

BIBO Protocol: A Fee-Driven Economy for Launches and Liquidity

BIBO Protocol

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Abstract. BIBO connects token launches to an ongoing liquidity economy. Projects enter through a virtual-reserve launch curve; vote-escrowed BIBO then coordinates liquidity incentives across whitelist-admitted secondary markets. Creator Fee policies share quote-asset revenue between project creators and stakers of each project's token. An admitted pool's incentive allowance is linked to its activity: rewards are valued at up to five times eligible trading fees and allocated within its voting share. Alongside this system, 80% of realized Launchpad protocol fees funds BIBO buybacks, with every acquired token sent directly to a black-hole address; the remaining 20% supports operations. The design gives trading fees a role in liquidity allocation and gives Launchpad revenue a direct route into BIBO purchase demand and permanent token retirement. This paper develops the launch, creator-fee, voting, emission, and buyback models. We establish reserve preservation, a price-matched liquidity seed, aggregate emission bounds, and the supply effect of retirement, then derive a local stability criterion for the liquidity-fee feedback within the BIBO flywheel.

Keywords. Automated market makers; token launches; vote escrow; liquidity incentives; fee-referenced emissions; token retirement.

1 Introduction

A token needs more than an initial sale. It needs a market in which holders can trade, liquidity providers can deploy capital, and the project can continue to attract participants. BIBO connects these stages: the Launchpad creates new markets, $ve(3, 3)$ coordinates their liquidity, and Launchpad protocol fees fund purchases and permanent retirement of BIBO.

The design gives each form of participation a distinct economic role. Projects bring assets and communities. Traders generate fees. Liquidity providers earn BIBO for committing capital. BIBO holders can lock tokens to direct incentives and receive the fee and voting-incentive streams associated with their votes. Launchpad revenue adds a further connection: 80% of realized protocol fees is committed to buying BIBO and removing it from future circulation.

Three fee streams serve distinct roles. *Launchpad protocol fees* finance buybacks and operations. *Eligible pool trading fees* determine the fee-based reward allowance and fund the corresponding voter fee stream. *Creator Fee revenue* supports project creators and stakers of the project's own token through a fixed allocation. These streams connect project activity to BIBO demand, trading activity to liquidity incentives, and project participation to quote-asset income.

1.1 Related work and design rationale

Velodrome and Aerodrome demonstrate the core division of roles in $ve(3, 3)$ systems: locked-token holders direct emissions, liquidity providers earn token rewards, and voters receive the fees and incentives associated with their chosen pools [2, 6]. Voting markets and aggregators extend this allocation process by organizing demand for voting influence [4].

BIBO combines this model with a launch-generated buyback stream and a five-times-fee allowance for liquidity incentives. Votes express where participants want liquidity; fees determine how much activity-linked incentive capacity an admitted pool can support. Whitelist-based admission restricts access to the fee-referenced emission program, helping reduce reward farming through

wash-trading venues. Buyback-and-burn gives the Launchpad’s revenue a separate, permanent role in the BIBO economy.

The mathematical foundation follows constant-function market-maker analysis [3]. Secondary-market liquidity can be concentrated around a price range to make capital useful where trading occurs [1]. Rewards compensate providers for that capital commitment and the inventory and adverse-selection costs of market making [5].

1.2 Scope and analytical results

The launch analysis establishes an admissible reserve domain, shows that permitted trades preserve it, and derives a price-matched liquidity seed (Proposition 2.1 and Corollary 2.2). The allocation analysis bounds rewards by both the voting budget and the fee allowance (Proposition 3.1). Cash and token stock balances connect Launchpad revenue to permanent retirement (Proposition 4.1). A reduced liquidity–fee response map then gives a local stability criterion for the allocation loop (Proposition 5.1). The results are stated beside their models; Appendix B contains the proofs.

1.3 Notation

The continuous launch model measures a launch token T and its quote asset Q in their native denominations. BIBO is the protocol reward and voting asset, distinct from T . Reward and buyback valuations use WETH as a common unit of account. An epoch is a reward accounting period; $e-1$ denotes the measurement window preceding reward epoch e . Table 1 collects the principal economic quantities; additional symbols are defined where they enter the model.

Table 1. Principal economic quantities.

Symbol	Meaning	Unit
R_e	Realized Launchpad protocol fee revenue	WETH
$F_{g,e-1}$	Eligible prior-window fees for pool g	WETH
$\mathcal{G}_e$	Pools admitted to the emission program in epoch e	Set
$P_{g,e}^\star$	BIBO reference price for the fee allowance	WETH/BIBO
$E_e, N_{g,e}, r_{g,e}$	Pool reward budget, voting share, actual release	BIBO
B_e, D_e	BIBO purchased; BIBO permanently retired	BIBO

2 A continuous launch market

2.1 Virtual reserves and the terminal inventory

Let $S_T > 0$ be the fixed initial supply of the launch token. The curve starts with token inventory $x = S_T$ and real quote principal $y = 0$. A virtual quote reserve $v > 0$ sets the initial price but is not a withdrawable asset. Excluding separately charged fees, the continuous reserve constraint and the marginal quote price are

$$x(v + y) = S_T v, \quad p(x, y) = \frac{v + y}{x}. \quad (2.1)$$

Here p is measured in units of Q per token T . Real quote principal excludes fee proceeds; counting fees in both principal and revenue would overstate available assets.

For a target principal $G > 0$, the terminal token inventory is

$$x_{\min} = \frac{S_T v}{v + G}. \quad (2.2)$$

The curve sells inventory above this threshold. Substituting $x = S_T v / (v + y)$ into the price expression shows that the marginal launch price increases with accumulated principal.

Define the admissible launch states by

$$\mathcal{D} = \{(x, y) \in \mathbb{R}^2 : x_{\min} \leq x \leq S_T, \quad 0 \leq y \leq G, \quad x(v + y) = S_T v\}. \quad (2.3)$$

The initial state $(S_T, 0)$ belongs to this set.

2.2 Purchases, redemptions, and the boundary

Consider a purchase with a net quote budget $b \geq 0$, after separating fees. For a state with $x_{\min} \leq x \leq S_T$, let $z(b)$ be token output and $u(b)$ the quote principal actually consumed:

$$z(b) = \min \left\{ x - x_{\min}, \frac{xb}{v + y + b} \right\}, \quad (2.4)$$

$$u(b) = \frac{(v + y)z(b)}{x - z(b)}. \quad (2.5)$$

The state transition is

$$x' = x - z(b), \quad y' = y + u(b). \quad (2.6)$$

Away from the terminal boundary, $u(b) = b$. At the boundary, the unused net budget $b - u(b)$ is not added to principal. The positive terminal inventory ensures that the denominator in Equation (2.5) remains nonzero.

Before completion of the launch, a sale of z circulating tokens, with $0 \leq z \leq S_T - x$, produces gross quote output

$$q(z) = \frac{z(v + y)}{x + z}, \quad x' = x + z, \quad y' = y - q(z). \quad (2.7)$$

Under Equation (2.1), the circulating-supply bound implies $q(z) \leq y$. Thus the continuous model does not fund redemptions from the virtual reserve. Any sale fee is assessed separately from gross output.

Proposition 2.1 (Reserve preservation and feasible trades). *Fix $S_T, v, G > 0$ and a state $(x, y) \in \mathcal{D}$. A buy with $b \geq 0$ under Equations (2.4)–(2.6) consumes $0 \leq u(b) \leq b$ and leaves the new state in $\mathcal{D}$. A permitted sale with $0 \leq z \leq S_T - x$ under Equation (2.7) pays $0 \leq q(z) \leq y$ and also leaves the new state in $\mathcal{D}$. These properties hold after any finite sequence of permitted trades.*

The result establishes both sides of the launch market: buys respect the terminal inventory, and redemptions are covered by real principal. The proof is in Appendix B.1.

2.3 Initial secondary-market liquidity

Suppose the completed launch has state (x_f, y_f) , with $y_f > 0$. A seed allocation that uses real quote principal and matches the terminal marginal price satisfies

$$Q_{\text{seed}} = y_f, \quad T_{\text{seed}} = \frac{x_f y_f}{v + y_f}, \quad \frac{Q_{\text{seed}}}{T_{\text{seed}}} = p(x_f, y_f). \quad (2.8)$$

Corollary 2.2 (Seed feasibility and price matching). *For a terminal state in $\mathcal{D}$ with $y_f > 0$, Equation (2.8) uses strictly less than the remaining token inventory and has reserve ratio equal to the terminal marginal launch price. That ratio is the opening marginal price of a full-range constant-product seed. Along the launch curve, the marginal price increases strictly with real principal.*

For concentrated liquidity, the market is initialized at the terminal launch price and a position range is chosen separately; the token-to-quote budget ratio alone does not specify its marginal price. Appendix B.2 gives the price-matching derivation. Secondary-market pools admitted through the whitelist process can then participate in the vote-directed incentive system described in Section 3.

2.4 Creator Fee and project-token staking

Creator Fee gives a project an ongoing revenue stream from its own market. At launch creation, the creator selects an additional fee rate $\tau \geq 0$ within the protocol's permitted range and allocation shares $\alpha_c, \alpha_h \geq 0$, with $\alpha_c + \alpha_h = 1$. The rate and shares are fixed at creation and continue into the project's designated secondary-market pool. Choosing a zero additional rate keeps that rate at zero throughout the launch lifecycle.

The fee is charged in the launch's quote asset Q : on quote input for a purchase and on quote output for a sale. In the continuous model, the additional charge is τa_Q , where a_Q is the executed gross quote amount before deduction of that charge. During curve trading, creator revenue also includes the creator's allocated share of the base trading fees. After graduation, the additional Creator Fee continues alongside the pool's separate market fee.

Let $\Phi \geq 0$ be a receipt of quote-denominated creator revenue. It is split on receipt into creator and holder allocations:

$$C_c = \alpha_c \Phi, \quad C_h = \alpha_h \Phi, \quad C_c + C_h = \Phi. \quad (2.9)$$

The final equality follows from normalization of the shares; summing over receipts preserves the same identity. The creator allocation is claimable by the designated recipient. The holder allocation funds quote-asset rewards for participants who stake the project's token T . Both allocations are paid directly in Q .

Holder budgets are added to the reward stream at most once per seven-day protocol epoch and streamed over seven days. Let $s_i(t) \geq 0$ be participant i 's stake, $\rho_Q(t) \geq 0$ the scheduled quote-reward rate, and $J_i(t)$ cumulative quote rewards accrued. For a finite participant set, between stake changes the continuous accrual rule is

$$J_i(t) = \begin{cases} \rho_Q(t) \frac{s_i(t)}{\sum_j s_j(t)}, & \sum_j s_j(t) > 0, \\ 0, & \sum_j s_j(t) = 0. \end{cases} \quad (2.10)$$

When stake is positive, summing Equation (2.10) over participants gives $\sum_i J_i(t) = \rho_Q(t)$ because the stake fractions sum to one. Rewards scheduled during periods with no stake are carried forward for a subsequent stream. Stake becomes withdrawable seven days after the participant's most recent deposit.

For example, a receipt of 10 units of Q with a 40/60 creator–holder split assigns 4 units to the creator and 6 to the holder budget. A participant maintaining 10% of total stake throughout that budget's full distribution earns 0.6 units of Q . This project-level revenue stream is separate from BIBO liquidity emissions and from the protocol revenue assigned to 80/20 buybacks and operations in Section 4.

3 Fee-driven liquidity allocation

3.1 Whitelist admission and wash-trading resistance

Access to the fee-referenced emission program requires whitelist admission. Governance controls eligibility through token whitelisting and approved market routes. Launching a token or creating a trading pool does not by itself admit that market to the reward program. Let $\mathcal{G}_e$ be the finite set of admitted pools in epoch e ; all pool-indexed sums in this section range over $\mathcal{G}_e$. Pools outside this set receive no allocation under this program.

Admission and reward sizing serve different purposes. The whitelist places a selection step between market creation and access to emissions, helping limit the use of self-created, wash-traded markets to farm BIBO rewards. Every admitted pool remains subject to its voting allocation and the

five-times-fee cap. Eligibility therefore controls which markets participate, while the cap determines how much incentive capacity their measured fees can support.

3.2 Locking BIBO and directing liquidity

Locking BIBO converts a liquid token position into voting weight. For a time-decaying position i , let $a_i \geq 0$ be the locked amount, T_i its expiry time, and $T_{\max} > 0$ the maximum lock duration. The continuous voting weight is

$$w_i(t) = a_i \min \left\{ 1, \max \left\{ 0, \frac{T_i - t}{T_{\max}} \right\} \right\}. \quad (3.1)$$

A position maintained at the maximum horizon retains weight a_i . This gives both the size and the duration of a commitment a role in liquidity allocation.

Let $v_{ig,e} \geq 0$ be position i 's vote allocation to eligible pool g , measured at the voting snapshot t_e . Pool weights satisfy

$$\sum_g v_{ig,e} \leq w_i(t_e), \quad W_{g,e} = \sum_i v_{ig,e}. \quad (3.2)$$

For a scheduled pool reward budget E_e , the nominal voting share is

$$N_{g,e} = \begin{cases} E_e \frac{W_{g,e}}{\sum_h W_{h,e}}, & \sum_h W_{h,e} > 0, \\ 0, & \sum_h W_{h,e} = 0. \end{cases} \quad (3.3)$$

Voting therefore creates a market for the direction of liquidity: participants compete to attract a share of the common incentive budget.

Liquidity providers earn the rewards released to their pool through eligible liquidity participation. Voters receive the associated fee and external voting-incentive streams. BIBO earned as a liquidity reward can in turn be locked for participation in this allocation process.

3.3 Up to five times fees in liquidity incentives

BIBO links a pool's incentive capacity to the fees it generates. Let $F_{g,e-1}$ be eligible fees attributed to the pool's voter fee stream during the preceding measurement window, valued in WETH. With BIBO reference price $P_{g,e}^{\star} > 0$, the fee-based allowance is

$$A_{g,e} = \frac{\mu F_{g,e-1}}{P_{g,e}^{\star}}, \quad \mu = 5. \quad (3.4)$$

The multiplier is a dimensionless policy parameter. At $\mu = 5$, one unit of eligible fee value supports an allowance of up to five units of BIBO reward value.

Actual pool rewards combine this fee allowance with the voting share:

$$0 \leq r_{g,e} \leq \min \left\{ N_{g,e}, \frac{5F_{g,e-1}}{P_{g,e}^{\star}} \right\}. \quad (3.5)$$

Write $r_{g,e}^{\max}$ for the minimum on the right-hand side: it is the release ceiling, while $r_{g,e}$ is the amount actually released. Votes determine the pool's claim on the common budget; fee production determines its activity-linked allowance. A pool with growing fees can support a larger allowance, while its nominal allocation continues to reflect voting demand.

For example, 10 WETH of eligible fees at a reference price of 0.002 WETH per BIBO supports an allowance of 25,000 BIBO, valued at 50 WETH. A nominal allocation of 40,000 BIBO is limited to 25,000; a nominal allocation of 10,000 BIBO remains limited to its voting share.

Proposition 3.1 (Emission bounds and allocation response). *For a fixed admitted pool set $\mathcal{G}_e$, non-negative fees, voting weights, and budget E_e , with $P_{g,e}^\star > 0$, the fee-referenced allocations satisfy*

$$\sum_g r_{g,e} \leq E_e, \quad \sum_g P_{g,e}^\star r_{g,e} \leq 5 \sum_g F_{g,e-1}. \quad (3.6)$$

Holding other inputs fixed, the ceiling $r_{g,e}^{\max}$ is nondecreasing in the nominal allocation and eligible fees, and nonincreasing in the BIBO reference price.

Thus the common budget and the fee allowance hold simultaneously, including when total voting weight is zero. The proof and the piecewise response are given in Appendix B.3.

3.4 An incentive budget that responds to activity

Define the reference-valued reward amount as $I_{g,e}^{\text{ref}} = P_{g,e}^\star r_{g,e}$. Then

$$I_{g,e}^{\text{ref}} \leq \min \{P_{g,e}^\star N_{g,e}, 5F_{g,e-1}\}. \quad (3.7)$$

This creates two useful allocation regimes. Where the voting share binds, increasing that share raises reward capacity up to the fee allowance. Where the fee allowance binds, additional fee production increases that capacity. The design places voting demand and market activity inside the same allocation rule.

It also adjusts token quantities to their reference valuation. When the fee allowance is fully used, a higher BIBO reference price delivers the same five-times-fee reward value with fewer tokens. The model can therefore preserve an activity-linked incentive value while reducing the token amount required for that value.

The overall budget E_e comes from the issuance schedule; the fee rule governs its allocation to pools. Measurement conventions are collected in Appendix A.

4 Launchpad revenue and BIBO buyback-and-burn

4.1 A direct link from fees to token demand

The Launchpad contributes more than new trading pairs. Its protocol fee revenue funds BIBO purchases in the market, connecting launch activity directly to demand for the protocol asset.

Let R_e be realized Launchpad protocol fee revenue in epoch e , valued in WETH. The policy assigns 80% to buybacks and 20% to operations:

$$K_e = 0.8R_e, \quad C_e^{\text{ops}} = 0.2R_e. \quad (4.1)$$

Here K_e is the buyback budget and C_e^{ops} the operating allocation. The revenue base consists of protocol-owned fees, accounted for separately from launch principal and the Creator Fee allocations in Section 2.4.

Carry-over is accounted for in each fee asset's own units. For asset a , write $R_e^{(a)} \geq 0$ for realized protocol fees, $H_e^{(a)}$ for the opening earmarked balance, and $X_e^{(a)}$ for the amount spent on buybacks. Starting from $H_0^{(a)} \geq 0$, the cash balance satisfies

$$\begin{aligned} H_{e+1}^{(a)} &= H_e^{(a)} + 0.8R_e^{(a)} - X_e^{(a)}, \\ 0 &\leq X_e^{(a)} \leq H_e^{(a)} + 0.8R_e^{(a)}. \end{aligned} \quad (4.2)$$

Thus unspent funds remain available to subsequent epochs. Applying the balance in native asset units keeps cash flows separate from changes in their WETH valuation.

Let X_e be the WETH value of these expenditures at execution. In an epoch with purchases, let $\frac{\text{buy}}{P_e} > 0$ be the all-in average acquisition price. The quantity purchased is

$$B_e = \frac{X_e}{\frac{\text{buy}}{P_e}}. \quad (4.3)$$

An epoch without purchases has $X_e = B_e = 0$. As realized Launchpad fees grow, the buyback budget grows in direct proportion.

4.2 Every acquired token is permanently retired

All BIBO acquired through the buyback policy is sent directly to a black-hole address. The entire purchased amount is designated for permanent retirement: it does not return as liquidity rewards or become a treasury voting position.

Let D_e denote BIBO delivered to the black-hole address during epoch e , and let Z_e be cumulative retirement at the epoch's opening:

$$Z_{e+1} = Z_e + D_e. \quad (4.4)$$

Each completed buyback-and-burn cycle retires the full amount acquired. Over successive cycles, the Launchpad builds a cumulative retirement stream alongside the liquidity incentive system.

This gives BIBO two distinct supply mechanisms. Rewards distribute tokens to participants who supply liquidity. Buybacks use realized revenue to acquire existing tokens and permanently remove them from economic circulation. The second provides a revenue-funded counterweight to the first.

Proposition 4.1 (Revenue-funded retirement and supply). *Under Equation (4.2), cumulative buyback expenditure in each fee asset cannot exceed its initial earmarked balance plus 80% of cumulative realized protocol fees in that asset. Let S_e^{nr} be recorded supply less cumulative black-hole retirement. If M_e tokens are newly issued, U_e are destroyed in recorded supply accounting, and D_e are transferred for permanent retirement during epoch e , with the latter two flows counted separately, then*

$$S_{e+1}^{\text{nr}} - S_e^{\text{nr}} = M_e - U_e - D_e. \quad (4.5)$$

Relative to identical issuance and recorded destruction without retirement, non-retired supply is lower by exactly D_e .

This is the mathematical connection between the buyback stream and token retirement. Appendix B.4 gives the stock-flow derivation.

4.3 An illustrative epoch

Consider 100 WETH in realized Launchpad protocol fees. The policy assigns 80 WETH to BIBO purchases and 20 WETH to operations. If the full buyback allocation executes at an all-in price of 0.002 WETH per BIBO, it acquires 40,000 BIBO, all designated for the black-hole address.

Alongside that activity, an eligible pool generating 10 WETH in measured fees supports a reward allowance of 25,000 BIBO at the same reference price. The two mechanisms operate together as shown in Table 2.

Launchpad revenue supplies the purchase budget; pool revenue supplies the fee signal for incentives. Both contribute to the BIBO economy without assigning the same fees to two different uses.

5 The BIBO flywheel

BIBO brings launches, liquidity, and token participation into one economic system. Launches introduce new assets and generate protocol fees. Those fees create a recurring budget for BIBO buybacks

Table 2. An illustrative fee, incentive, and buyback cycle.

Economic input	Result under the model
100 WETH in Launchpad protocol fees	80 WETH for buybacks; 20 WETH for operations
80 WETH executed at 0.002 WETH/BIBO	40,000 BIBO acquired for permanent retirement
10 WETH in eligible pool fees	Up to 50 WETH of reference-valued pool rewards
0.002 WETH/BIBO reward reference price	25,000 BIBO fee allowance, within the pool's voting share

and burns. Secondary markets generate trading fees, which reward voters and support further liquidity incentives.

The flywheel is designed to make an active liquidity venue more useful to new projects, while giving liquidity providers and BIBO holders reasons to remain involved after a launch. Figure 1 shows the fee flows and the market responses that connect them.

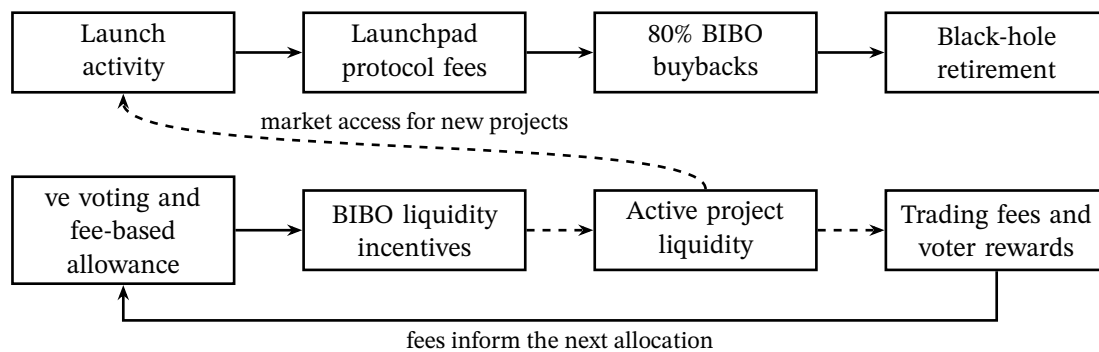


Figure 1. The BIBO flywheel. Solid arrows show policy and allocation flows; dashed arrows show the intended market responses.

5.1 Liquidity creates a reason to launch

A project benefits from entering an ecosystem with an established route from launch pricing to secondary-market liquidity. Liquidity providers earn BIBO for supplying that market. Better depth improves execution for traders and can make the venue more attractive for subsequent launches. New project activity then feeds the Launchpad revenue stream. Creator Fee adds an ongoing source of quote-asset revenue for the project and its token stakers, extending their participation beyond the initial launch.

The five-times-fee allowance gives this process room to reward liquidity beyond the immediate value of its eligible fees. Voting determines where the common reward budget is directed, while the fee-based allowance ties an admitted pool's reward capacity to its trading activity.

5.2 BIBO connects liquidity rewards and voting participation

BIBO earned by liquidity providers can be locked for voting weight. A provider who locks becomes a participant in directing the next reward allocation and can receive the fee and incentive streams attached to those votes. This creates a route from supplying liquidity to having a continuing economic interest in its allocation.

Buyback-and-burn adds a separate source of token demand financed by Launchpad revenue. Burning and locking have complementary roles: burning permanently retires acquired BIBO, while

locking commits participant-owned BIBO to voting. Buybacks support the token economy without accumulating a protocol-owned voting position.

The result is a design in which launch activity finances purchases, trading activity supports incentive capacity, and BIBO participation coordinates capital between markets. Its progress can be tracked through realized fees, BIBO retired, pool rewards, and persistent trading depth.

5.3 A mathematical model of the liquidity–fee loop

To analyze the allocation loop, consider one admitted pool at fixed BIBO reference price $P > 0$ and nominal token allocation $N > 0$, using its full admissible reward ceiling. Index completed fee–reward–liquidity response rounds by n ; a round can span more than one accounting epoch. Let $\ell(I)$ be active liquidity depth supported by reward value I , and let $\varphi(L)$ be eligible fees produced at depth L , with other market conditions held fixed. The reduced model is

$$I_n = \min\{PN, 5F_n\}, \quad F_{n+1} = \varphi(\ell(I_n)). \quad (5.1)$$

Reward values and fees are in WETH; depth uses a fixed price band and a consistent capital measure. Assume both response functions map $[0, \infty)$ into $[0, \infty)$ and are continuous and nondecreasing. For the local calculation, assume they are continuously differentiable near the operating point. Write $\mathcal{T}(F) = \varphi(\ell(\min\{PN, 5F\}))$ for the fee update.

Proposition 5.1 (Bounded feedback and local stability). *Let $C = \varphi(\ell(PN))$. For any initial $F_0 \geq 0$, the model in Equation (5.1) satisfies $0 \leq F_n \leq C$ for $n \geq 1$ and has a fixed point in $[0, C]$. For a positive fixed point F_* away from $5F_* = PN$, put $I_* = \min\{PN, 5F_*\}$ and $L_* = \ell(I_*)$. The local response gain is*

$$\kappa = \mathcal{T}'(F_*) = \begin{cases} 5\varphi'(L_*)\ell'(I_*), & 5F_* < PN, \\ 0, & 5F_* > PN. \end{cases} \quad (5.2)$$

If $\kappa < 1$, this fixed point is locally attracting.

The multiplier controls how strongly fee changes feed into incentive capacity. The nominal budget introduces a plateau in that response. Together they give a precise criterion for a fee-responsive loop that settles after small disturbances. Response slopes can be estimated from observed rewards, active depth, and fees; the proof is in Appendix B.5.

6 Conclusion

BIBO extends the launch process into a continuing market for liquidity. Its economic model combines a virtual-reserve launch curve and fixed Creator Fee policies with whitelist-admitted, vote-directed incentives worth up to five times eligible pool fees, and an 80% Launchpad protocol-fee allocation to BIBO buyback-and-burn.

Together, these mechanisms give new projects access to an incentive system, connect project creators and token stakers to market revenue, give liquidity providers a route into voting participation, and give Launchpad revenue a direct role in the BIBO economy. The flywheel is built around a simple principle: activity should feed back into the asset and the participants that support the market.

A Model conventions

The equations use continuous asset quantities. Launch principal excludes fees. Launchpad revenue means realized protocol-owned fees, with the 80/20 allocation applied per fee asset before aggregate valuation.

The five-times-fee rule describes the fee-referenced allocation policy with usable measurements. Eligible fees are the prior-window pool fees attributed to the voter fee stream, converted to WETH; they exclude Launchpad protocol revenue, Creator Fee allocations, and external voting incentives. Pool eligibility follows the whitelist admission described in Section 3.1. The BIBO reference price is the higher of spot and the 24-hour time-weighted price at measurement. Transitional allocations, missing-data policies, and non-pool rewards are accounted for separately.

A.1 Supply accounting

Black-hole transfers are modeled as permanent retirement to a non-spendable destination. They remove tokens from economic circulation without necessarily changing recorded total supply. Let S_e^{nom} be recorded supply and Z_e cumulative retirement. Non-retired supply is

$$S_e^{\text{nr}} = S_e^{\text{nom}} - Z_e. \quad (\text{A.1})$$

It includes locked tokens and spendable treasury balances. Proposition 4.1 gives the change in this stock. Retirement offsets issuance; non-retired supply contracts when $U_e + D_e > M_e$. New issuance includes all reward categories, not only pool emissions.

Buyback prices are all-in acquisition prices. Expenditure and retirement are recognized when completed, with unspent buyback funds carried forward. Numerical examples illustrate the model rather than report live operating results.

B Analytical proofs

The results below follow from the continuous models stated in the main text. Each proof retains the variable domains and allocation policy of its corresponding result.

B.1 Launch-state preservation

Proof of Proposition 2.1. Let $a = v + y > 0$ and write $z = z(b)$ for a buy. The output rule gives

$$0 \leq z \leq x - x_{\min}, \quad z \leq \frac{xb}{a+b} < x.$$

Hence $x - z \geq x_{\min} > 0$ and $u = az/(x - z) \geq 0$. Moreover,

$$u \leq b \iff az \leq b(x - z) \iff z \leq \frac{xb}{a+b},$$

which is exactly the second output bound. Substitution gives

$$(x - z)(v + y + u) = (x - z)a + az = xa = S_T v.$$

The new token inventory lies in $[x_{\min}, S_T]$. The reserve relation then implies $y' = S_T v/x' - v \in [0, G]$, so the new state lies in $\mathcal{D}$. When the output is not truncated by the inventory floor, $z = xb/(a + b)$ and the same algebra gives $u = b$.

For a sale, let $0 \leq z \leq S_T - x$ and $q = za/(x + z)$. The invariant implies $S_T - x = xy/v$, so $zv \leq xy$. Therefore

$$q \leq y \iff z(v + y) \leq y(x + z) \iff zv \leq xy.$$

Also $q \geq 0$, $x + z \in [x_{\min}, S_T]$, and $0 \leq y - q \leq y \leq G$. Direct substitution yields

$$(x + z)(v + y - q) = (x + z)a - za = xa = S_T v.$$

Thus a sale also preserves $\mathcal{D}$. The initial state belongs to $\mathcal{D}$; induction over the number of permitted trades proves the finite-sequence statement. $\square$

B.2 Seed amounts and marginal prices

Proof of Corollary 2.2. Since $v > 0$ and $y_f > 0$,

$$0 < \frac{T_{\text{seed}}}{x_f} = \frac{y_f}{v + y_f} < 1.$$

The seed therefore fits within the remaining token inventory. Its reserve ratio is

$$\frac{Q_{\text{seed}}}{T_{\text{seed}}} = \frac{y_f}{x_f y_f / (v + y_f)} = \frac{v + y_f}{x_f} = p(x_f, y_f).$$

For a full-range constant-product pool with reserves T, Q , the relation $TQ = k$ gives $-dQ/dT = Q/T$. The reserve ratio is consequently its marginal quote price per token.

Finally, parameterize the launch curve by real principal:

$$\pi(y) := p\left(\frac{S_T v}{v + y}, y\right) = \frac{(v + y)^2}{S_T v}, \quad \pi'(y) = \frac{2(v + y)}{S_T v} > 0.$$

This establishes both the price match and monotonic launch pricing. $\square$

B.3 Emission budgets and comparative statics

Proof of Proposition 3.1. Fix the admitted set $\mathcal{G}_e$ and sum only over its pools. If total voting weight is positive, Equation (3.3) gives $\sum_g N_{g,e} = E_e$. If total weight is zero, every nominal allocation is zero. In either case, $r_{g,e} \leq N_{g,e}$ implies $\sum_g r_{g,e} \leq E_e$.

Separately, $r_{g,e} \leq 5F_{g,e-1}/P_{g,e}^*$. Multiplying by the positive reference price and summing over pools gives the second inequality in Equation (3.6). Neither step requires an allowance to be fully released.

For the comparative statics, suppress pool and epoch subscripts and write $r^{\max} = \min\{N, 5F/P\}$. Increasing N or F cannot decrease this minimum, and increasing $P > 0$ cannot increase it. More explicitly,

$$r^{\max} = \begin{cases} 5F/P, & 5F < PN, \\ N, & 5F \geq PN. \end{cases}$$

At $5F = PN$, the two expressions agree, so the ceiling is continuous and its monotonicity holds across the regime boundary. Zero fees or a zero nominal allocation give a zero ceiling. Multiplication by P gives $Pr^{\max} = \min\{PN, 5F\}$, establishing the corresponding reference-valued incentive capacity. $\square$

B.4 Buyback funding and permanent retirement

Proof of Proposition 4.1. The spending bound in Equation (4.2) implies $H_{e+1}^{(a)} \geq 0$. Since $H_0^{(a)} \geq 0$, all subsequent cash balances are nonnegative. For any integer $m \geq 1$, summing the balance equation from epoch 0 to epoch $m - 1$ gives

$$\begin{aligned} \sum_{e=0}^{m-1} X_e^{(a)} &= H_0^{(a)} + 0.8 \sum_{e=0}^{m-1} R_e^{(a)} - H_m^{(a)} \\ &\leq H_0^{(a)} + 0.8 \sum_{e=0}^{m-1} R_e^{(a)}. \end{aligned}$$

This establishes the cumulative funding bound in each asset's own units.

The period's recorded supply changes by new issuance less recorded destruction, while the retirement stock increases by the amount delivered:

$$S_{e+1}^{\text{nom}} = S_e^{\text{nom}} + M_e - U_e, \quad Z_{e+1} = Z_e + D_e.$$

Using the definition $S^{\text{nr}} = S^{\text{nom}} - Z$ yields

$$\begin{aligned} S_{e+1}^{\text{nr}} &= S_e^{\text{nom}} + M_e - U_e - Z_e - D_e \\ &= S_e^{\text{nr}} + M_e - U_e - D_e. \end{aligned}$$

For the same opening stock, issuance, and recorded destruction, setting the retirement flow to zero increases the closing non-retired stock by exactly D_e . Repeating the identity across periods makes the cumulative difference equal to the sum of their retirement flows. $\square$

B.5 The liquidity–fee response map

Proof of Proposition 5.1. For every $F \geq 0$, the incentive value lies in $[0, PN]$. Monotonicity and non-negativity of the response functions give

$$0 \leq \mathcal{J}(F) = \varphi(\ell(\min\{PN, 5F\})) \leq \varphi(\ell(PN)) = C.$$

This proves the trajectory bound after the first update. The continuous function $h(F) = \mathcal{J}(F) - F$ satisfies $h(0) \geq 0$ and $h(C) \leq 0$. If $C > 0$, the intermediate value theorem gives a zero in $[0, C]$; if $C = 0$, zero itself is a fixed point.

Near a positive fixed point with $5F_* < PN$, the fee branch remains active. The chain rule therefore gives $\mathcal{J}'(F_*) = 5\varphi'(L_*)\ell'(I_*)$. If $5F_* > PN$, the incentive value is locally constant at PN , so $\mathcal{J}'(F_*) = 0$. These are the two cases in Equation (5.2).

When $\kappa < 1$, nondecreasing response functions give $0 \leq \kappa < 1$. By continuity of the local derivative, choose $q \in (\kappa, 1)$ and a sufficiently small interval around F_* that stays within the same branch and has $|\mathcal{J}'(F)| \leq q$. The mean value theorem gives

$$|\mathcal{J}(F) - F_*| \leq q|F - F_*|.$$

The map takes this interval into itself. Iteration yields $|F_n - F_*| \leq q^n|F_0 - F_*|$, which tends to zero. Thus the fixed point is locally attracting. $\square$

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