PUBLIC SAMPLE — REDACTED · client identity removed; ██ bars mark removed identifiers · methodology & findings intact

VARI

ECONOMIC MODELING ADDENDUM

ECONOMIC MODELING ADDENDUM — [redacted] PROTOCOL

[redacted] · Track T2 — Membership-gated fixed-term lending

PROJECT	TRACK	DATE
[redacted]	T2	26 April 2026
TYPE	**SCOPE**	**CLASSIFICATION**
Structural modeling	Full-tier (in scope)	PUBLIC SAMPLE

Disclaimer. This economic addendum is structural mechanism modeling, not a forecast, a solvency certificate, or formal verification. Models are parameterized on the configured/observed parameters and sweep unobservable off-chain inputs across ranges to mark the safe region; no probabilities of real-world events (defaults, runs, price moves) are asserted. It is a companion to the security review and penetration-test reports for the same track and is in scope for the Full tier. Not investment, legal, or financial advice. [redacted] may publish or share this report in full, unmodified form, including this disclaimer.

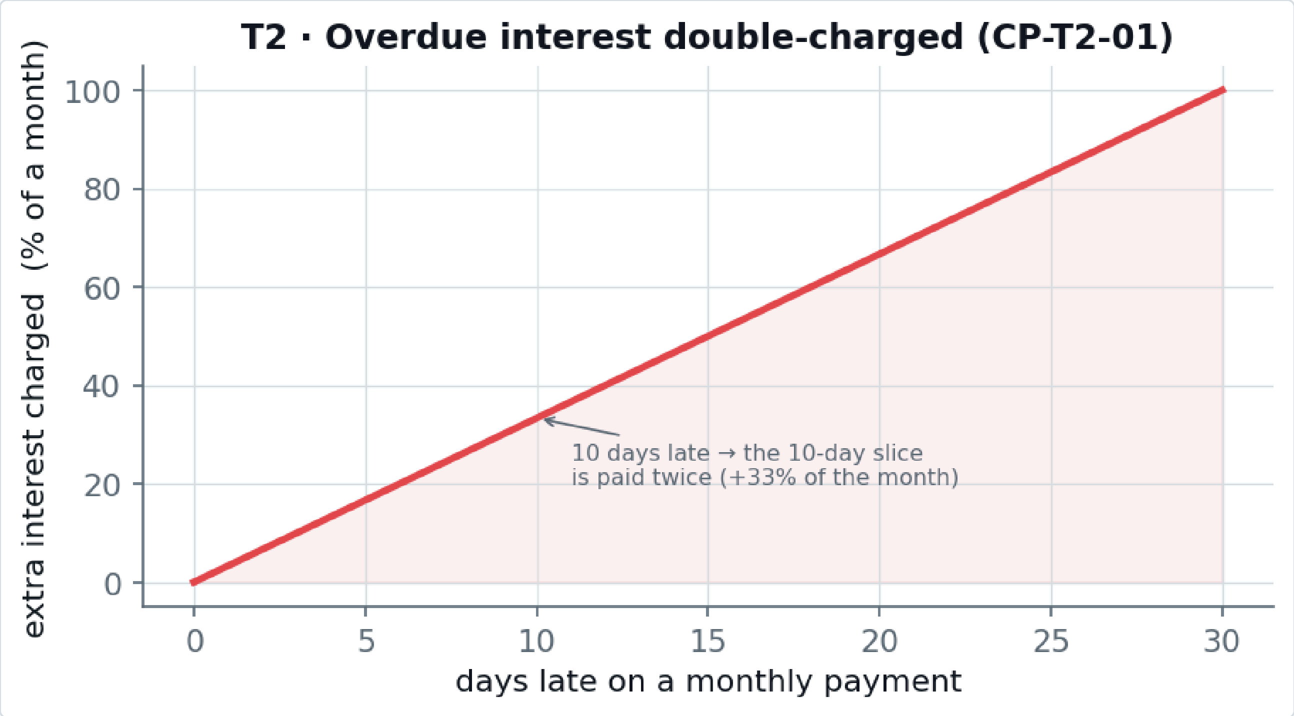
00 MASTER VARIABLES

[redacted] pools custody no funds (peer-to-peer transfers), so there is no solvency pool to model — the economic exposure is **who overpays whom** in the interest/fee accounting, plus uncollateralized default loss. Two variables govern it.

Lateness Δ. How far past a scheduled monthly payment the borrower repays. The pay-through-vs-deduct mismatch charges the slice [scheduled, now] twice, so borrower overpayment scales with Δ.
Anchor gap ($t_1 - t_0$). For a lender who lends twice, interest is prorated from a single accrualTs anchored at the *first* lend. The later the second (larger) lend, the more it is over-attributed early interest on an early repayment.

OVERDUE INTEREST DOUBLE-CHARGE (PROTO-T2-01)

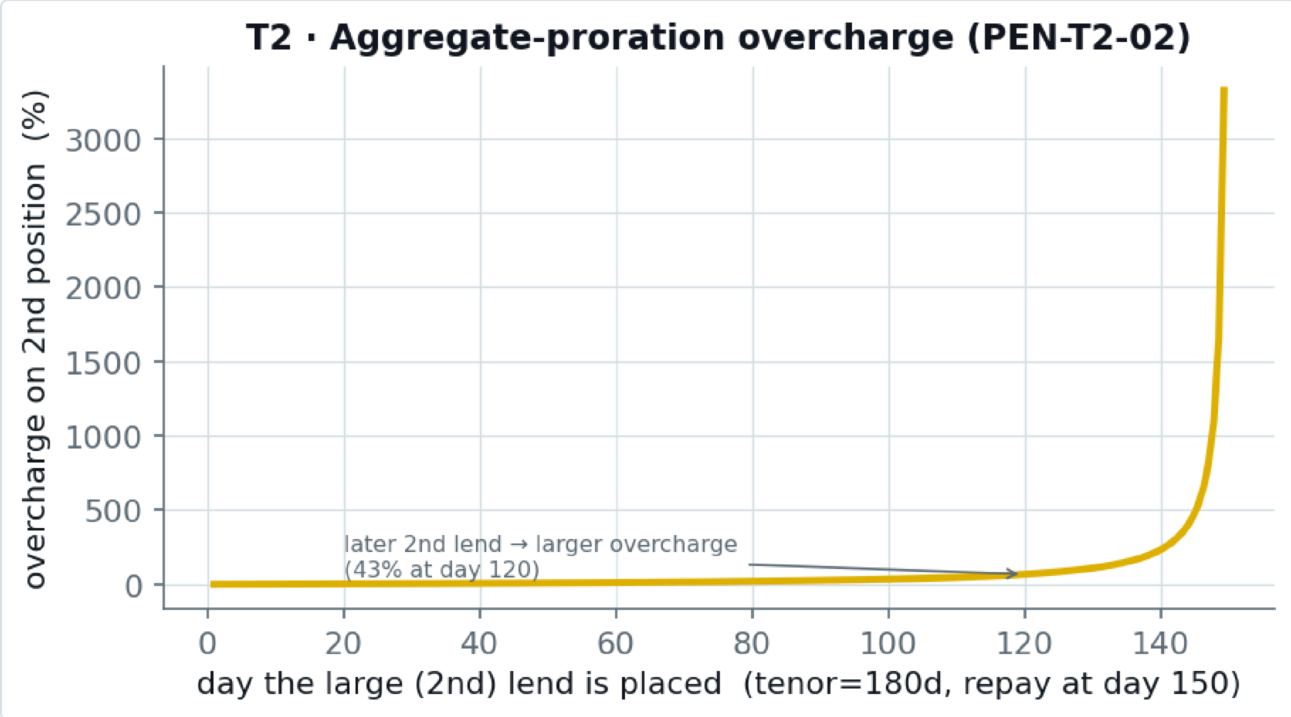
On a monthly loan, a late repayInterest pays interest up to the current time but deducts only one 30-day month, leaving the overdue slice to be charged again. Overpayment = P·R·Δ/360. Ten days late on a 10% loan double-charges 33% of a month's interest.



Extra interest charged as a function of days late

AGGREGATE-PRORATION OVERCHARGE (PEN-T2-02)

A lender lends a tiny amount at t_0 to anchor accrualTs, then a large amount late, then forces an early repayment via a callback. The aggregate proration over-attributes early interest to the second position; at a 2nd-lend on day 120 of a 180-day tenor repaid on day 150, the second position is overcharged ~43%.



Overcharge on the 2nd position vs the day it is placed

DEFAULT LOSS-GIVEN-DEFAULT (STRUCTURAL)

Loans are uncollateralized: on default, interest and penalty freeze at the default timestamp and there is **no on-chain recovery or claim function**. Lender loss-given-default is therefore the entire outstanding principal plus accrued interest, less any off-chain workout recovery. The lender-triggerable terminal default (maturity + 3-day grace, any single lender) means the timing of loss recognition is controlled by whichever lender defaults first — model the incentive to default at grace+ε versus waiting for an off-chain cure.

02 SURFACE RANKING

S = existential · A = severe · B = bounded. Note the absence of an S-vector: no code path lets an attacker extract pool funds.

	VECTOR	WHY
A	**Borrower overpayment accounting**	Two independent proration bugs (PROTO-T2-01, PEN-T2-02) systematically overcharge the borrower and over-pay the lender/treasury; deterministic, not attacker-gated but lender-amplifiable.
A	**Default LGD (uncollateralized)**	No collateral and no on-chain claim ⇒ 100% principal at risk on default, with a single lender controlling terminal-default timing.
B	**Repayment / roll griefing**	Origination-refund underflow DoS after roll+callback; KYC-revoked stale callback locks rolls — bounded, self-resolving or repay-clearable.

All accounting divergences round in the lender/treasury's favour; no lender-underpaid path was found.

03 STANDOUT ACTION

Highest-leverage change: make the interest interval that is *paid* identical to the interval that is *deducted* from the recorded liability (bind both to one end-timestamp, and prorate each position over its own [start,end] rather than a single aggregate accrualTs). This one correction removes both overcharge classes (PROTO-T2-01 and PEN-T2-02) at once. Then route all lateness through the penalty term only, and add an on-chain post-default settlement path so default is a recovery event rather than a dead-end.