

# Tokenomics

Learning Outcome: Tokenomics-Modelle analysieren — Bloom's: Analyze

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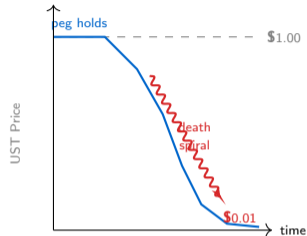
BSc Blockchain, Crypto Economy & NFTs

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# Why Did Terra Collapse?

## Terra/Luna: Tokenomics as Weapon of Mass Destruction

- UST was an *algorithmic* stablecoin – no cash backing, only code
- Peg maintained by minting/burning LUNA: 1 UST always redeemable for \$1 of LUNA
- May 2022: coordinated sell pressure broke the peg
- Death spiral: UST falls → LUNA minted → LUNA supply explodes → LUNA crashes → UST falls further
- Result: \$40B+ wiped out in 72 hours



Flawed tokenomics design can destroy billions. Understanding token mechanics is not optional – it is risk management.

## Token Taxonomy

1. **Utility tokens** – access to services  
e.g. LINK (oracle fees), FIL (storage), ETH (gas)
2. **Governance tokens** – on-chain voting power  
e.g. UNI (Uniswap), AAVE (Aave), MKR (MakerDAO)
3. **Security tokens** – represent ownership claim  
e.g. tokenised equity, real-estate tokens

**Value Accrual** = the mechanism by which a token captures protocol revenue

Without value accrual, growing protocol usage does *not* raise token price.

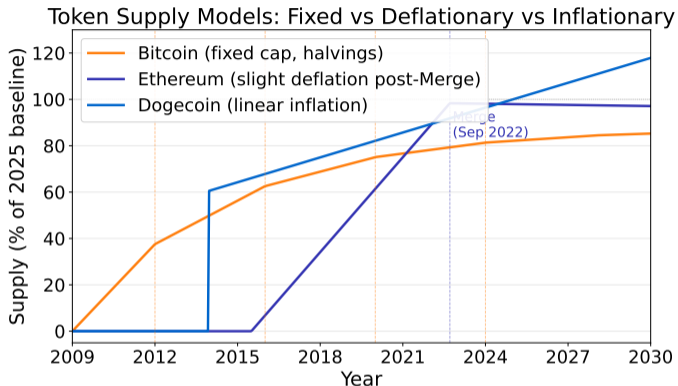
## Three Core Value Drivers:

- **Demand from usage** – more users require more tokens to pay fees or access services
- **Supply constraints** – hard caps, burn mechanisms, and lock-ups reduce circulating supply
- **Fee capture** – protocol revenue flows back to token holders via buybacks, staking yields, or treasury accumulation

Key insight: token price reflects the *present value* of all future fee capture minus dilution from new issuance.

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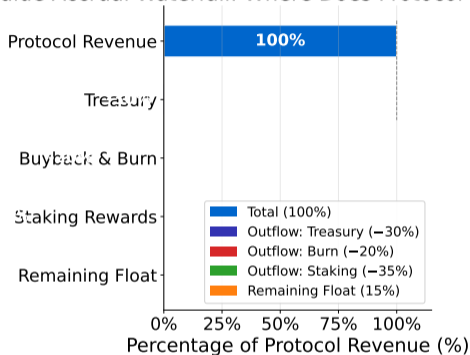
**Ask:** does this token have a reason to exist beyond speculation? If not, demand is purely reflexive.



- **Bitcoin (fixed):** 21M hard cap enforced by code – digital scarcity. Each halving cuts new supply 50%; next halving ~2028.
- **Ethereum (mildly deflationary):** EIP-1559 burns base fees. Post-Merge issuance fell 88%; net supply has been slightly deflationary in high-activity periods.
- **Dogecoin (inflationary):** No cap – 5B DOGE added per year, ~3–4% annual dilution. Long-run appreciation requires perpetually growing demand.

Supply schedule is the single most legible part of tokenomics. Always read it first.

## Value Accrual Waterfall: Where Does Protocol Revenue Go?



### Revenue Sources:

- Trading fees (AMM swap fees, lending spreads)
- Interest rate spreads (borrow vs. lend margin)
- MEV – Maximal Extractable Value captured by validators/searchers

### Distribution Channels:

- Treasury accumulation (DAO-governed)
- Buyback & burn (reduces circulating supply)
- Staking rewards (distributed to lockers)
- Remaining float (general liquidity)

The path from protocol revenue to token price determines whether token holders actually benefit from growth.

# Can We Put a Price on a Token?

## Equation of Exchange:

$$\underbrace{M \times V}_{\text{token flow}} = \underbrace{P \times Q}_{\text{economic value}}$$

- $M$  = token supply (e.g. 100 M tokens)
- $V$  = velocity – how often each token changes hands per year
- $P \times Q$  = total protocol volume in USD per year

## Solve for token price:

$$P_{\text{token}} = \frac{\underbrace{P \times Q}_{\$400\text{M volume}}}{\underbrace{M \times V}_{100\text{M} \times 4}} = \underbrace{\$1.00}_{\text{fair value}}$$

## Numerical Example:

- Protocol annual volume: \$400M
- Token supply: 100M tokens
- Implied velocity  $V = 4$  (each token turns over 4x per year)
- Fair value per token: \$1.00

## Key implication:

Higher velocity  $\Rightarrow$  lower token price.

Protocols that encourage *holding* (staking, governance) reduce  $V$  and support price.

Limitation:  $MV = PQ$  assumes token is used as medium of exchange.

Governance-only tokens require different models.

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$MV = PQ$  is a simplification, but it forces you to state assumptions explicitly – the beginning of rigorous analysis.

# When Do Insiders Sell?

## Vesting Schedules Explained:

- Team and investor tokens are *locked* at launch, released over 1–4 years
- **Cliff** = date of first large unlock (often month 12)
- Sell pressure typically *peaks at cliff dates* as early holders realise gains
- Linear monthly vesting after cliff smooths subsequent supply
- Check: what % of total supply unlocks in next 90 days?

Token Generation Event (TGE) → cliff unlock → linear release: each phase creates distinct price dynamics.

## Typical Vesting Timeline:



Always check the unlock schedule on [token.unlocks.app](https://token.unlocks.app) or Messari before taking a long position.

# What Red Flags Should You Look For?

## Warning Signs in Token Design:

- **No utility beyond speculation** – demand is reflexive and collapses in downturns
- **≥50% insider allocation** – team and VCs control supply at retail's expense
- **Unlimited supply with no burn** – inflation destroys holder value over time
- **No lockup / vesting period** – insiders can dump at any time
- **Circular dependencies** – token A backs token B which backs token A (Terra/Luna)

## Historical Failure Cases:

- **BitConnect (2018)** – promised 1% daily returns; no real business model; classic Ponzi; \$2.5B lost
- **IRON Finance (2021)** – partially collateralised stablecoin; bank run triggered death spiral similar to Terra; \$2B wiped
- **Olympus forks (2022)** – unsustainable 8,000%+ APY funded by token dilution; rebasing mechanic rewarded early exiters at late joiners' expense

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Pattern: every major tokenomics failure shares at least two of the five warning signs above.

## The Four Diagnostic Questions:

### 1. What creates demand?

Required for product use, governance, or yield?

### 2. What limits supply?

Hard cap, burn rate, lock-up periods?

### 3. Who benefits from appreciation?

Is upside shared or captured by insiders?

### 4. What happens if velocity increases?

Does  $MV = PQ$  hurt holders? Any friction mechanisms?

## How to Answer Each Question:

- Check *utility*: is the token technically required by the protocol, or optional?
- Check *cap / burn*: read tokenomics docs and on-chain data (Etherscan)
- Check *allocation table*: team + VC share; vesting cliff dates
- Check *velocity leakage*: does protocol encourage holding (staking, governance lock) or fast recycling?
- Cross-check: does protocol revenue actually flow to token holders?

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Apply these four questions to every new token – they take under 10 minutes and filter out most failed designs.

## What You Have Learned:

- **Token types** differ in how they derive value: utility, governance, security
- **Supply schedule** (fixed / inflationary / deflationary) is the most legible tokenomics signal
- **Value accrual** determines whether protocol growth actually benefits token holders
- **MV = PQ** gives a quantitative framework for valuation – high velocity suppresses price
- **Vesting cliffs** create predictable sell-pressure events visible months in advance

## You Can Now Analyze:

- Token supply models and their long-run price implications
- Value accrual mechanisms and whether they benefit holders
- Vesting schedules and upcoming unlock events
- Red flags: circular dependencies, no utility, insider-heavy allocations

## Bloom's Level: Analyze

You can *decompose* a token design into its components, identify *relationships* between supply, demand, and velocity, and *distinguish* sound from flawed tokenomics.