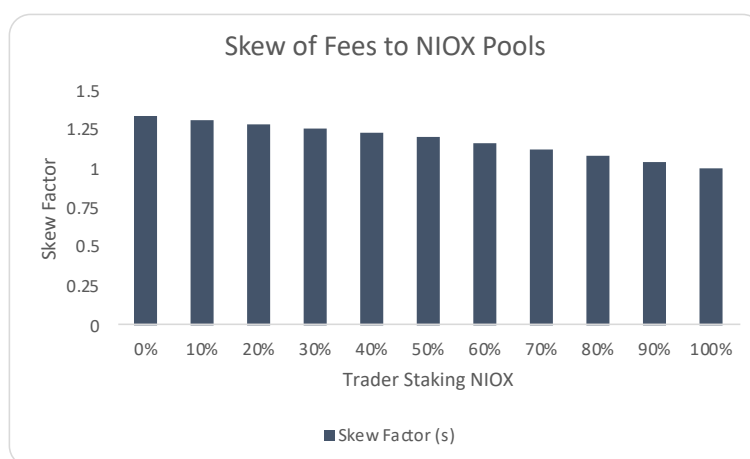
NIOX is treated as a base pair for all assets which links AMM pools and LP tokens. For example, a pool of ETH-BTC can now be enhanced by the ETH-NIOX and BTC-NIOX pairs where the NIOX token acts as riskless principal. The conjoining of the NIOX pairs is done with no AMM cross pair impact and increases liquidity (decreases impact).

For the use of NIOX as riskless principal, there are no fees on the NIOX legs
(No fee double dip for a conduit)

NIOX pools earn a skew of the total LP fees based on proportion of NIOX value in the locked pools and as a function of active Trader Staking.

Defining the skew factor as s:

$$s = \frac{2(2 - S)}{(3 - S)}$$



At zero Trader Staking, the factor maximises at 1.33' and minimises at 100% Trader Staking at 1.



Effect of LP Fee skew to NIOX Liquidity Pools based on DAO Staking and NIOX pool share:
(Fees in bps)

Stake	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Fee for LP	25.00	25.50	26.00	26.50	27.00	27.50	28.00	28.50	29.00	29.50	30.00
10.0%	32.26	32.41	32.50	32.53	32.48	32.35	32.13	31.80	31.35	30.76	30.00
20.0%	31.25	31.46	31.62	31.73	31.76	31.73	31.61	31.40	31.07	30.61	30.00
30.0%	30.30	30.57	30.79	30.96	31.08	31.13	31.11	31.00	30.80	30.47	30.00
40.0%	29.41	29.72	30.00	30.23	30.42	30.56	30.63	30.62	30.53	30.33	30.00
50.0%	28.57	28.93	29.25	29.54	29.79	30.00	30.15	30.24	30.26	30.19	30.00
60.0%	27.78	28.17	28.54	28.88	29.19	29.46	29.70	29.88	30.00	30.05	30.00
70.0%	27.03	27.45	27.86	28.24	28.61	28.95	29.25	29.52	29.74	29.91	30.00
80.0%	26.32	26.77	27.21	27.64	28.05	28.45	28.82	29.17	29.49	29.77	30.00
90.0%	25.64	26.12	26.59	27.06	27.52	27.97	28.41	28.83	29.24	29.63	30.00

In periods of low Trader Staking an economic advantage is gained by NIOX holders to provide liquidity in passive pools.