Complete whitepaper (MVP-aligned draft)
January 2026

Janus Protocol

Proof-of-Belief Reserve Asset

This document describes a protocol design and is provided for discussion purposes only. It is not investment advice, legal advice, or an offer to sell or solicit securities. Janus involves smart-contract, oracle, liquidity, and market risks; you can lose funds

Janus is a Proof-of-Belief reserve asset: an on-chain balance sheet with explicit seniority, designed to stay legible under stress.

Instead of a hard peg or governance knobs, Janus runs a recurring prediction game each epoch. Beliefs become credible only when they are staked, held through time, and tested against objective settlement.

Institutional rails, decentralized brain.

Non temere, sed consilio. Non finis, sed principium.

Abstract

Janus is a collateral-backed on-chain balance sheet that issues two explicit claims on the same reserves: Alpha (α), the junior upside claim, and Omega (Ω), the senior defensive claim.

Alpha is not a stablecoin. It is the growth claim: when the system remains solvent and the vault accrues fees/yield, incremental value flows to Alpha after the senior claim is covered. In the healthy regime, Alpha is designed to appreciate over time (while remaining first-loss in stress).

Instead of chasing a hard peg or tuning governance knobs in real time, Janus treats stability as something that must be earned and proven. Each epoch it runs one canonical prediction market: will the system remain HEALTHY and retain value through the next interval of time?

Participants bet YES/NO with Ω. The market pays for being right; the protocol adds a second layer via an epoch reward pot W(e) that unlocks only when stability is sustained. This makes the default incentive legible: users with skin in the game (α exposure) are economically motivated to bet YES when they believe stability will hold, while NO functions as explicit, tradable stress insurance. Because α is a transparent on-chain claim, it can also be collateralized in external DeFi (or future derivatives) to access liquidity without selling the upside.

Iane bifrons, custos liminum et temporum,
Te primum invocamus.

Adsis huic initio,
Quod non temere, sed consilio factum est.

Praeterita recte claudantur,
Futura recte aperiantur.

Da transitum ordinatum,
Fidem in structura,
Constantiam in tempore.

Sic hoc opus ingreditur,
Non ut finis, sed ut principium.

In Roman culture Janus is the guardian of **thresholds**—doors, gates, beginnings, endings—depicted with two faces looking **backward and forward**. Janus is used here as **symbolic architecture**, not theology. That makes him a natural emblem for a protocol that lives at the boundary between **past and future states**: deposits and redemptions, risk and safety, loss absorption and recovery, epochs that close and open, and rules that must hold across time. The “invocation” is therefore a **formal acknowledgement of a transition**—a genesis-style preamble that frames launch as a moment of responsibility: what we close, we close deliberately; what we open, we open with constraints.

It sets a tone of **governance humility** and **procedural seriousness**: systems outlast founders, and thresholds should be crossed by design, not impulse. It’s optional, non-binding, and has **no effect on protocol behavior**—a narrative reminder that the protocol’s trust comes from its **structure, invariants, and disciplined operation**, not from belief.

Contents

1. Executive Summary

Janus introduces a new category: a Proof-of-Belief Reserve Asset. It is designed for an ecosystem where crypto is increasingly accessed through institutional wrappers (e.g., spot crypto ETPs) while the core advantages of decentralization—self-custody, transparency, composability—remain essential for resilience [1][2][3].

Crypto's first era was defined by Bitcoin: a scarce bearer asset with simple, auditable rules and a global settlement network. It set a high bar for decentralization, but it was not designed to be a stable unit of account or an everyday medium of exchange.

Ethereum expanded the thesis by making the ledger programmable, unlocking DeFi and on-chain balance sheets—but also repeated cycles of leverage, liquidations, and brittle "stability" mechanisms. Janus is built for the next era: a reserve-style asset where stability is not asserted, but proven each epoch, and where belief only becomes credible when it is staked, held through time, and tested against objective settlement.

What Janus is

- Each epoch, Janus runs a single prediction market that prices a canonical question: "will stability persist?" Rewards unlock only when stability is sustained, and only for participants who were right and remained committed.
- Explicit solvency accounting ($\text{HEALTHY}(t) \Leftrightarrow V(t) \geq S\Omega(t)$).
- A recurring YES/NO epoch market with objective settlement.
- Conditional rewards that unlock only in sustained stability periods.
- Fee routing is explicit: protocol fees and market rake fund a rolling reward pot W(e) in Ω; future versions can add modest Ω carry and rules-based buybacks (Ω and/or α) with fixed caps.
- Depositors receive both α (growth; intended to appreciate with net yield/fees) and Ω (defensive).
- In normal (HEALTHY) regimes, the default posture is: stay exposed to α, stake α, and bet YES with Ω.
- NO is explicit stress insurance: it pays when stability breaks and tends to lose in stable epochs.

Simple example (illustrative): deposit 1 ETH worth of collateral

- You mint a split of value between Ω (defensive) and α (growth). For illustration, assume 70% Ω and 30% α by value.
- If the vault earns +1% net fees/yield during the epoch, total backing becomes 1.01 ETH worth.
- Ω remains the senior claim (bounded by the θ guardrail at mint). If Ω obligations stay at 0.70, the residual backing for α becomes 1.01 − 0.70 = 0.31 (vs 0.30).
- That is a ~3.3% increase in α's residual backing from a 1% increase in total assets (illustrative; market prices can diverge).
- To earn protocol rewards in a YES epoch, users stake α, bet YES with Ω, and stay committed through the epoch; the market pays winners, and the protocol unlocks additional Ω rewards from W(e).

This is a design explanation, not a promise of returns. α is first-loss and can draw down or go to zero in severe stress.

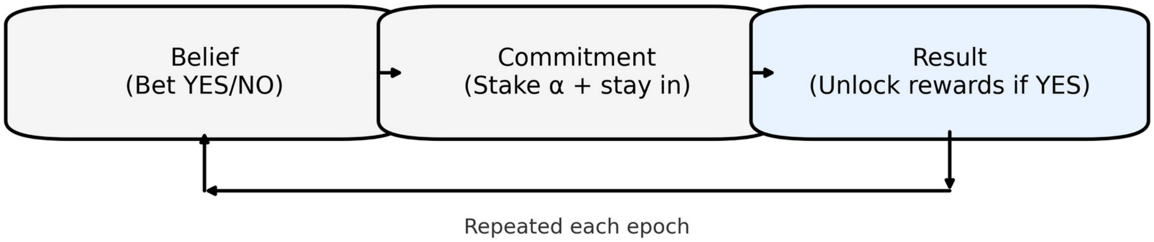

Figure 1. Institutional rails, decentralized brain — governance knobs are replaced by structure. The "rails" are fixed: collateral, waterfall, guardrails, and transparent solvency. The "brain" is plural: participants price stability vs stress each epoch, and that market-implied probability becomes the protocol's decision input for rewards, rollover, and risk posture.

Institutional rails. Decentralized brain.

What Janus is not

- Not a fiat-backed stablecoin.
- Not an algorithmic stablecoin backed by reflexive "belief collateral."
- Not a governance-heavy system that requires constant parameter tuning.

Why prediction markets: they can aggregate private and tacit information into a single tradable signal with accountability—being wrong has a cost. Interest in prediction markets has expanded materially, including via regulated and near-regulated venues and industry coordination efforts [6][7][8].

Data quality still matters; measurement work has highlighted pitfalls in headline volume metrics, reinforcing the need for careful market and oracle design [9].

On top, Janus can support a derivative stable-note design (JUSD-Ω) that uses Omega as backing and a prediction-market-priced insurance premium to fund a Stability Reserve. The note targets $1-like behavior in normal conditions without claiming a guaranteed peg.

2. Why Now: Institutionalization and the Next Reserve Thesis

Crypto is increasingly accessed through institutional rails. In the U.S., the SEC approved the listing and trading of multiple spot bitcoin exchange-traded product (ETP) shares on January 10, 2024 [1][2]. In 2024, the SEC also approved rule changes enabling the listing and trading of spot ether ETPs [3].

These developments improved access and distribution, but they also highlight a structural trend: large pools of capital increasingly enter crypto through custodial wrappers. At the same time, the decentralized ethos that made crypto resilient—self-custody, transparent settlement, censorship resistance, and composability—remains a core advantage.

The next generation of "reserve assets" can benefit from both worlds:

- Institutional-grade framing: clear exposures, explicit risk, familiar instruments.

- On-chain-grade resilience: transparent solvency, permissionless markets, composability.

Janus positions itself as a balance between the two: an on-chain reserve-style asset that is legible to institutions (explicit balance sheet and seniority) while remaining natively decentralized (self-custody, open markets, transparent solvency). Pitch in one paragraph. ETFs are rails. Janus is the decentralized brain that prices stress and coordinates behavior under uncertainty.

3. Prediction Markets as a Truth Layer (and Why AI Alone Is Not Enough)

Prediction markets are an information primitive. They convert dispersed beliefs into a single number (a price), and they force accountability because participants must stake capital. This is different from social consensus, influencer narratives, or model outputs: prediction markets punish wrongness.

Recent developments illustrate increasing attention and institutional participation in prediction markets, including new regulated offerings and industry coordination efforts [6][7][8]. That said, markets are only as good as their measurement and design. For example, research has highlighted ways headline on-chain volume metrics can double-count activity, reinforcing the need for careful market and oracle design [9].

Why markets can use information AI cannot

- Private information: humans observe local, non-public facts (flows, intent, operational risk) that may not exist in public datasets.
- Tacit judgment: humans perceive context and incentives that are not easily encoded.
- Skin in the game: markets weight beliefs by willingness to pay and accept loss.

Futarchy-adjacent, but simpler.

In classic futarchy, markets guide policy decisions. Janus is inspired by the same insight but applies it to one narrow question: who earns the upside. Markets do not vote on parameters; they determine reward eligibility via a verifiable forecast of stability. Design principle: Janus uses prediction markets to determine who earns the upside, not to seize control of vault funds.

4. Janus Overview: Balance Sheet, Claims, and the Epoch Game

Janus is built around a simple idea: treat on-chain capital like a balance sheet, then use markets to coordinate around its health.

Alpha (α) is not a stablecoin. In the healthy regime, α is intended to appreciate over time because it is the residual claim after the senior claim (Ω) is satisfied. As the system accrues fees/yield and senior obligations remain bounded by guardrails, the residual value backing α can grow.

The epoch market is the coordination layer: each epoch, participants price "stability vs stress" with capital. The protocol then uses that market signal to gate rewards—paying for stability that is sustained, not merely promised.

Proof-of-Belief Flywheel. Janus turns conviction into coordination: participants who want Alpha's upside are rewarded for being right about stability, and for remaining committed through time. The default "healthy regime" posture is to stay exposed to α, stake α for the epoch, and express a YES view with Ω when you believe the system will remain HEALTHY and retain value.

If stability persists and the value floor is met, rewards unlock and the residual value backing α can grow. If stress rises, NO positions price stress and Ω provides a defensive lane—so capital can rotate to safety without forcing an exit. This loop is bounded: rewards are funded from protocol fees/yield and market fees, not from new deposits.

Core components

- Collateral Vault: holds collateral and is the sole source of fundamental value.
- Alpha (α): junior claim on the vault (first-loss, upside participation).
- Omega (Ω): senior claim on the vault (defensive position; paid first).
- Epoch Market: one canonical YES/NO market per epoch: "will stability persist?"
- Conditional Rewards: rewards unlock only when stability is sustained.

Any-collateral design (without complexity).

Janus can support "deposit any crypto" by deploying isolated vaults. Each vault is denominated in its collateral (e.g., an ETH vault issues Alpha_ETH and Omega_ETH).

Cross-collateral mixing is optional and can be deferred to later versions.

In v0, the canonical lifecycle is:

1. Deposit collateral into the vault.
2. Mint a chosen mix of Alpha (α) and Omega (Ω).
3. Stake α to become reward-eligible for the current epoch (optional, but required for rewards in v0).
4. Bet YES or NO in the epoch market using Ω.
5. During the epoch, permissionless keepers can call oracle updates and checkpoints.
6. At settlement, winners claim from the net pool (after the fee). If the epoch resolves YES, stability rewards unlock; otherwise rewards roll forward.
7. Redeem α or Ω for collateral at any time (subject to the vault's seniority guardrail).

Stress narrative: when uncertainty rises, participants can rotate from α into Ω (defensive lane) rather than exit the system entirely. The epoch market prices the health question continuously and provides an on-chain signal for when stability is being challenged.

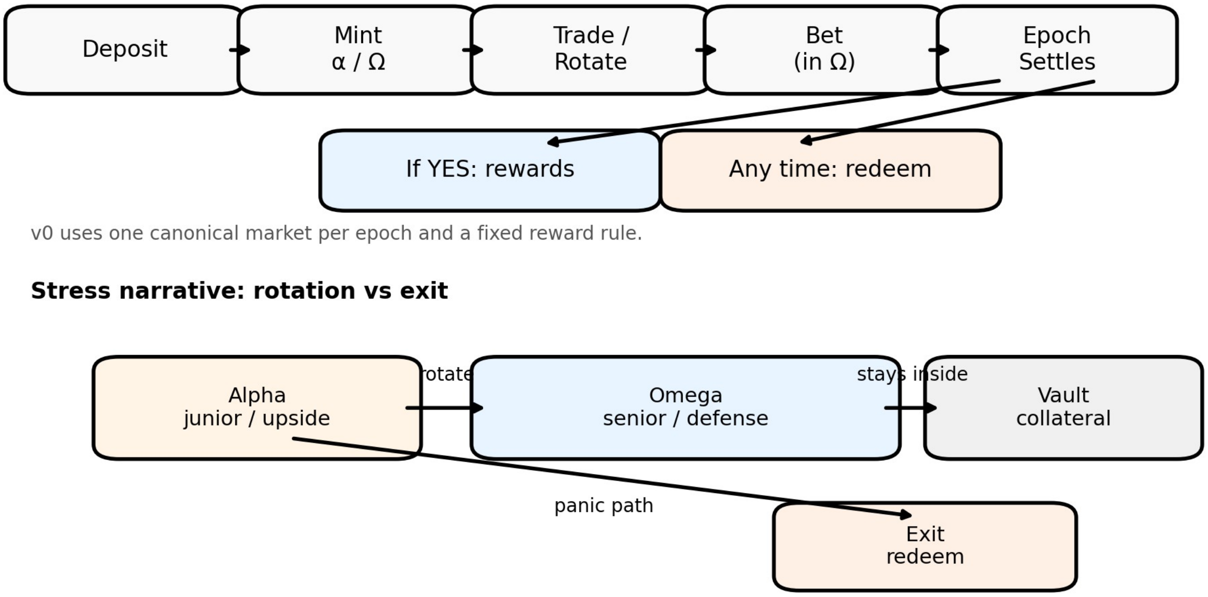

Figure 2. User journey and stress narrative: rotate to Omega vs exit.

Alpha (α)

Junior claim on the vault (first-loss). Captures upside when the system grows; absorbs losses first during stress.

Omega (Ω)

Senior claim on the vault. Defensive position paid first; used as the staking asset in the epoch market and backing layer for JUSD-Ω (optional).

4.1 Claim structure and pricing intuition

Alpha and Omega are two claims on the same collateral pool—junior vs senior—priced from the same balance sheet. They represent different payoff shapes under stress and recovery.

Alpha is not a stablecoin. It is the residual upside claim: in a healthy regime where fees/yield accrue to the vault, incremental value flows to α after Ω's senior claim is covered. Over time, that makes α the asset designed to appreciate when stability holds (while remaining first-loss in stress).

This is why the epoch market is not a "vote NO" game. If stability persists, NO positions lose their stake in normal epochs; they pay out only during stress. In other words, NO behaves like insurance. Participants with α exposure have skin in the game to bet YES, keep capital committed, and unlock rewards when the system remains healthy.

Explain it in simple terms: if the vault earns $10 in net fees and Ω obligations do not change, that $10 increases the residual value backing α.

A worked numeric example is provided in Section 5.3.

Alpha (α)	**Omega (Ω)**
Role Junior claim (upside / first-loss)	Role Senior claim (defense / first-paid)
Payout priority Paid after Ω; absorbs losses first	Payout priority Paid first; issuance capped by coverage threshold θ
Value in stress Can be wiped before Ω is impaired	Value in stress May trade below 1 in stress; seeks to remain senior
Value in recovery Residual upside from net assets above Ω	Value in recovery Returns toward par as backing improves
Typical use Risk-on exposure, reward-eligible staking	Typical use Defensive exposure, reserve-like holding

Omega is not a “short token.” If you want to express a bearish view on system health, the natural expression is to short Alpha externally and/or buy NO in the epoch market.

- In v0, Omega is the stake asset used to participate in the epoch market (YES/NO).
- Omega can also serve as the backing layer for derivative stable-note designs (optional, not required for v0).

“Defensive exposure” in this paper means holding Ω as the senior claim on the Janus vault. Ω is first in line on the collateral and is structurally insulated from first losses (absorbed by α), so it is intended to be less sensitive to moderate drawdowns than α. In stress, rotating from α into Ω is the “stay inside” risk-off path; redeeming is the “exit” path. Ω is defensive, but not a guaranteed peg or guaranteed redemption value under all conditions.

Ω is designed to stay close to par. Its upside is intentionally limited by the senior claim design; in calm regimes it may trade at a small premium due to utility (staking demand in the epoch market, or demand as JUSD-Ω backing). In stress regimes, it can trade below par (since it is still exposed if the vault becomes insolvent). Future versions may route a portion of net fees to modest Ω carry or discounted buybacks; v0 does not rely on this. Future versions may add an explicit Ω carry stream (a small fixed share of protocol revenue) in addition to discounted buybacks.

Explain it in simple terms: Ω is "first in line" on the vault. If collateral value falls, α absorbs losses first; Ω only begins taking losses if the vault falls below the outstanding Ω obligation.

Simple example (illustrative): if the vault holds $120 of collateral and there is $100 of Ω outstanding, Ω redeems at ~$1.00 and α is the residual. If collateral falls to $105, Ω still redeems at ~$1.00 (α absorbs the first $15). If collateral falls to $95, Ω redeems at ~$0.95. Users hold Ω for defensive exposure and for its role as the staking asset in the epoch market; as participation grows, this utility can support small, steady premiums.

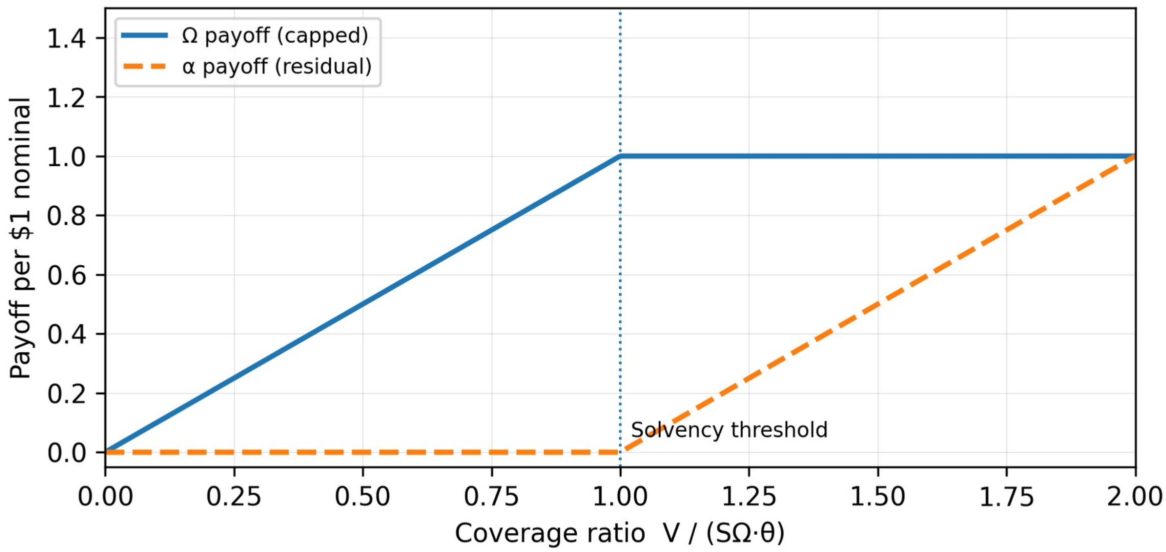

Figure 3. α vs Ω payoff intuition (normalized).

Illustrative price dynamics (conceptual): Alpha (α) can be more volatile and may appreciate in sustained-stability regimes. Omega (Ω) tends to be steadier and anchored near par; it can trade at small premiums in calm conditions (utility demand) and at discounts in stress. Future versions may add modest Ω carry mechanisms; any upside is designed to be low-volatility rather than high-beta.

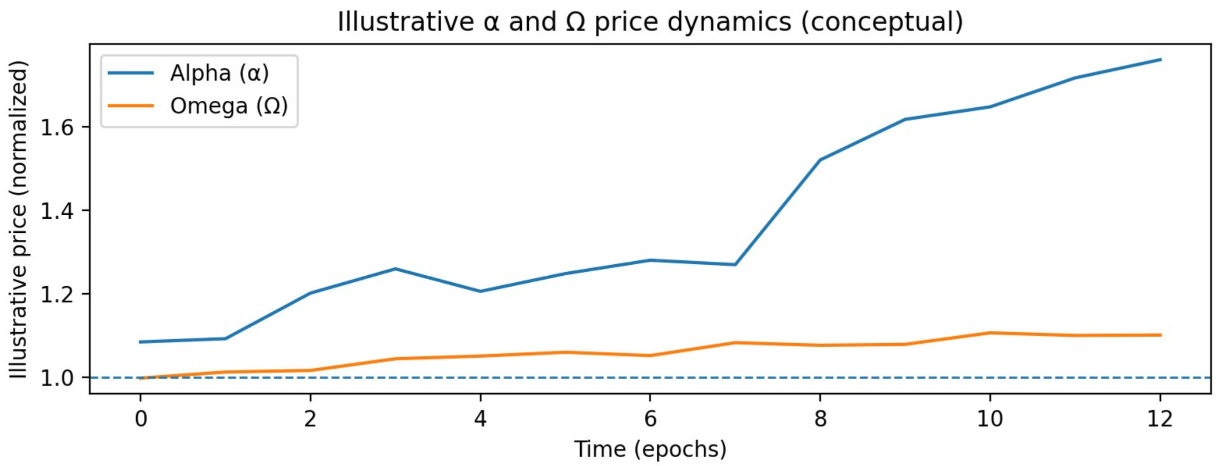

Figure 4. Illustrative α and Ω market prices over time (conceptual; not a forecast): α can trend upward with volatility in sustained-stability regimes; Ω is anchored near par, can show small utility/carry premiums in calm conditions, and can trade below par in stress.

5. Core Mechanics and Minimal Equations

v0 intentionally uses a small set of equations. These define the balance sheet, solvency, and the Alpha/Omega waterfall. Everything else (market implementation, fee routing details, oracle sampling) is implementation detail.

Quantity	**Definition**
Vault value	$V(t) = Q(t) \cdot P_C(t)$
Omega obligations	$D(t) = S_\Omega(t)$
Health	$\text{HEALTHY}(t) \Leftrightarrow V(t) \geq D(t)$
Omega value per token	$v_\Omega(t) = \min(1, V(t) / S_\Omega(t))$
Alpha value per token	$v_\alpha(t) = \max(0, V(t) - S_\Omega(t)) / S_\alpha(t)$

Janus uses a time-weighted average price (TWAP) signal for α, computed from checkpoint-sampled α-price observations over the epoch. Section 6 provides the formula and a worked example.

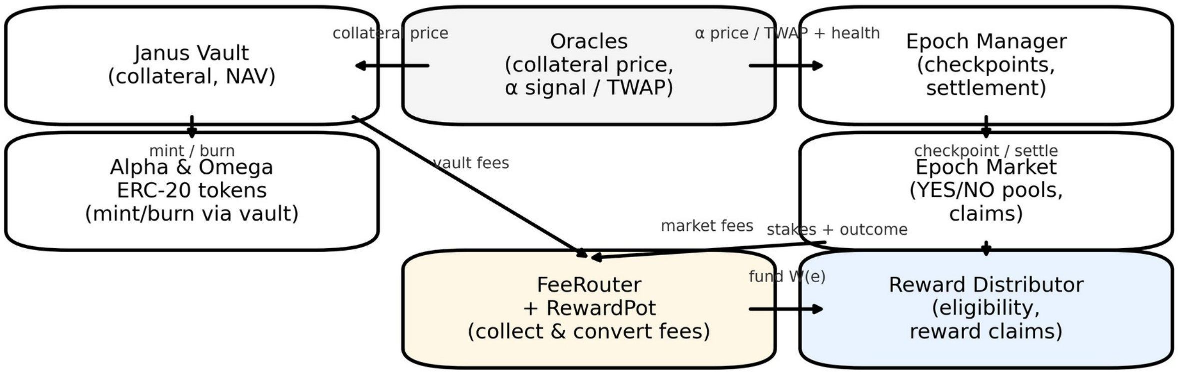

Figure 5. Contract sketch (one possible implementation).

5.1 Deposit and issuance

Users deposit collateral into the vault and receive a chosen mix of Alpha and Omega. To keep Omega credibly senior, v0 uses a hard guardrail: Omega issuance is capped by a fixed coverage threshold θ (> 1). Seniority guardrail: $S\_Ω(t) ≤ V(t) / θ$ Intuition: the system always maintains a buffer of junior capital (Alpha) underneath Omega.

Explain it in simple terms: the protocol limits how much Ω can exist relative to collateral so Ω stays credibly senior. With guardrail parameter θ>1, issuance must satisfy $SΩ \cdot θ ≤ V$, or equivalently $SΩ ≤ V/θ$. Example (illustrative): if V=$100 and θ=1.20, the maximum Ω supply is 83.33. If Ω outstanding is 70, then θ·Ω = 84 and the remaining 16 is a junior buffer.

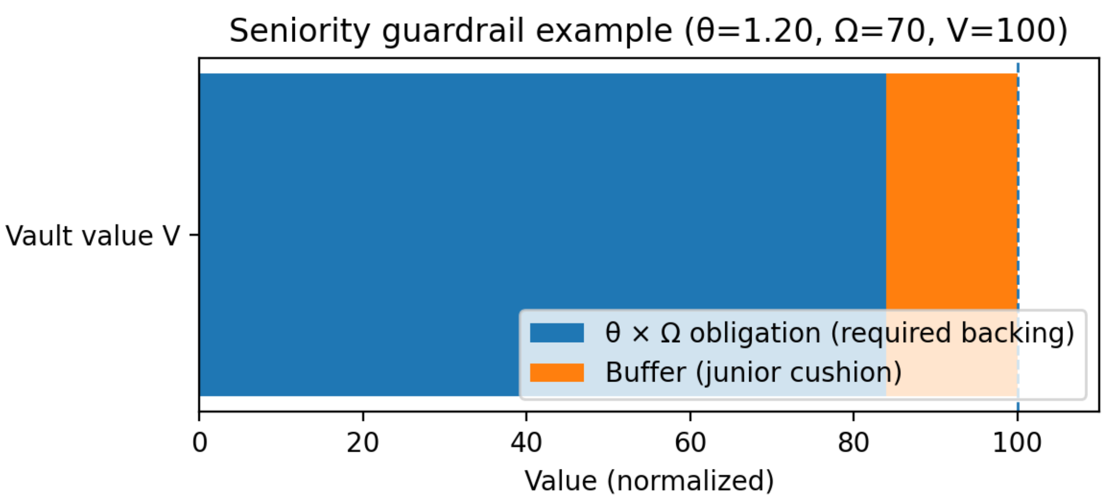

Figure 6. Seniority guardrail example (illustrative).

Overcollateralization and the buffer stack (intuition). Janus is overcollateralized for Ω by construction: θ > 1 enforces a permanent junior buffer (α) underneath the senior claim (Ω). Additional “overcollateralized layers” can form above the base vault, without changing the vault’s own solvency rules:

- Protocol layer: collateral yield (and any retained net revenue, if configured) increases vault assets V and therefore increases the junior buffer. Future versions can also reduce Ω obligations via discounted Ω buybacks in stress (optional v1+).
- Ecosystem layer: if α or Ω are used as collateral in external lending markets, those markets typically apply conservative haircuts (LTV < 1). This can create an additional margin buffer above Janus, but it also introduces liquidation risk.
- Derivative layer: designs like JUSD-Ω can add a Stability Reserve funded by prediction-market-priced premiums, creating a further buffer for Ω-backed liabilities (optional extension).

Janus does not require external leverage to function: the system's HEALTHY/underwater status is determined only by the vault's own collateral and obligations. External integrations can amplify outcomes for users (upside or liquidation), but they do not create backing out of thin air.

5.2 Redemption

Holders can redeem by burning Alpha or Omega. The payout always follows the fixed waterfall: Omega is paid first, Alpha receives residual. If the vault is undercollateralized, Alpha is wiped before Omega takes pro-rata loss.

5.3 Fees and reward pot

Fee	Paid in	Purpose
Mint fee	Collateral	Funds rewards and/or reserves
Redeem fee	Collateral	Reduces run incentives; funds rewards
Market fee	Omega	Settlement rake on the net pool; funds rewards
Market creation bond	Omega	Future extension (permissionless market creation anti-spam; not in v0 MVP)

v0 defines W(e) as an epoch-indexed reward pot funded from protocol fees and yield. Mint and redeem fees accrue in collateral; in the MVP, these fees can be converted into Ω via the vault's minting mechanism (collateral → deposit → Ω) and credited to W(e). Market fees are assessed at settlement as a rake on the pooled YES/NO stake (denominated in Ω) and credited to W(e) (or rolled forward on NO/VOID as described in §6).

Optional (v1+): Ω buybacks (stability budget). In addition to W(e), later versions can route a fixed share β of net fees into a capped buyback budget B(e). If Ω trades below par by more than δ (i.e., $P_{\Omega,e} < 1 - \delta$), the budget can buy Ω on the open market and burn it, reducing outstanding Ω obligations. This does not change the seniority guardrail; it is an optional way for Ω to earn carry and to strengthen backing in stress.

$$B(e) = \min(B_{max}, \beta \cdot Fees_e) \quad \text{if } P_{\Omega,e} < 1 - \delta \quad \text{else } 0$$

$$\Omega\_burn(e) = B(e) / P\_\Omega,e$$

$$S\_\Omega(e+1) = S\_\Omega(e) - \Omega\_burn(e)$$

Optional (v1+): Ω carry (fee split). In addition to conditional stability rewards W(e), the protocol can allocate a fixed fraction of net protocol revenue as modest coupon-like carry to Ω stakers. Let Fees_e denote net fees/yield accrued in epoch e (expressed in Ω-equivalent units). Choose fixed fractions β_W (stability rewards), β_Ω (Ω carry), and β_SR (stability reserve), with β_W + β_Ω + β_SR ≤ 1.

$W\_add(e) = \beta\_W \cdot Fees\_e$
$Carry\_\Omega(e) = \beta\_\Omega \cdot Fees\_e$
$SR\_add(e) = \beta\_SR \cdot Fees\_e$

Carry_Ω is designed to be small and conservative; it provides a bond-like uplift for Ω in healthy periods without turning Ω into the main upside instrument.

Fees and “tokens removed from circulation” (clarification). Fees are usually transferred and redistributed (to reward pots, carry recipients, and/or other configured sinks); they are not automatically burned. Deflationary behavior requires explicit buyback/burn rules (e.g., the optional stability budget above). Depending on configuration, some net revenue can also be retained in the vault, which increases residual backing for α over time.

Optional (v1+): α buybacks (intrinsic reinforcement). In addition to retaining collateral in the vault, later versions can route a small, fixed share of net fees into an α buyback budget. When α trades at a meaningful discount to its intrinsic balance-sheet value (residual NAV), the budget can buy α on the open market and burn it. This can increase residual backing per remaining α (share-buyback intuition) without changing solvency or requiring discretionary governance actions. v0 does not rely on this.

$NAV\_\alpha(t) = \max(V(t) - S\_\Omega(t), 0)$
$Buyback\_\alpha(e) = \min(B\_\alpha,max, \beta\_\alpha \cdot Fees\_e)$ (capped per epoch; rule-based trigger uses TWAP discount)

Explain it in simple terms: W(e) is the reward pot for epoch e. It carries forward when the system does not settle YES (NO/VOID), and only unlocks to eligible stabilizers when an epoch settles YES.

Worked example (simple): why α can appreciate over time under sustained stability.

Assume the vault starts with 1,000 units of collateral and 900 units of Ω obligations. If the protocol accrues 10 units of net fees/yield per epoch while Ω obligations stay constant, the residual value backing α increases each epoch. This is intuition, not a guarantee.

Epoch	**Vault assets V**	**Ω obligations SΩ**	**Residual backing α (V − SΩ)**
0	1,000	900	100
1	1,010	900	110

Epoch	Vault assets V	Ω obligations SΩ	Residual backing α (V − SΩ)
2	1,020	900	120
3	1,030	900	130

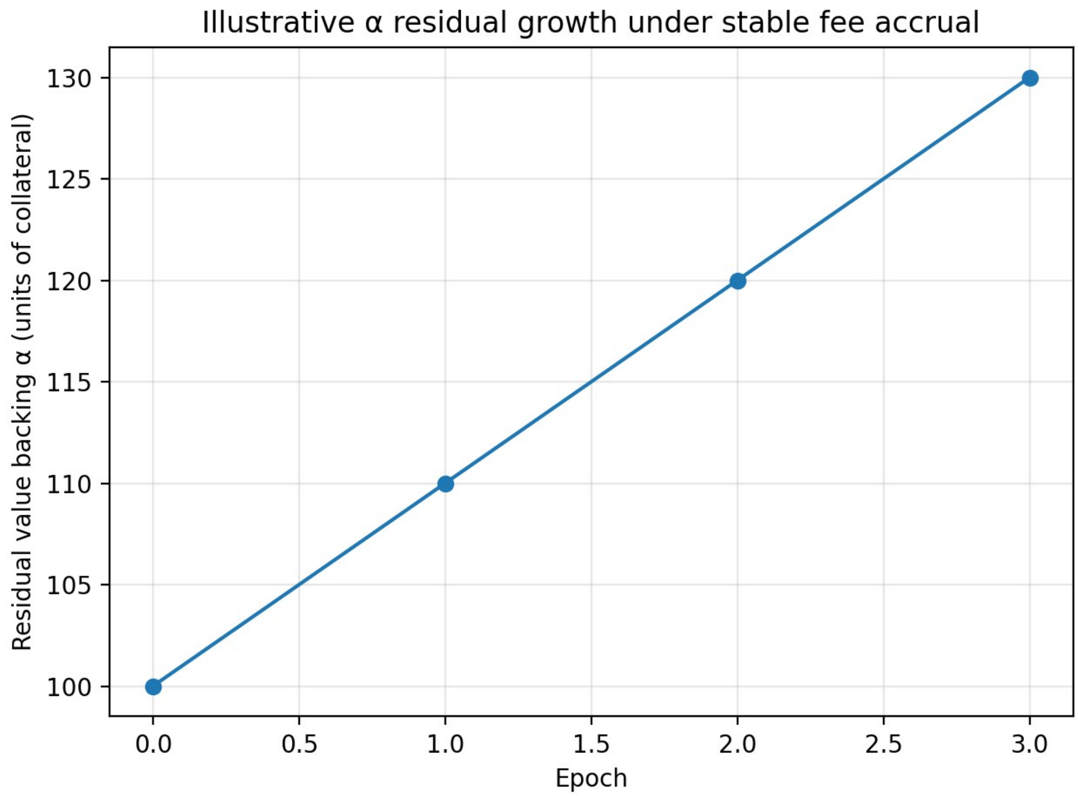

Figure 7. Illustrative α residual growth under stable fee accrual (conceptual).

Epoch	Outcome	New funding added	Reward pot unlocked / rolled
e	NO	50	Rolls forward (no unlock)
e+1	VOID	30	Rolls forward (no unlock)
e+2	YES	20	Unlocks total pot to eligible YES voters

6. The Epoch Market: Settlement and Rewards

Janus runs one canonical YES/NO market per epoch. The market is designed to be objective, hard to game, and legible to external observers. An epoch resolves YES only if (i) the vault is HEALTHY at each required checkpoint during the epoch (solvency) and (ii) the epoch time-weighted average price (TWAP) of the α-price signal is at or above a per-epoch floor X(e) (value). If checkpoint coverage is insufficient (too few checkpoints or excessive gaps) or required oracle data is stale, the epoch resolves VOID. Canonical question (epoch e): YES(e) ⇔ (TWAPα(e) ≥ X(e)) ∧ (HEALTHY at all required checkpoints). Sampling at checkpoints discourages end-of-epoch window dressing and manipulation.

Definition (v0). TWAPα(e) is computed from an α-price signal sampled at checkpoints and averaged over time between checkpoints. If an external α-price oracle is configured, the signal uses that oracle; otherwise it falls back to the vault's computed α NAV. The floor X(e) is set once per epoch, typically as a multiple of the α-price at the first checkpoint (e.g., 0.9× in common v0 configurations). In v0, X(e) is typically configured as a retain-value floor; future versions may optionally use mild growth-target schedules (e.g., +1% per epoch) to coordinate stabilizers, without any guaranteed outcome.

Worked example: TWAP over an epoch (checkpoint sampling)

Example (illustrative). Assume the α-price signal is sampled at checkpoints and treated as piecewise-constant between checkpoints. TWAPα(e) is the time-weighted average of these segments.

Interval	α-price (USD)	Duration (min)	Price × duration
0–10	1.00	10	10.00
10–25	1.08	15	16.20
25–40	0.94	15	14.10
40–60	1.02	20	20.40

$TWAP\alpha(e) = \Sigma(price_i \times \Delta t_i) / \Sigma\Delta t_i = 60.70 / 60 \approx 1.012$. If the epoch floor is set as X(e) = 0.90 × α-price(first checkpoint) = 0.90, then this example satisfies TWAPα(e) ≥ X(e).

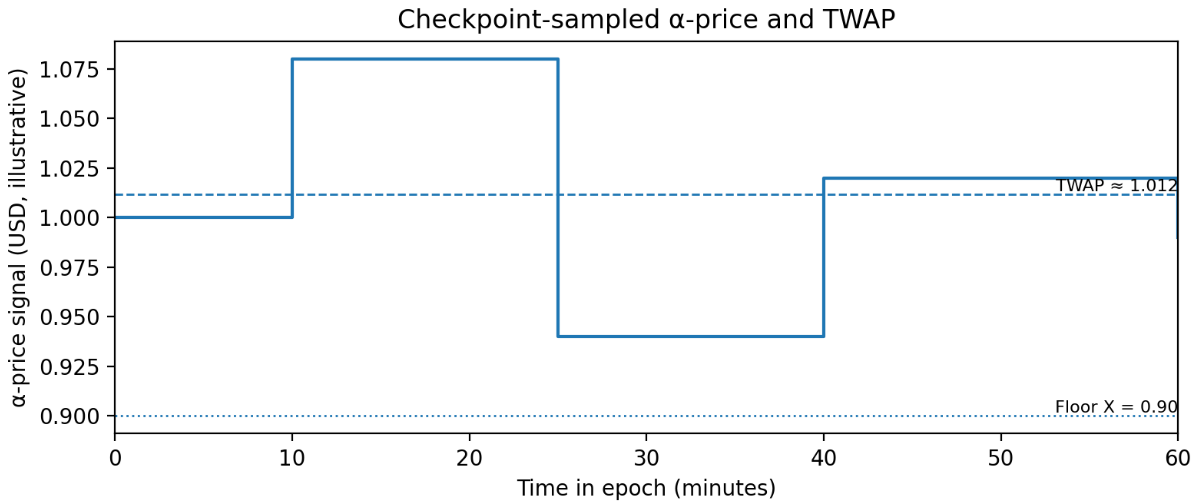

Figure 8. Worked TWAP example (checkpoint-sampled α-price signal, with TWAP and floor X).

Floor schedules (conceptual).

X(e) can be configured conservatively (value retention) or, in later deployments, as a mild growth target. If TWAPα(e) falls below X(e) in an epoch, that epoch resolves against YES and W(e) rolls forward. The floor does not “force” the price; it defines the condition under which stability rewards are earned.

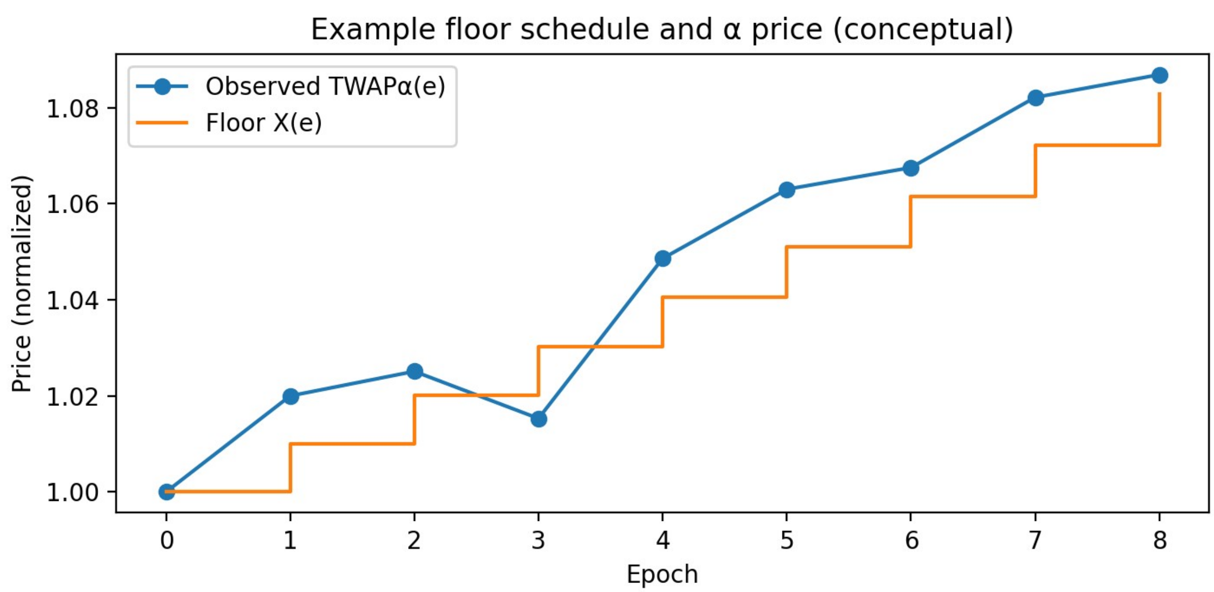

Figure 9. Example floor schedule X(e) and observed TWAPα(e) across epochs (conceptual; not a forecast).

6.1 Rewards

Prediction markets are zero-sum. Janus adds a second layer: an epoch reward pot W(e) funded from protocol fees.

Rewards unlock only if YES(e) is true. In the MVP, an address is eligible for rewards in epoch e only if it:
• Staked Alpha during epoch e (time-weighted).
• Bet YES in the canonical epoch market (and YES wins).
• Did not redeem from the vault during the active portion of the epoch (any in-epoch redemption disqualifies).

Weighting (v0):
$w_i(e) = W(e) \cdot a_i(e) / \Sigma_j a_j(e)$
where $a_i(e)$ is address i's time-weighted staked Alpha over epoch e. The YES bet gates eligibility; reward share is driven by committed Alpha exposure.

Explain it in simple terms: each epoch has two payoffs. (1) The epoch market itself is parimutuel: winners share the losing pool. (2) Separately, Janus may unlock an additional reward pot W(e) only when the epoch settles YES. NO bettors can win the market when the epoch settles NO, but they do not unlock W(e).

NO participants can still profit: when an epoch resolves NO (or is VOID), the NO side shares the parimutuel pool. However, W(e) does not pay out on NO/VOID; it rolls forward. In other words, W(e) is a stability dividend, not a bounty for failure.

Example (illustrative): assume W(e)=200 Ω and three eligible stabilizers have weights 100, 50, and 150. Total weight is 300, so the reward shares are 66.7 Ω, 33.3 Ω, and 100.0 Ω respectively.

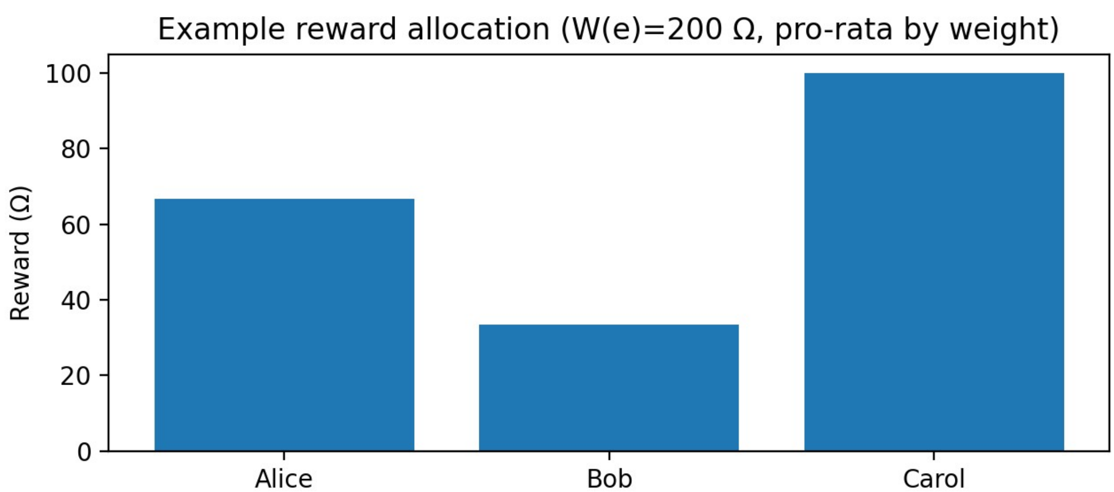

Figure 10. Example reward allocation (illustrative).

6.2 Permissionless markets vs the canonical market

Anyone can create additional Janus-related markets (e.g., "Alpha will go down," "collateral ratio will breach θ," or bespoke stress scenarios) on external venues. In principle, future versions can support permissionless market templates with explicit anti-spam constraints (e.g., a creation bond). However, v0 intentionally uses a single canonical epoch market for settlement and rewards coordination; no on-chain market-creation bond is required in the MVP. This keeps the primitive coherent while preserving a path to broader market surfaces as liquidity and tooling mature.

6.3 Alice and Bob walkthrough

This section gives two small, concrete walkthroughs of how Janus v0 behaves in practice. The numbers are illustrative; the mechanics are the important part.

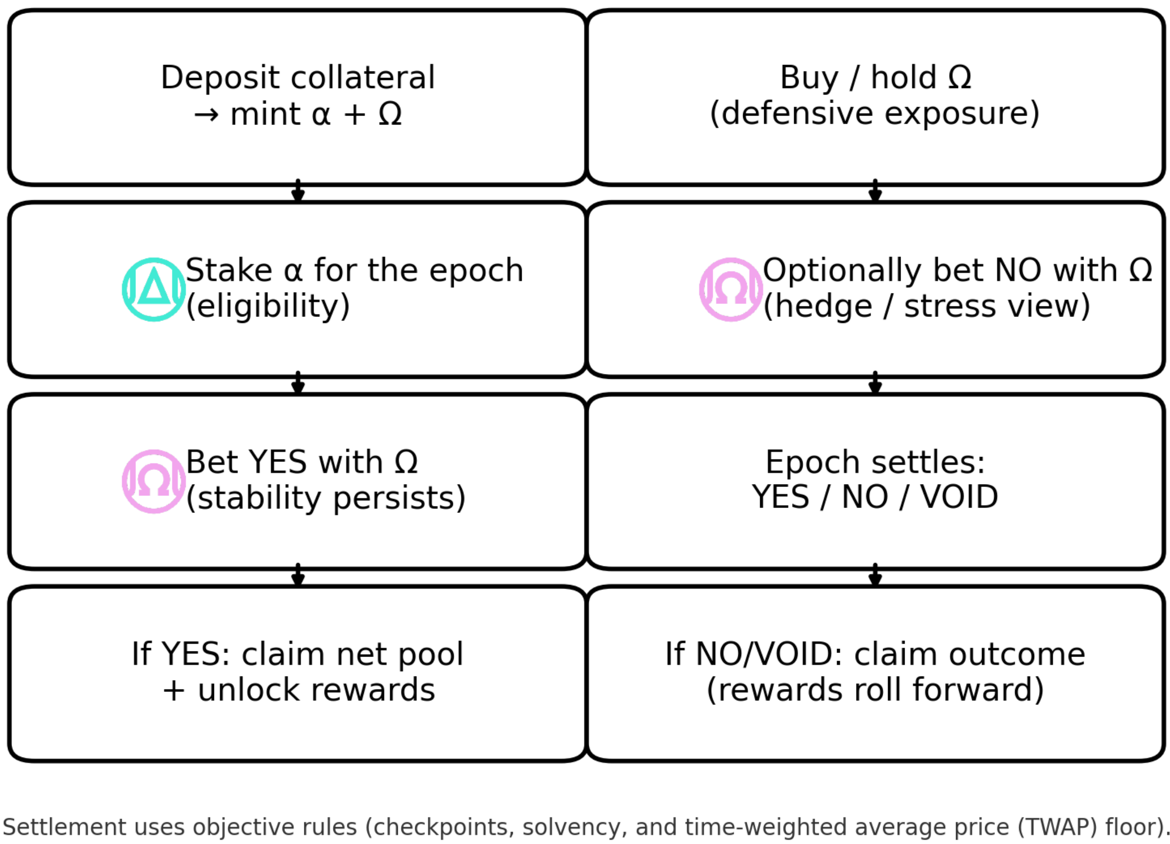

Figure 11. Alice and Bob walkthrough (Janus v0).

Example 1: Stability persists (YES)

Alice deposits collateral, mints α and Ω, stakes α for the epoch, and places a YES bet using Ω. If the epoch settles YES, she claims her pro-rata share of the net pool (after the exit rake) and—because she stayed committed—shares in any unlocked stability rewards.

- Alice's YES payout comes from the parimutuel pool (winners share the losing side).
- Stability rewards unlock only when the system remains HEALTHY; they do not unlock on NO/VOID.
- In v0, any redemption during the epoch disqualifies a participant from the reward stream for that epoch.

Example 2: Stress event (NO / VOID)

Bob prefers defensive exposure. He can simply hold Ω, or he can hedge by placing a NO bet with Ω. If the system becomes UNHEALTHY at any checkpoint, or if the TWAP floor is breached, the epoch resolves against YES (NO or VOID, depending on configuration), and rewards roll forward.

- NO expresses a negative view on health; it does not require holding α.
- Ω is not a "short token." Short exposure comes from NO or from shorting α externally.
- Two payout rails operate in each epoch: (1) the market payout (YES or NO winners share the net pool after the rake), and (2) the protocol reward pot W(e), which unlocks only on sustained stability (YES) and is reserved for eligible stabilizers (staked α + bet YES + no in-epoch redemption). NO voters do not receive W(e); their incentive is the market payout when instability occurs and the ability to hedge or price stress.

Toy payout example (illustrative numbers):

Quantity	**Example**	**Notes**
YES pool	100 Ω	Total Ω bet on YES
NO pool	50 Ω	Total Ω bet on NO
Fee (exit rake)	2%	Illustrative only (protocol fee is a parameter)

Using the toy inputs above, the total pool is 150 Ω, so the net pool available to winners is 150 × (1 − 0.02) = 147 Ω.

If YES wins, a YES bettor staking 10 Ω receives 10/100 × 147 = 14.7 Ω (net P&L = +4.7 Ω). The NO bettor loses their 10 Ω stake.

If NO wins, a NO bettor staking 10 Ω receives 10/50 × 147 = 29.4 Ω (net P&L = +19.4 Ω). In both cases, the protocol reward pot W(e) unlocks only when the epoch resolves YES; NO/VOID do not unlock rewards (they roll forward).

Outcome	**YES bet (10 Ω) net P&L**	**NO bet (10 Ω) net P&L**	**Protocol rewards W(e)**
YES	+4.7 Ω	-10.0 Ω	Unlocks (eligible stabilizers only)
NO	-10.0 Ω	+19.4 Ω	Does not unlock (rolls forward)
VOID	0.0 Ω (refund)	0.0 Ω (refund)	Does not unlock (rolls forward)

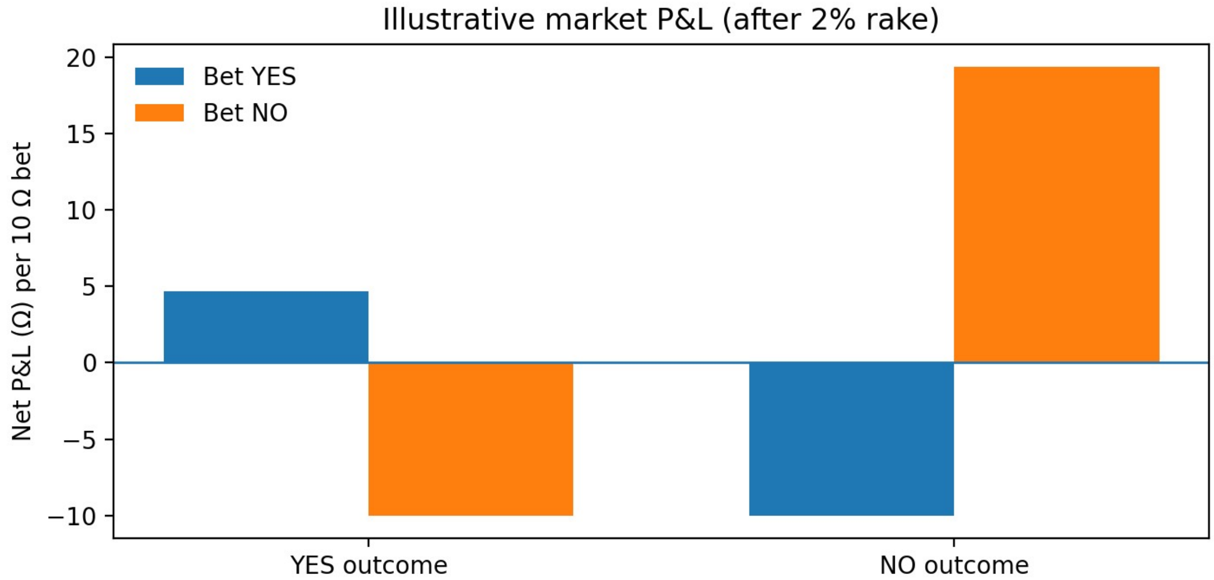

Figure 12. Illustrative market P&L per 10 Ω bet (after 2% rake).

Incentive matrix (market payout vs protocol rewards):

Your action in epoch e	If outcome is YES	If outcome is NO	If outcome is VOID
Bet YES (with Ω)	✅ Market payout (share of net pool)	❌ Lose stake	↩️ Refund
Bet NO (with Ω)	❌ Lose stake	✅ Market payout (share of net pool)	↩️ Refund
Stake α + Bet YES + no in-epoch redemption	✅ Market payout + ✅ eligible for W(e)	❌ Lose stake + ❌ no W(e) (rolls forward)	↩️ Refund + ❌ no W(e)
Stake α + Bet YES + redeem during epoch (disqualified)	✅ Market payout possible + ❌ no W(e)	❌ Lose stake + ❌ no W(e)	↩️ Refund + ❌ no W(e)
Stake α + Bet NO (hedge / stress view)	❌ Lose stake + ❌ no W(e)	✅ Market payout + ❌ no W(e)	↩️ Refund + ❌ no W(e)

Example 3 (optional): Leveraged long α (external collateral)

Alice believes the healthy regime will persist and wants to keep long exposure to α, but also wants liquidity. Because α is an ERC-20 claim token, she can collateralize α in external DeFi lending markets to borrow a stable asset. She can use the borrowed funds for spending, hedging, or to increase exposure (at the cost of liquidation risk). This is not required by Janus v0, but the claim structure is designed to be composable.

Your action in epoch e	If outcome is YES	If outcome is NO	If outcome is VOID
Bet YES	Market payout (share of net pool)	Lose bet	Refund
Bet NO	Lose bet	Market payout (share of net pool)	Refund
Stake α + Bet YES + no redemption	Eligible for W(e) (pro-rata, time-weighted stake)	No W(e)	No W(e)
Stake α + Bet YES + redeem during epoch	Market payout possible, but disqualified from W(e)	Lose bet	Refund
Hold Ω (no bet)	No market payout; defensive exposure only	No market payout; defensive exposure only	No market payout

7. Game Theory: Incentives, Failure Modes, and Manipulation Resistance

Janus is a repeated game. Each epoch, participants choose positions (Alpha, Omega) and beliefs (YES, NO). The reward mechanism is designed to make the lowest-effort profitable strategy align with system health. Strategy classes Stabilizers (bullish): stake Alpha, bet YES, and keep capital committed. They earn rewards only if stability persists.

Master game theory cheat sheet (Janus v0)

	Epoch settles YES	Epoch settles NO	Epoch settles VOID
Bet YES (stability)	Market payout (wins) + may unlock W(e) if eligible.	Market loss (loses bet); no W(e).	Market refunded; W(e) rolls forward.
Bet NO (stress)	Market loss (loses bet); no W(e).	Market payout (wins); no W(e).	Market refunded; W(e) rolls forward.

Role / action	If YES	If NO	If VOID	Notes
Stake α + bet YES (eligible stabilizer)	Earn protocol rewards (W(e)) + win YES pool share	Lose YES bet; no rewards (roll forward)	Resolves against YES; no rewards (roll forward)	Eligibility requires: staked α + bet YES + no redemption during the epoch
Bet YES with Ω (non-staker)	Win YES pool share	Lose bet	Resolves against YES (per v0 config)	Participates in the outcome pool but does not unlock protocol rewards
Bet NO with Ω (hedger / stress view)	Lose bet	Win NO pool share	Win if VOID counts against YES	Acts as hedge when you expect stress or want protection
Hold Ω (defensive exposure)	Ω typically tracks senior claim value	Ω typically absorbs losses only after α	Ω market price reflects expected stress	Not a peg: Ω can trade below par in severe stress
Hold α (upside exposure)	α captures upside when system remains healthy	α is first-loss and may draw down more	α may be volatile around settlement	α is junior; designed to absorb losses before Ω
Redeem collateral (exit)	Exit position; forgo in-epoch rewards	Exit position; forgo in-epoch rewards	Exit position; forgo in-epoch rewards	Redemption timing rules/fees may apply; exiting is distinct from rotating to Ω

Janus is a repeated market game. In a healthy base-rate regime, YES is the default bet and NO functions as explicit stress insurance. The table below summarizes common roles in v0.

Role	Typical holdings	Epoch action	When it works	Notes
Stabilizer (aligned)	Long α; some Ω	Stake α, bet YES with Ω	Stability persists (YES)	Wins the parimutuel pool and unlocks W(e); benefits from α upside.
Hedger (defensive)	Ω (and/or reduced α)	Hold Ω; optionally bet NO	Stress / uncertainty	Aims to reduce drawdowns; Ω is defensive, not a guaranteed peg.

Role	Typical holdings	Epoch action	When it works	Notes
Insurance buyer	Long α; small Ω	Small NO bets with Ω	Rare stress events	Pays a premium most epochs; hedges tail risk without exiting α.
Speculator / arbitrageur	Ω	Bet YES/NO based on view	Information advantage	Helps price discovery; profit comes from being right, not from governance.
Leveraged α holder (external)	Long α	Collateralize α in external DeFi; manage liquidation	Stable regime	Not required by the protocol; adds liquidation and external market risk.

Why not always bet NO? Because NO is insurance: it tends to lose in normal epochs and pays out only when stress materializes. If you believe the system is stable and α is the growth claim, betting YES aligns with your exposure and is the only path that unlocks W(e). Allowing NO positions makes pessimism legible and tradable, instead of forcing it to appear only as sudden exits.

7.1 Why manipulation is expensive

To force YES, a manipulator must keep Alpha's TWAP above X for the full epoch and keep the vault healthy throughout. This requires sustained capital commitment and exposes the manipulator to drawdowns and counter-trading. Because rewards require holding Alpha and not withdrawing collateral, the cheapest strategy is typically to become a stabilizer rather than to window-dress.

This is not "price pumping." In early deployments the α price signal can fall back to α NAV (vault-computed residual per α token) if an external α price oracle is not configured. In that case, the most direct way to satisfy the floor is improving fundamentals—growing vault assets relative to obligations—rather than manipulating a thin market for a moment.

7.2 Common failure modes and v0 mitigations

Key failure modes and v0 mitigations are summarized below.

Failure mode	What happens	v0 mitigation
Low Alpha liquidity → noisy TWAP	TWAP can be moved cheaply; settlement becomes gameable.	Long TWAP window; minimum liquidity threshold; vetted price sources.

Failure mode	What happens	v0 mitigation
Oracle outage or divergence	Settlement truth breaks; disputes increase.	Deterministic fallback oracle; void epoch and skip rewards if needed.
Free riding	Users stake Alpha + bet YES but do not contribute stability.	Eligibility requires no in-epoch redemption; optional minimum lock.
Epoch-end window dressing	Temporary deposits make the system appear healthy only at the end.	Sample HEALTHY multiple times across the epoch, not only at the end.

Operationally, v0 expects a keeper bot (or keeper network) to call oracle updates and epoch checkpoints on schedule; these calls remain permissionless.

8. AI Agents: Augmenting, Not Replacing, Markets

Janus is compatible with an "agentic" future: AI systems that observe markets, generate forecasts, and place trades. Key design choice: AI agents do not "vote" on protocol parameters. They simply participate in the same markets as everyone else: Provide Alpha/Omega liquidity. Take hedges (rotate Alpha -> Omega). Place YES/NO bets in the epoch market.

Arbitrage discrepancies between market prices and fundamental claim values. This allows Janus to benefit from AI without giving AI privileged control. The market remains the judge: agents that are consistently wrong lose money and influence; agents that are consistently right gain capital and impact.

AI + markets is stronger than either alone: AI is cheap cognition (summaries, scenarios, pattern matching on public data). Markets are credible truth discovery (private info + accountability). Janus makes real-world information actionable by forcing it through a cost function: the willingness to stake, hold, and remain exposed for an entire epoch.

8.1 Zero-Knowledge Extensions (Future Work)

Janus does not require zero-knowledge proofs to function. However, ZK can extend the protocol along two axes: **privacy** (participants can act without revealing strategy history) and **verifiable policy** (complex calculations can be performed off-chain but enforced on-chain).

These extensions preserve the same institutional rails—collateral, waterfall, guardrails, and objective settlement—while making the decentralized brain more confidential and more provably correct.

- Private reward claims: prove eligibility and uniqueness of a claim (e.g., held α, bet YES, no disqualifying redemption) without linking the claim to a public address history.
- Verifiable premium and reserve updates for JUSD-Ω: compute premiums and Stability Reserve accounting off-chain, publish the result with a proof that the fixed policy was followed.

- ZK attestations for institutional wrappers (optional): prove a compliance attestation without revealing identity on-chain.

v0 ships without any ZK dependency. These modules can be introduced gradually once market depth, oracle reliability, and monitoring are robust.

9. JUSD-Ω: An Omega-Backed Stable Note with PM-Priced Insurance

Janus is not a stablecoin. It does not claim a guaranteed peg or guaranteed redemption value in all conditions.

However, Janus' structure (explicit senior claim + transparent solvency + embedded risk markets) enables a stable-note derivative on top.

JUSD-Ω design (concept):

- **Backing layer:** Ω (senior claim on the Janus vault).
- **Stability layer:** a Stability Reserve (SR) funded by insurance premiums.
- **Pricing layer:** the premium is set by the epoch market's implied probability of stress.
- **Positioning:** targets $1-like behavior in normal conditions; no hard peg is promised.

Illustrative example: if the epoch market implies a 5% stress probability ($p_e = 0.05$), the mint premium increases accordingly and funds the SR. When p_e rises, the system becomes more expensive to insure—by design.

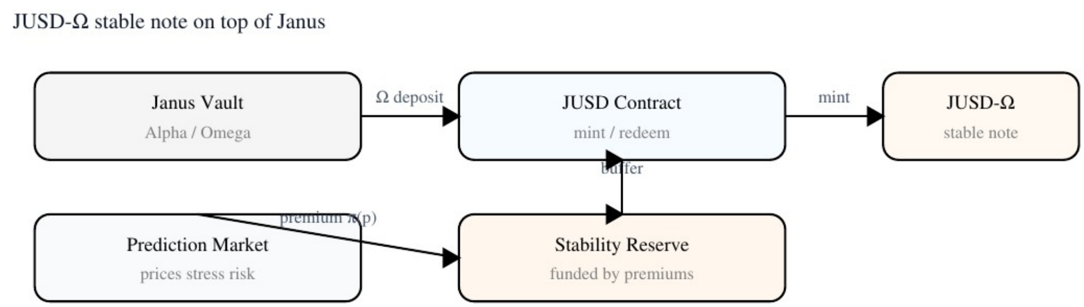

Figure 13. JUSD-Ω: Omega-backed stable note with PM-priced insurance and Stability Reserve.

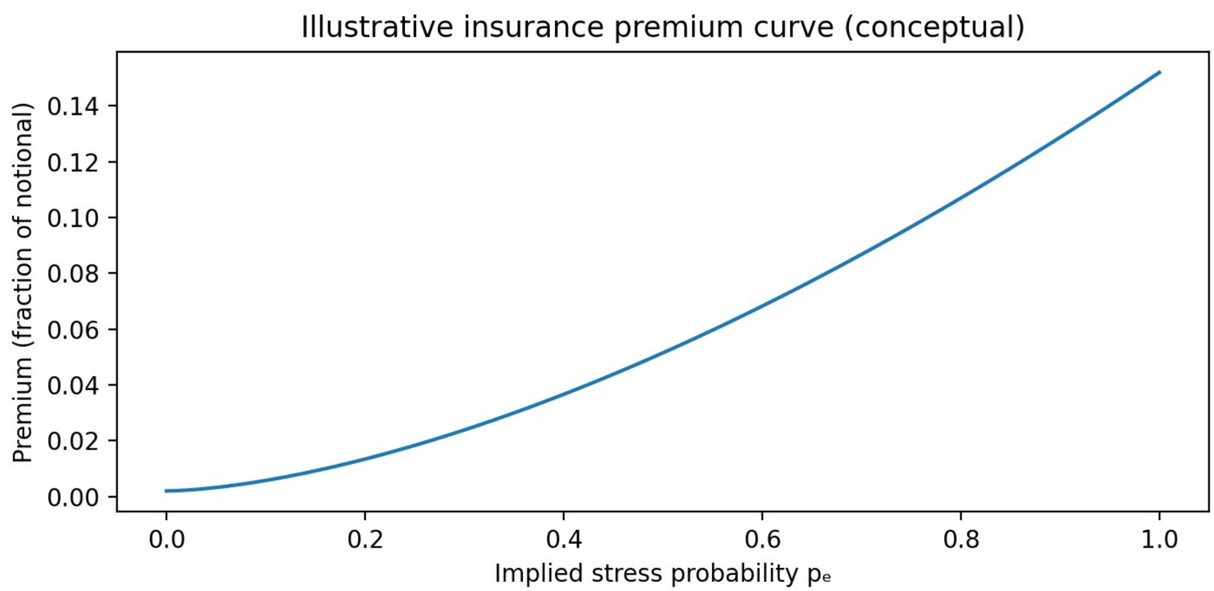

Figure 14. Illustrative premium curve as a function of implied stress probability p^e (conceptual).

9.1 Stress event and premium

Each epoch e defines an objective stress event E(e). A recommended v0 event is: "Janus becomes UNHEALTHY at any point during epoch e." The epoch market produces an implied probability p_e for E(e). $E(e) = \exists t$ in epoch: $V(t) < S\Omega(t)$ Premium function (minimal): $\pi(p_e)=\pi_{min} + \alpha \cdot p_e$ Premiums are routed to the Stability Reserve SR to subsidize redemptions during stress.

9.2 Minting and redemption (minimal)

Mint: deposit Ω, pay premium, receive JUSD-Ω. Redemption: burn JUSD-Ω, receive Ω (and optionally SR support). Let $v\Omega(t)$ be Omega's fundamental value. A conservative mint and redeem rule is: Mint: $\Delta J = \Delta\Omega \cdot v\Omega(t) \cdot (1 - m)$ Redeem: $\Omega_{out} = (\Delta J / v\Omega(t)) \cdot (1 - r)$ SR support is bounded by a fixed policy cap to prevent one-block drains. The SR is not magic; it is an explicitly funded buffer.

9.3 Why PM-priced insurance matters

In calm conditions, p_e is low and mint premiums are small, enabling growth. When informed participants perceive rising stress, they can bet on E(e), pushing p_e higher. That automatically increases premiums and grows SR before insolvency. This prices risk before it becomes visible on-chain. Tagline: Stability is purchased, not promised.

10. Competitor Landscape and Differentiation

Janus is best understood as a new primitive at the intersection of reserve assets, structured finance (seniority), and prediction markets. It is not trying to replace Bitcoin or Ethereum; it is designed to sit alongside them and, in many deployments, be collateralized by them.

10.1 Differentiation vs Bitcoin and Ethereum

Bitcoin is a reserve asset secured by Proof-of-Work and valued for scarcity, neutrality, and censorship resistance. Ethereum is a programmable settlement layer where capital can be composed. Janus differs in purpose: it is a market-governed balance sheet that explicitly separates junior vs senior risk and uses prediction markets to coordinate around solvency and sustained value. If Bitcoin is "reserve by immutability" and Ethereum is "reserve by programmability," Janus is "reserve by accountability": it rewards correct, committed forecasts of stability.

10.2 Differentiation vs stablecoins and flatcoins

Fiat-backed stablecoins optimize for a tight peg but rely on custodians and legal structures. Crypto-collateral stablecoins optimize for on-chain transparency but often require governance, liquidations, and parameter tuning. Flatcoins attempt to target purchasing power but introduce complex oracles and lagging policy loops. Janus takes a different path: it does not promise stability; it prices it and rewards it.

10.3 Landscape table

Category	Value source	Stability promise	Coordination mechanism	Notes / trade-offs
Bitcoin (BTC)	Scarcity + PoW security	None	Market only	Inert reserve; no internal balance sheet.
Ethereum (ETH)	Network security + compute	None	Market + protocol rules	Settlement layer; not a stability product.
Fiat-backed stablecoins	Custodied reserves	Strong $1 target	Issuer + legal framework	High peg quality; centralized trust.
Crypto-collateral stables	On-chain collateral	Targeted peg	Liquidations + governance	Transparent but complex; parameter risk.
Flatcoins	Varies (index targets)	Purchasing power target	Oracles + policy loops	Hard oracle problem; lag and complexity.
Janus (Alpha/Omega)	Vault collateral	None	Epoch prediction + rewards	PoB Reserve Asset: explicit seniority + truth layer.
JUSD-Ω (stable note)	Omega + insurance reserve	$1-like target (soft)	PM-priced premiums + SR buffer	Stable behavior purchased via insurance; honest stress behavior.
Prediction market platforms	N/A (markets)	N/A	Event contracts	Infrastructure/ tailwind; Janus integrates the primitive.

11. Regulatory and Risk Considerations

Not legal advice. Regulatory treatment depends on jurisdiction, product design, distribution, and marketing. Projects should consult qualified counsel before launch. Janus is not marketed as a stablecoin. Janus Alpha and Omega are claims on collateral and do not purport to maintain a stable value.

That distinction can matter because some regulatory frameworks define "stablecoin-like" categories based on whether a crypto-asset purports to maintain a stable value by referencing a currency or other value. In the EU, MiCA institutes uniform rules for crypto-assets and includes dedicated regimes for asset-referenced tokens and e-money tokens [4][5]. Derivative stable notes may be treated differently.

A product like JUSD-Ω is explicitly designed to target $1-like behavior. Depending on its design and how it is marketed, it may fall within stablecoin-related regimes or other categories. A conservative approach is to design disclosures and controls as if it will be scrutinized as a stability product. Prediction markets are regulated and evolving.

In the U.S., event-contract and prediction-market regulation involves both federal and state considerations, and disputes have emerged over jurisdiction and classification [10]. Janus' protocol design can be implemented permissionlessly, but real-world distribution decisions will matter. Risk disclosures (non-exhaustive) Smart-contract risk: bugs can cause loss. Oracle risk: price feeds can fail or be manipulated.

Liquidity risk: thin markets can distort TWAP and premiums. Market-manipulation risk: incentives reduce but do not eliminate adversarial behavior. Regulatory risk: rules, interpretations, and enforcement can change.

12. Roadmap

Janus v0 is intentionally minimal: ship a coherent protocol, validate invariants in the wild, and expand only when the underlying signals (oracles, market depth, keepers) are reliable. A realistic path forward is to add conservative senior-note return mechanics (carry and stress buybacks) and privacy/verifiability modules without changing the core balance-sheet rails.

- v1: Add an explicit Ω carry stream (fixed fee split) and rules-based discounted Ω buybacks (stability budget) to support modest Ω total return while preserving par-anchoring.
- v1: Add explicit “retained earnings” and/or rules-based α buybacks (optional) to reinforce α intrinsic value once the flywheel is bootstrapped (balance-sheet engine).
- v1: Bootstrap deep α/Ω liquidity: seed protocol-owned liquidity (POL) in major pools and/or run liquidity acquisition auctions (bond-like). Durable depth hardens TWAP signals and makes the “decentralized brain” harder to manipulate.
- v1: Improve keeper automation and market depth (better checkpoint cadence, oracle freshness, and tighter settlement UX).
- v2: Integrate α and Ω into external lending/borrowing rails (optional): conservative LTV parameters, oracle hardening, liquidation playbooks, and clear risk disclosures. This enables “stacked collateral” use cases without changing Janus’ internal solvency rules.

- v2: Add ZK modules (optional): private reward claims, ZK-verified stable-note premium/reserve updates, and attestations for institutional access layers.

Phase	Scope (MVP-focused)	Notes
v0 (MVP)	Single-collateral vault; canonical epoch market; hardened oracle wrapper; basic rewards + fee routing.	Prioritize simplicity, solvency correctness, and clean settlement.
v1	Expand expressivity without adding governance fragility: deeper epoch-market liquidity, better oracle hardening, stronger monitoring/ops, and optional Ω utility/carry experiments (e.g., fee rebates or discounted buybacks) designed to remain low-volatility and subordinate to the seniority guardrail. Optional: privacy-preserving reward claims; verifiable JUSD-Ω premium/reserve policy.	Improve reliability and UX; keep invariants explicit. Any Ω carry mechanisms must not weaken solvency or seniority. ZK is additive, not required.
v2	Permissionless extensions: additional collateral types, improved market creation patterns, risk tooling, and optional institutional modules (e.g., ZK attestations).	Only after v0/v1 primitives prove stable.
v3+	Decentralized keeper/oracle operations; stable-note variants; broader integrations.	Longer-horizon; depends on adoption and security maturity.

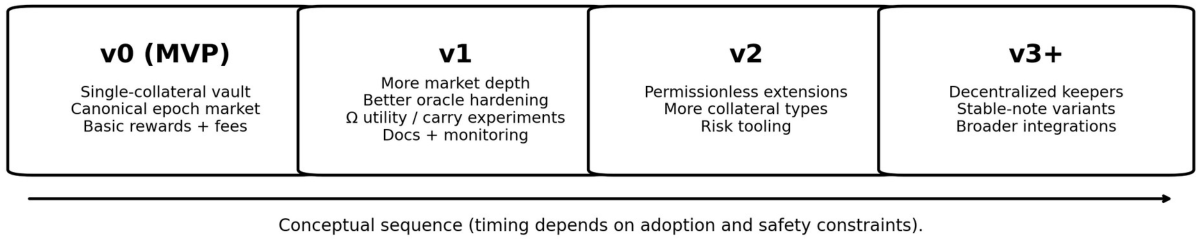

Figure 15. Roadmap (conceptual sequence).

Appendix A: Parameter Table

Parameter	Meaning	Typical v0 choice
Epoch length T	Duration of each prediction game	Production target: 7–14 days; MVP/test deployments may be shorter (minutes–hours).
Coverage threshold θ	Caps Omega issuance (seniority)	1.2
Price floor X	Alpha TWAP must stay above this	Set per epoch as a multiple of α-price at the first checkpoint (e.g., 0.9× α NAV in common v0 configs).
Reward pot W(e)	Fees/yield allocated to rewards	Fees/yield credited per epoch; unspent rewards roll forward on NO/VOID.
Health sampling	How HEALTHY is checked	Checkpoint-based (min interval + max gap); production targets may be hourly.
PM liquidity threshold	Minimum depth before using p_e	Set conservatively; fallback if unmet
SR support cap γ	Max share of SR used per redemption	Small fixed fraction
Stability budget (v1+ optional)	Rules-based Ω buybacks when Ω trades below par (parameters: β, δ, B_max).	Not used in v0. Candidate values: small β; small δ; conservative per-epoch cap B_max.
Floor growth rate g (optional)	Per-epoch growth target used if X(e) is scheduled to increase across epochs.	None in v0 (retain-value floor).

Appendix B: Glossary

Term	Definition
Alpha (α)	Junior claim on the vault. First-loss, equity-like exposure to the residual value after Ω obligations. In v0, protocol rewards apply when Alpha is staked through an epoch and paired with a correct YES prediction.
Omega (Ω)	Senior claim on the vault. Defensive position that is paid before α in redemptions. Designed to track its senior claim value near par; may trade at small premiums (utility demand) or discounts (stress) and is not a hard peg. Used as the staking token for epoch markets and as backing for JUSD-Ω.
HEALTHY	State where vault value $V(t)$ is at least Omega obligations $S\Omega(t)$.
Epoch	Fixed time interval in which one canonical market resolves and (optionally) rewards are distributed.
TWAP	Time-weighted average price. In v0, $TWAP\alpha(e)$ is computed from checkpoint-sampled α-price (oracle-based when configured, otherwise α NAV fallback) averaged over the epoch.
Proof-of-Belief (PoB)	In Janus: an incentive layer where belief is expressed via stake committed through time (e.g., staking Alpha and betting YES); not a consensus algorithm.
JUSD-Ω	A stable-note derivative backed by Omega and supported by a Stability Reserve funded via PM-priced premiums.
Stability Reserve (SR)	Buffer fund that can subsidize JUSD-Ω redemptions during stress; explicitly funded, capped, and auditable.

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