

The Governed Payment Waterfall

Terms, cash, triggers, accountable views, and release authority in one inspectable calculation



FINANCIAL SERVICES

A waterfall is trustworthy only when its governing terms, dated facts, ordered logic, exceptions, views, authorizations, and released records remain connected.

EVIDENCE AND AUTHORITY BOUNDARY

This guide is an evaluation artifact. It does not interpret an agreement, establish source truth, authorize or move funds, perform accounting or audit work, validate a model, provide financial or legal advice, establish compliance, or evidence an operating result.

A correct total can still be the wrong payment

The arithmetic is only one control surface. Scope, source revision, trigger state, exception treatment, independent review, instruction, authorization, bank response, accounting, and reporting remain distinct.

SOURCE OF LOGIC

Terms and interpretations

- Cite the governing revision and effective interval.
- Keep approved interpretations separate from generated proposals.
- Retain caps, priorities, rounding, triggers, and superseded terms.

SOURCE OF FUNDS

Cash and dated facts

- Bind balances, fees, reserves, and performance facts to sources.
- Represent stale, missing, disputed, and corrected states.
- Do not treat an imported number as reconciled truth.

CONTROLLED COMPUTATION

Allocation and exceptions

- Execute priorities in order and retain intermediate values.
- Fail unexplained plugs and broken sources-equal-uses invariants.
- Require authored exception reasons and authorized treatment.

EXTERNAL EFFECT

Release and response

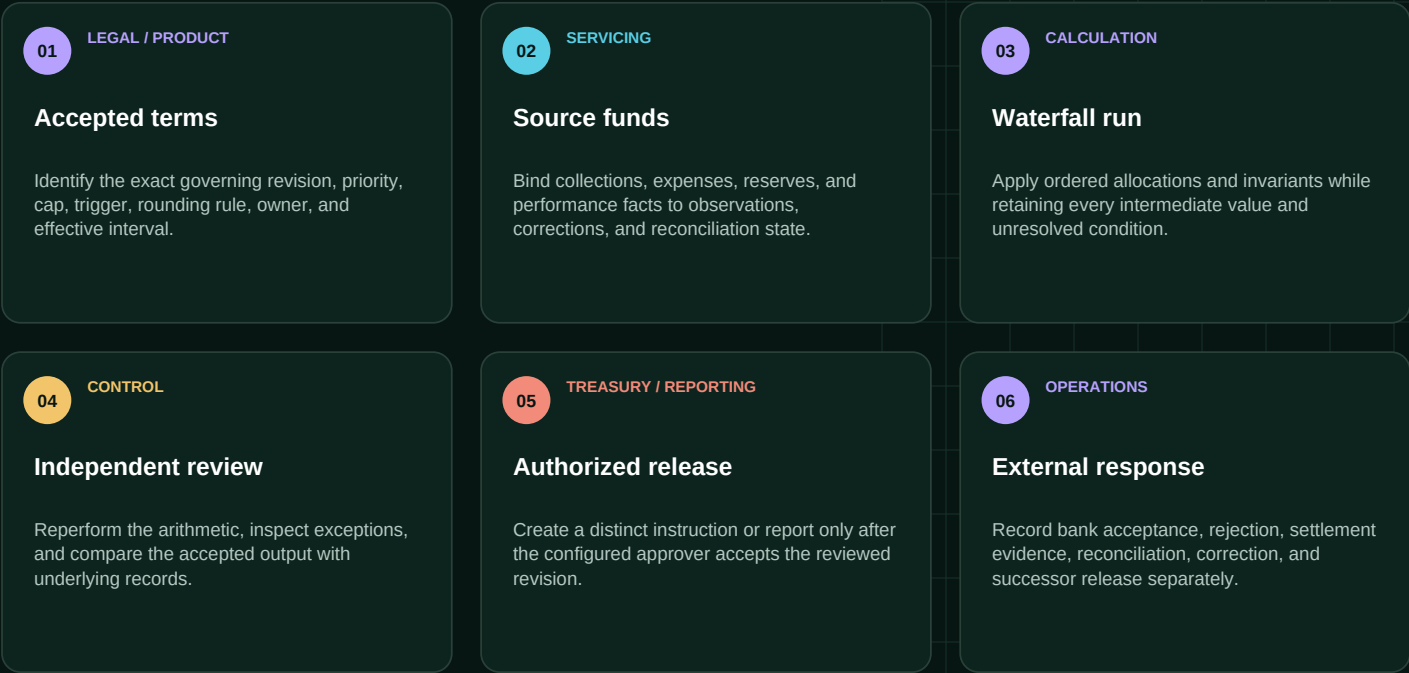
- Separate calculation, instruction, authorization, submission, and settlement.
- Preserve preparer and reviewer responsibilities.
- Record external acknowledgment without inventing finality.

DO NOT COLLAPSE

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One calculation, six accountable transitions

Every role can receive a purpose-fit view without acquiring a private formula or someone else's authority.



TRACE RULE

A green calculation means only that the represented facts and authored rules resolved for this revision. It is never a substitute for the external evidence or authority named at the final gate.

The waterfall contract names more than amounts

A number is usable only when its meaning, time, state, source, and decision owner survive the handoff.

Object	Required identity	State and time	Owner / gate
Terms	Document, provision, revision, effective interval, currency	Accepted, proposed, superseded, disputed	Qualified term owner accepts interpretation
Collections	Account, distribution period, source transaction set	Observed, reconciled, corrected, stale, missing	Servicer supplies; reviewer reconciles
Expense	Payee class, submitted amount, cap, priority	Eligible, capped, excepted, unresolved	Rule owner governs; exception owner decides
Trigger	Metric, numerator, denominator, threshold, comparator	Known, boundary, breached, contradicted	Source owner supplies fact; rule applies exactly
Output	Run ID, term revision, fact revision, distribution ID	Draft, reviewed, authorized, submitted, accepted	Each transition has a distinct accountable role

STATE DISCIPLINE

Known, stale, missing, contradicted, and not-applicable are different states. A safe model does not coerce any of them to zero, false, available, or approved.

Paired use-case fixture: a one-million-dollar distribution

This distinct fixture comes from the paired use case; the canonical Insight also preserves the larger North Cove example. Here, every priority remains visible and sources must equal uses.

FORMULA

available funds = 1,000,000 | allocations execute in order | sources = uses must equal 1,000,000

Priority	Submitted / rule	Paid	State
1 Administrative expense	45,000; cap 40,000	40,000	5,000 exception unresolved
2 Senior interest	300,000	300,000	Paid in full
3 Reserve top-up	100,000	100,000	Required reserve funded
4 Senior principal	400,000 scheduled	400,000	Before trigger redirection
5 Subordinate interest	80,000	80,000	Paid in full
6 Residual	Remainder	80,000	Allowed only below trigger

EXACT BASELINE

Baseline uses are 40,000 + 300,000 + 100,000 + 400,000 + 80,000 + 80,000 = 1,000,000. The unresolved 5,000 expense excess is not silently inserted into the distribution.

One corrected fact changes the residual path

Exact comparators and immutable releases prevent a rounded display or overwritten source from hiding the decision change.

Revision	Accepted fact	Exact consequence	Release state
R0	Delinquency = 3.800%	3.800% < 4.000%; residual remains 80,000	Baseline may enter review
R1	Corrected to 4.200%	4.200% >= 4.000%; residual redirects to senior principal	Principal becomes 480,000
B1	Boundary = 3.999%	Comparator remains false	Residual = 80,000
B2	Boundary = 4.000%	Comparator becomes true exactly	Residual = 0
F1	Reserve row omitted	Payment file totals only 900,000	Fail sources = uses

- R0 remains immutable and traceable after R1 is accepted; R1 becomes a successor rather than an overwrite.
- The model does not decide that a correction is valid, waive an exception, or authorize the resulting instruction.
- Every role-specific view must identify whether it shows R0, R1, or a stale derivative.

CORRECTION RULE

A correction changes only the dependencies it reaches. The system must expose stale derivatives, preserve the earlier release, and require the same configured review and authority gates for the successor.

Calculation never collapses financial authority

The same run can support several roles while each regulated, contractual, and institutional responsibility stays outside the formula.

Accountable role	Supplies or decides	Grid boundary
Term owner	Accept governing provisions and interpretations	Generated logic cannot interpret or amend an agreement
Servicer / source owner	Supply collections, fees, balances, and corrections	Import success does not prove completeness or truth
Calculation agent	Execute the accepted waterfall and retain evidence	A calculation is not a payment instruction
Independent reviewer	Reperform, reconcile, challenge, and resolve findings	The preparer cannot impersonate independent review
Treasury preparer	Prepare an instruction from the accepted schedule	Preparation is not authorization or bank acceptance
Authorized approver	Approve release under configured controls	Approval cannot be inferred from a passing result
Accounting / reporting	Apply separately governed recognition and disclosure	A distribution view does not post the ledger
Risk / audit / oversight	Reconstruct scope, evidence, change, and control performance	Review access does not grant operating authority

SEPARATION OF DUTY

Identity, permission, review, authorization, submission, external acknowledgment, and receipt are separate states. No computed result should silently advance across them.

08 | INTEROPERABILITY

Connect systems without declaring semantic victory

Interfaces must preserve identity, ordering, failure, and external-effect states across the boundary.

IDENTITY**A stable calculation envelope**

- Distribution, account, currency, term revision, fact revision, and run ID.
- Idempotency key for consequential submissions.
- No silent join across similar labels.

TIME**Several clocks, not one**

- Observation, effective, valid-through, calculation, approval, and settlement times.
- Late facts declare staleness.
- Time zones and distribution periods remain explicit.

SECURITY**Least privilege and recovery**

- Separate read, propose, review, approve, submit, and correct permissions.
- Protect secrets and sensitive records.
- Test degraded mode, revocation, replay, and recovery.

AI**Proposal stays a proposal**

- AI may map, explain, draft, and suggest tests within policy.
- It may not accept terms, exceptions, review, or release.
- Provenance and human disposition stay visible.

CONNECTED-EDGE RULE

A successful API call establishes only the observed protocol result. It does not prove semantic agreement, source truth, authorization, external execution, final receipt, security approval, or resilience.

Break the waterfall before relying on it

A credible pilot measures reconstruction, propagation, separation of duty, and safe failure - not presentation quality alone.

Failure injection	Required behavior	Passing evidence
Wrong term revision	Run must stop or show unresolved; no silent fallback	Revision and dependency trace
Stale collections	Affected views declare stale and block configured release	Freshness clock and rendered views
Threshold boundary	3.999, 4.000, and 4.001 follow exact comparator	Machine result plus independent reperformance
Unapproved exception	The 5,000 excess cannot enter uses	Exception state and authority log
Broken invariant	900,000 payment file fails against 1,000,000 source	Sources-equal-uses failure evidence
Role collision	Preparer cannot perform required independent approval	Identity and separation-of-duty test
Timeout after submit	Retry cannot create a duplicate external effect	Idempotency and response reconciliation
Correction after release	R0 remains citable; R1 identifies what changed	Immutable release and successor link

EVALUATION GATE

Predeclare acceptance thresholds, roles, fixtures, clocks, failure injections, evidence, and stop conditions. Record every deviation; do not retrofit the success claim after seeing the result.

10 | SOURCES AND LIMITS

Public context, explicit scope

Use each source within its own date, institution, subject, and applicability. The maintained online Insight carries the fuller argument and current editorial context.

01 ECFR

17 CFR 229.1113 - transaction structure and flow-of-funds disclosure

www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.1100/section-229.1113

02 ECFR

17 CFR 229.1122 - assessment of compliance with servicing criteria

www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.1100/section-229.1122

03 ECFR

17 CFR 229.1121 - distribution and pool performance information

www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.1100/section-229.1121

04 ECFR

17 CFR 229.1123 - servicer compliance statement within its scope

www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.1100/section-229.1123

05 FEDERAL REGISTER

Interagency Guidance on Third-Party Relationships (2023)

www.govinfo.gov/content/pkg/FR-2023-06-09/pdf/2023-12340.pdf

06 FEDERAL RESERVE

Revised Guidance on Model Risk Management (SR 26-2)

www.federalreserve.gov/supervisionreg/srletters/SR2602.htm

07 ECFR

12 CFR Part 210, Subpart B - Fedwire funds transfers

www.ecfr.gov/current/title-12/chapter-II/subchapter-A/part-210/subpart-B

08 NIST

Cybersecurity Framework 2.0

www.nist.gov/cyberframework

FINAL LIMIT

The cited sources have different scopes and do not endorse Grid or prescribe this architecture. Passing the fixture supports only a bounded statement about the tested implementation, data, rules, roles, interfaces, and conditions.