PRETRADE ENGINEERING

Replaying the risk controls

3 of 4

Three deliberately out-of-policy paper orders were blocked. Each block had a different cause.

Buyer decision

Give a portfolio manager and an engineer a common, repeatable check before a policy change.

Analysis scope

Four deterministic test cases. The replay did not place an order or estimate a live rejection rate.

DECISION MATRIX

One action for each replay case

The four inputs exercise the baseline, an exposure cap, a daily loss cap and an emergency stop.

	ALLOW	BLOCK
Within limits	**Selected**	–
Exposure cap	–	**Selected**
Loss cap	–	**Selected**
Emergency stop	–	**Selected**

The three stop cases were selected deliberately to exercise each reason. Counts describe the replay.

REASON-CODE TRACE

Three blocks, three explanations

Each selected block links to one triggered control in the worked replay.

Input condition	Recorded reason
Exposure above cap	Exposure cap
Daily loss above cap	Loss cap
Emergency stop active	Emergency stop

Counterexample

The within-limits case passed. This keeps a system that blocks every order from passing the replay.

TEST COVERAGE

What the replay exercised

A four-row suite establishes isolated control behavior. Several boundary conditions still need their own evidence.

Exercised

- Within limits → allow
- Exposure cap → block
- Loss cap → block
- Emergency stop → block

Next test cases

- Exactly at a configured cap
- Two controls triggered together
- Missing or stale risk inputs
- Stop release and order resubmission

The right column is a proposed extension to the regression suite.

How to repeat the control check

Establish expectations before changing the control logic. Keep an inspectable decision trace for each case.

Prepare

Fix the case input, risk state and expected outcome. Begin with one within-limits baseline and one isolated case for each stop reason.

Run

Replay against the paper gate. Capture the case identifier, selected action and reason when the order is withheld.

Compare

Check actions and block reasons against the four-case contract. A block with the wrong reason warrants investigation.

Extend

Agree on cap equality, missing state and multi-trigger precedence before writing the corresponding regression cases.