GENELLIPSE ACTUARIAL AI

Actuarial AI Models, processes & reports

Life, annuities and valuation in depth, with reserving, pricing and capital models. Worked calculations and sample review reports.

Actuarial capability map

The model produces the number. The workflow records how the team reached and approved it.

Domain	Models and calculations	Decision / output
Life valuation	Policy projections, decrements, discounted cash flows	Gross-premium reserve and sensitivities
Annuities & ALM	Survival cash flows, duration, convexity	Liability run-off and asset mismatch
Profitability	Profit signatures and traditional embedded value	Capital strain, PVFP and cost of capital
IFRS 17	GMM, VFA, PAA and CSM movements	Measurement and movement reports
P&C and capital	Reserving, pricing, aggregate loss, SCR / RBC	Reserve range, rates and capital view

End-to-end actuarial process

Every stage has a calculation, a control and an output that the next stage uses.

Stage	Work performed	Retained output
1. Prepare	Map policy, claim, premium, asset and treaty data	Reconciled model-point / triangle version
2. Set basis	Choose model, mortality, lapse, expense and curves	Versioned assumptions and approval status
3. Execute	Project cash flows or run the selected estimator	Run ID, parameters, seeds and diagnostics
4. Challenge	Compare prior results, sensitivities and benchmarks	Exceptions, movement and validation reports
5. Approve	Resolve issues and record independent review	Authorized result and sign-off
6. Publish	Assemble report and seal supporting evidence	Identifiable pack and export history

Life and annuity model inventory

The life workflow connects policy-level calculations to portfolio-level review.

Model family	Inputs	Calculation / output
Policy projection	Benefits, premiums, model points, time step	In-force states and period cash flows
Mortality / lapse	Tables, exposure, experience and adjustments	Decrement rates and A/E studies
Valuation	Projected cash flows and discount basis	PV benefits + expenses − premiums
Sensitivity / change	Base run and changed basis or data	Revalued reserve and movement attribution
Value / ALM	Profit, required capital and asset cash flows	Traditional EV, duration and surplus stress

Reserving, pricing and capital inventory

These model families complement the life valuation workflow.

Family	Methods covered	Main output
Loss reserves	Chain ladder, BF, Cape Cod, ELR, Munich	Ultimate loss and outstanding reserve
Uncertainty	Mack standard error and residual bootstrap	Reserve variability and percentiles
Pricing / experience	Frequency–severity, trend, credibility	Technical premium and rate indication
Aggregate loss	Count / severity models, Monte Carlo, Panjer	Loss distribution, VaR and TVaR
Capital / risk transfer	Correlation aggregation, Co-TVaR, RBC, layers	Diversification, allocation and recoveries

Life model-point input report

A model point represents a policy or a validated group of similar policies.

Field group	Example fields	Validation before projection
Identity	Policy ID, product, issue date, valuation date	No duplicates; issue date ≤ valuation date
Risk	Attained age, sex where permitted, smoker class	Valid coding and supported table range
Benefits	Sum assured, riders, maturity, guarantees	Terms match the policy administration record
Premiums	Amount, frequency, remaining payment term	Premium totals reconcile by product
Policy status	In force, paid-up, surrendered, in claim	State transitions and eligibility reconcile
Grouping	Policy count, weight and grouping dimensions	Grouped and individual sample results agree

Sample data specification. Product terms determine which fields the model requires.

Versioned assumption basis

A run must retain the exact basis that produced its result.

Assumption	Synthetic basis for the term example	Review question
Mortality	Annual q: 0.20% rising to 0.80% over 10 years	Does the cohort match the chosen mortality basis?
Lapse	6% declining to 0% at contractual expiry	Are duration and surrender incentives represented?
Premium / benefit	800 annual premium; 250,000 death benefit	Are payment timing and benefit definitions correct?
Expenses	60 per opening policy; 2% annual inflation	Which expenses are attributable to this book?
Discount	Flat 3% annual effective rate	Which valuation purpose and curve apply?

10,000 policies. Currency units (CU). Synthetic rates are not a published mortality table.

Model authoring and execution

The model definition specifies inputs, formulas, time-step references and requested outputs.

01

Define

Declare policy fields, assumption references and cash-flow formulas.

02

Validate

Resolve references and return diagnostics for every invalid expression.

03

Run

Execute over the frozen model-point set and retain point-level failures.

04

Review

Reconcile aggregate output and test representative cells independently.

A valid definition can still represent the wrong economics. Calculation validation remains necessary.

Decrement calculation by policy year

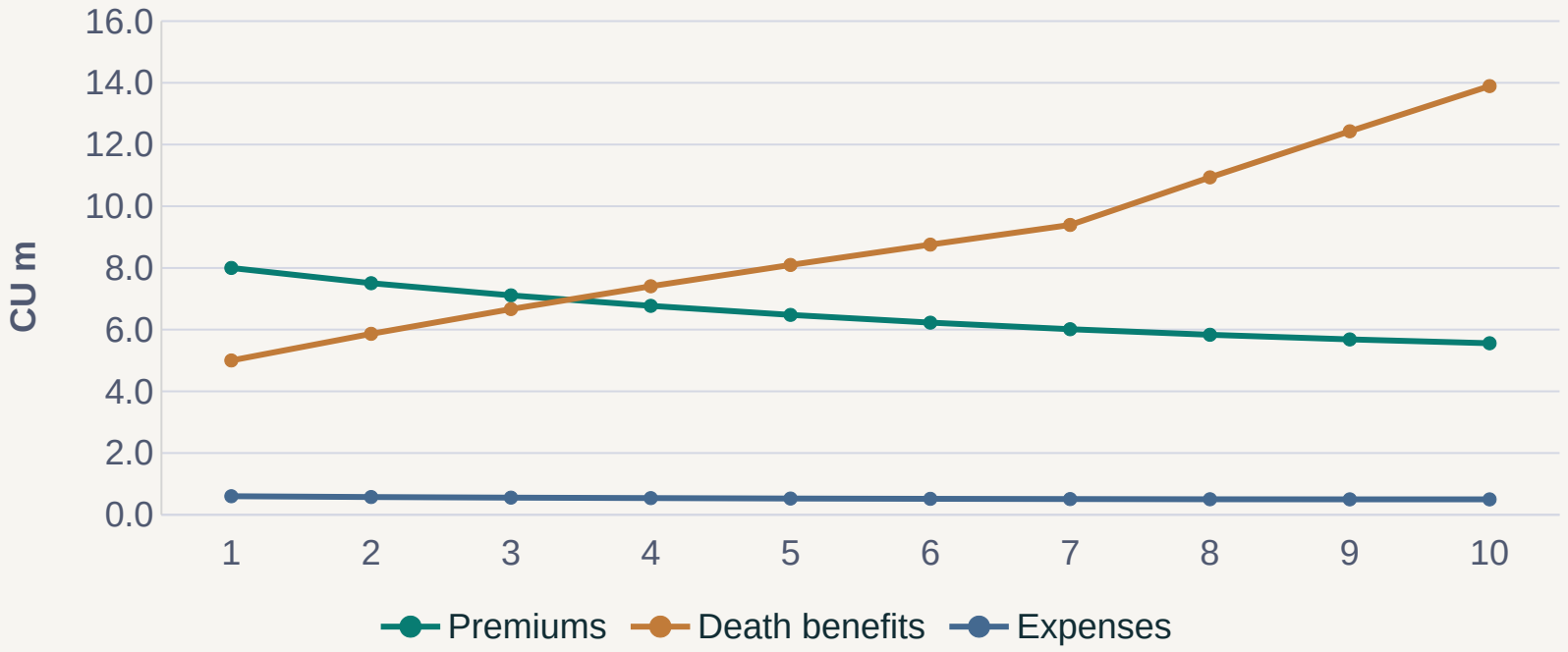
Deaths occur first in this example. Lapses then apply to surviving policies.

Year	Opening	Deaths	Lapses	Closing
1	10,000.00	20.00	598.80	9,381.20
2	9,381.20	23.45	467.89	8,889.86
3	8,889.86	26.67	398.84	8,464.35
4	8,464.35	29.63	337.39	8,097.33
5	8,097.33	32.39	282.27	7,782.67

Deaths = opening × q. Lapses = (opening − deaths) × lapse rate. Closing = opening − deaths − lapses.

Term-life projected cash flows

10-year term book. Annual expected amounts, CU millions. All cash flows occur at year-end in this example.



Premium income

Run-off reduces the policies that pay premiums.

Death benefits

Increasing mortality can outweigh the shrinking in-force book.

Review

The report must explain both premiums and claims.

Gross-premium reserve calculation

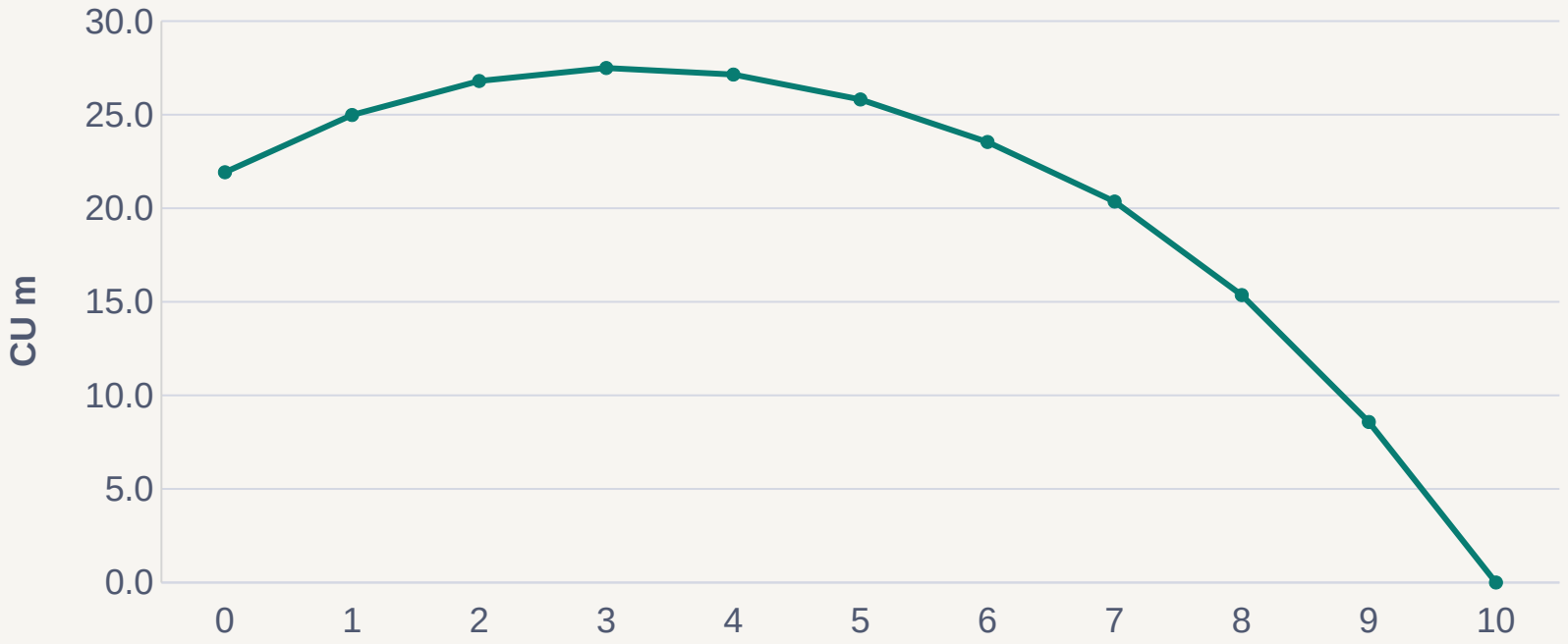
Prospective reserve = PV future benefits + PV future expenses − PV future premiums.

Component	CU m	Treatment
PV death benefits	73.51	Expected deaths × insured benefit, discounted
PV expenses	4.56	Per-policy costs with expense inflation
Less PV premiums	−56.15	Future premiums from the opening in-force
Gross-premium reserve	21.92	Before any accounting-specific margins or floors

This is a teaching calculation, not an IFRS 17 liability or a prescribed statutory reserve.

Reserve run-off by valuation duration

Same closed cohort and basis. Remaining liability immediately after each year-end, CU millions.



Duration 0

21.92m is the present value of all remaining net outflows.

During run-off

Reserve development reflects both emerging cash flows and discount unwind.

Expiry

Reserve reaches zero when the 10-year term ends.

Whole life, endowment and universal life

Model specifications must reflect each contract’s benefit and account mechanics.

Product	Additional state or calculation	Report to inspect
Whole life	Long-horizon mortality, premiums and terminal treatment	PV by age; tail and truncation sensitivity
Endowment	Survival benefit at maturity plus death benefit	Maturity cash flow and survival reconciliation
Universal life	Account value, charges, crediting, premium flexibility	Account roll-forward and guarantee shortfall
Participating life	Bonuses, asset shares and management actions	Benefit allocation and scenario sensitivity

Product design requirements. The reviewed public demo proves a term projection; these variants require configured models and acceptance tests.

Annuity modelling requirements

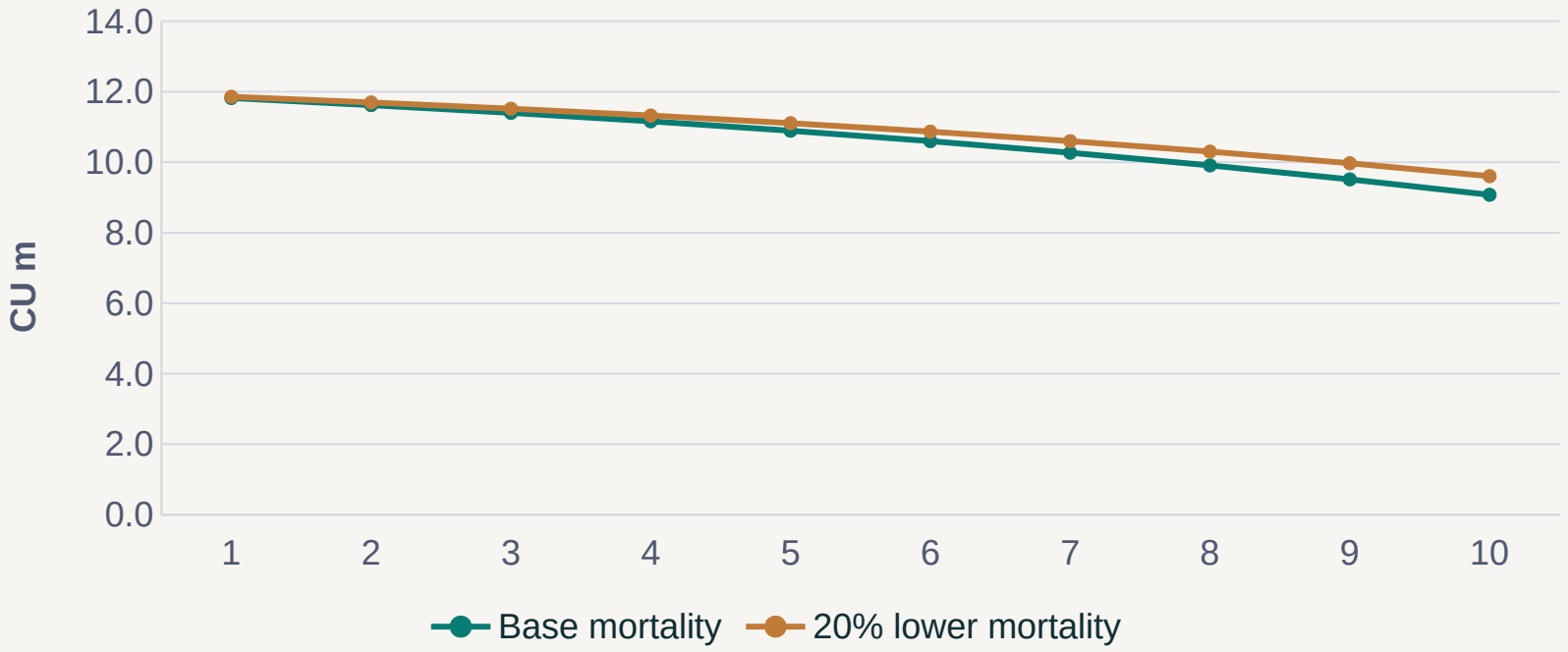
Payment timing, survival and guarantees determine the cash-flow model.

Annuity	Core calculation	Risk and output
Immediate life annuity	Payment × survival probability, discounted	Longevity liability and payment run-off
Deferred / fixed	Accumulation, credited rate, surrender and annuitisation	Account value and spread margin
Indexed annuity	Index crediting, caps, participation and floors	Crediting cost and scenario distribution
Variable annuity	Fund paths, withdrawals, fees and rider guarantees	Guarantee cost and tail exposure
Joint life / guarantee period	Multiple-life states and certain payments	Survivor benefits and contingent cash flows

Coverage specification, not a claim that every rider or stochastic guarantee engine ships in the demonstrated configuration.

Annuity payments and longevity

Synthetic 10-year temporary life annuity: 1,000 lives, 12,000 annual benefit paid to year-end survivors.



Longevity effect

Lower mortality leaves more lives receiving payments.

Expense basis

100 per surviving life per year accompanies the benefit.

Term

Payments stop after year 10 by contract design.

Annuity valuation sensitivity report

Liability includes expected benefits and expenses. All amounts are CU millions.

Scenario	Liability	Change vs base	Interpretation
Base: 3% discount	92.02	0.00	Reference basis
Mortality reduced 20%	94.13	2.11	Longer survival increases payments
Discount reduced to 2%	96.68	4.66	Future payments discount less
Discount increased to 4%	87.69	-4.33	Future payments discount more

Independent shocks. Combined scenarios require another projection.

Mortality experience study report

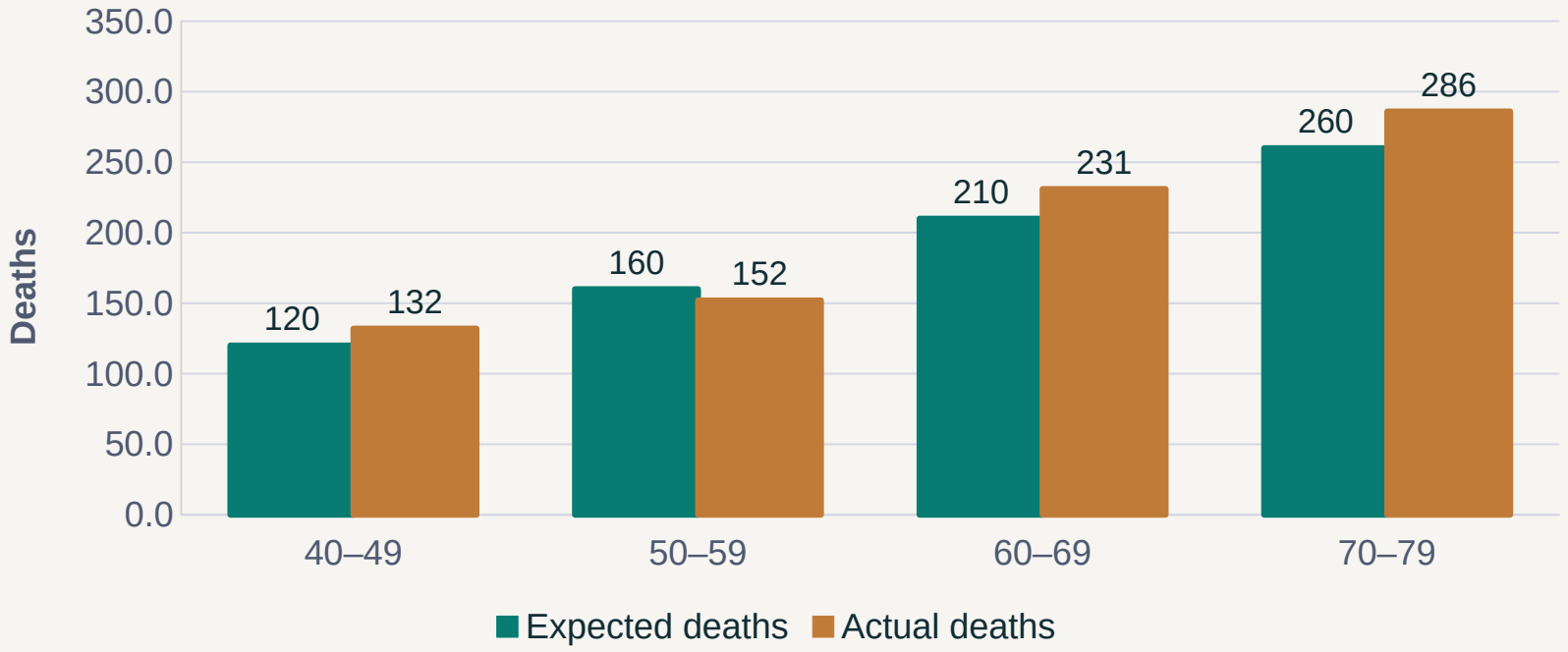
Illustrative one-year observation. Expected deaths = exposure × expected annual mortality.

Age band	Exposure years	Expected q	Expected deaths	Actual deaths	A/E
40–49	60,000	0.20%	120	132	110%
50–59	40,000	0.40%	160	152	95%
60–69	30,000	0.70%	210	231	110%
70–79	20,000	1.30%	260	286	110%
Total	150,000	Varies	750	801	106.8%

An A/E ratio above 100% indicates more deaths than expected on this basis; it does not establish the cause.

Mortality actual versus expected

The aggregate A/E of 106.8% conceals different cohort experience.



50–59 cohort

Actual deaths are 5% below expected.

Other cohorts

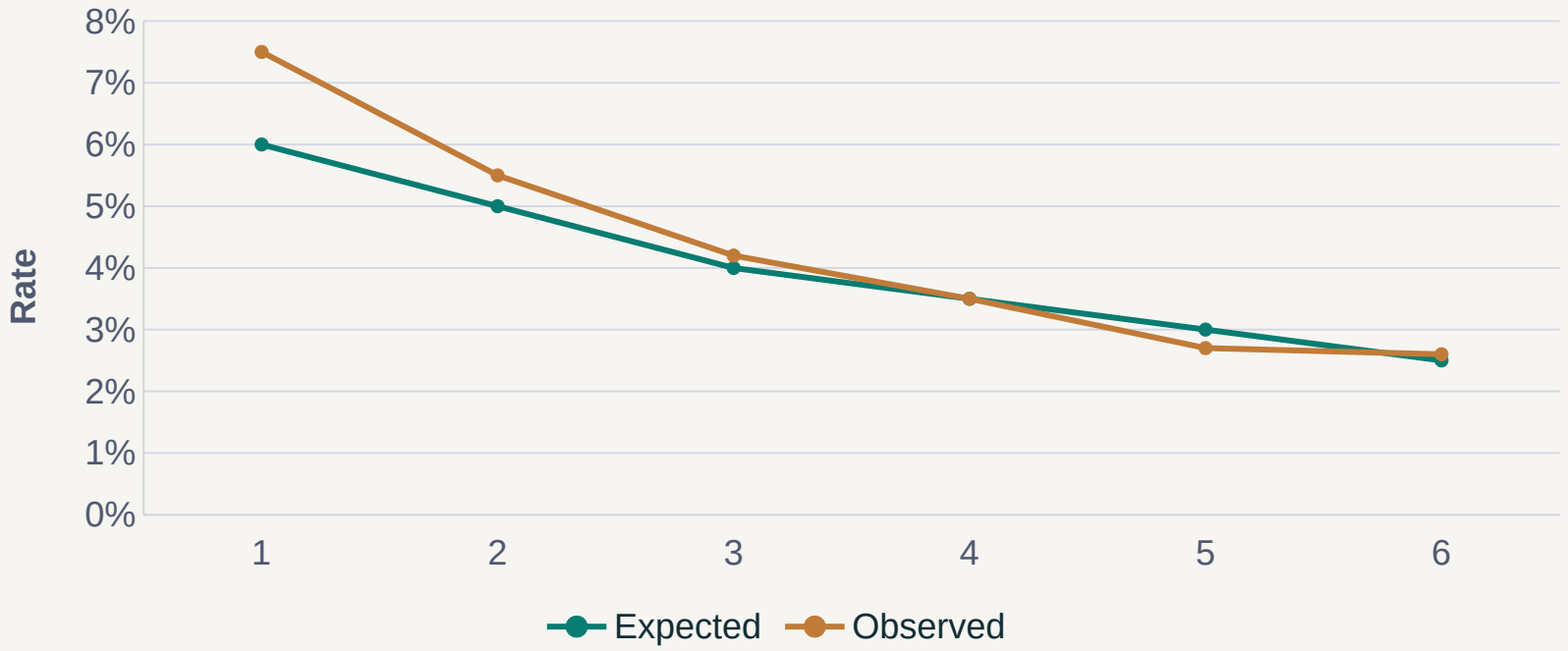
Actual deaths are 10% above expected.

Next analysis

Test mix, exposure quality, selection effects and statistical uncertainty.

Lapse and persistency by duration

Synthetic lapse study. Annual lapse rate as a percentage of eligible exposed policies.



Early duration

Year 1 exceeds the basis by 1.5 percentage points.

Valuation effect

Lapse changes both future premiums and benefits.

Segmentation

Separate product, distribution, surrender-charge and premium cohorts.

Credibility-weighted assumption selection

A small cohort should not determine the full portfolio assumption.

Worked selection

Raw mortality A/E = 120%. Prior factor = 100%. If credibility Z = 25%, selected factor = 25% × 120% + 75% × 100% = 105%.

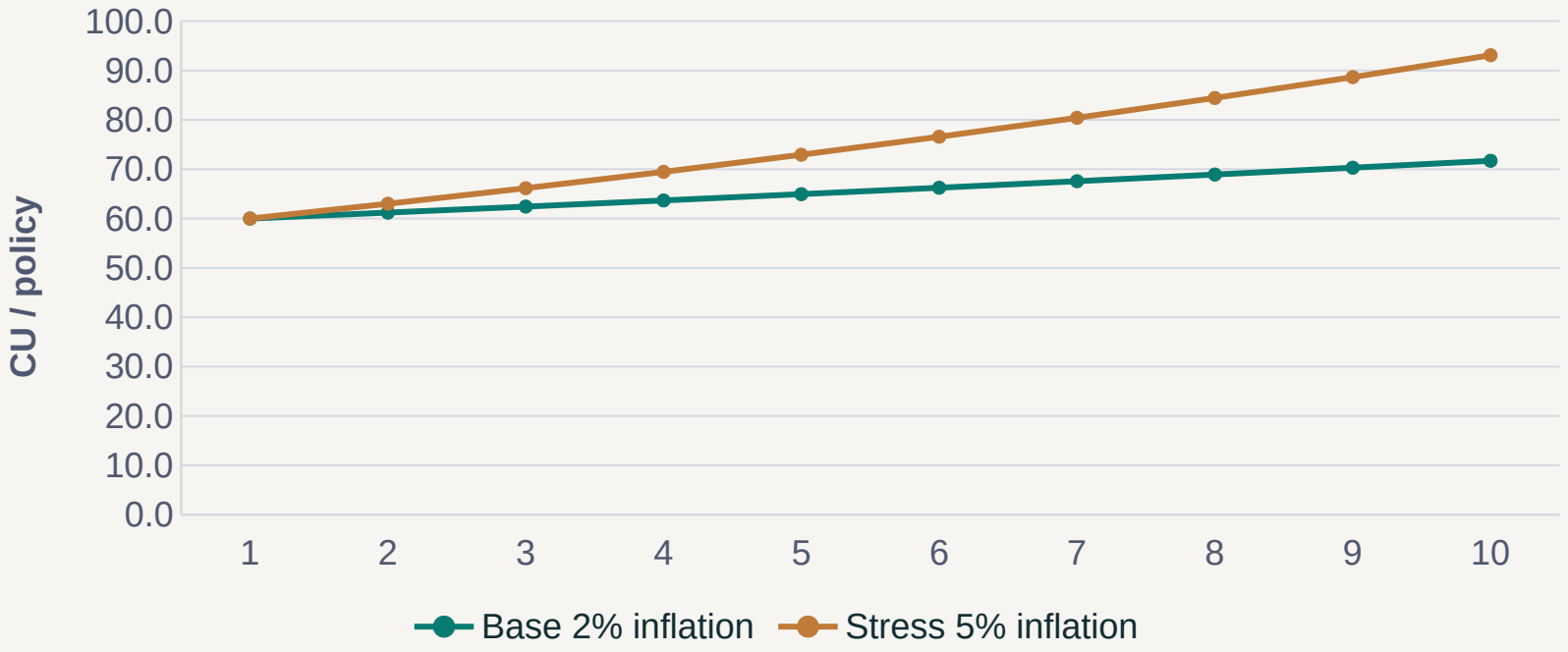
Model and judgement

Bühlmann-Straub uses exposure weights and estimates of within- and between-segment variation. Review parameter stability and cohort relevance before adopting the result.

The 25% credibility weight is an illustrative assumption, not a fitted result.

Expense inflation in a closed book

Per-policy expense increases while total expense also depends on in-force run-off.



Expense structure

Separate fixed overhead, acquisition and maintenance costs.

Run-off risk

Fixed costs may fall more slowly than policy counts.

Reporting

Show both per-policy expense and total cash outflow.

Deterministic and stochastic valuation

The chosen method must represent the contract’s nonlinear behaviour.

Method	How the model works	Typical review
Deterministic projection	One specified basis produces one cash-flow path	Reconciliation, sensitivities and cell tests
Scenario testing	Re-run specified economic / biometric stresses	Adverse combinations and material drivers
Stochastic valuation	Probability-weighted outcomes across simulated paths	Calibration, convergence and tail stability
Risk-neutral valuation	Market-consistent pricing assumptions where appropriate	Instrument fit, hedging and option consistency
Real-world projection	Physical probabilities for planning and risk analysis	Experience fit and plausible dependence

The demonstrated traditional EV model is deterministic. It does not establish market-consistent guarantee valuation.

Options and guarantees valuation process

Variable, indexed and participating contracts require product-specific treatment of policyholder options.

01

Scenarios

Calibrate economic paths to the purpose of the valuation.

02

Contract

Apply fund returns, fees, crediting rules and benefit guarantees.

03

Behaviour

Model exercise, lapse and withdrawal behaviour conditional on the path.

04

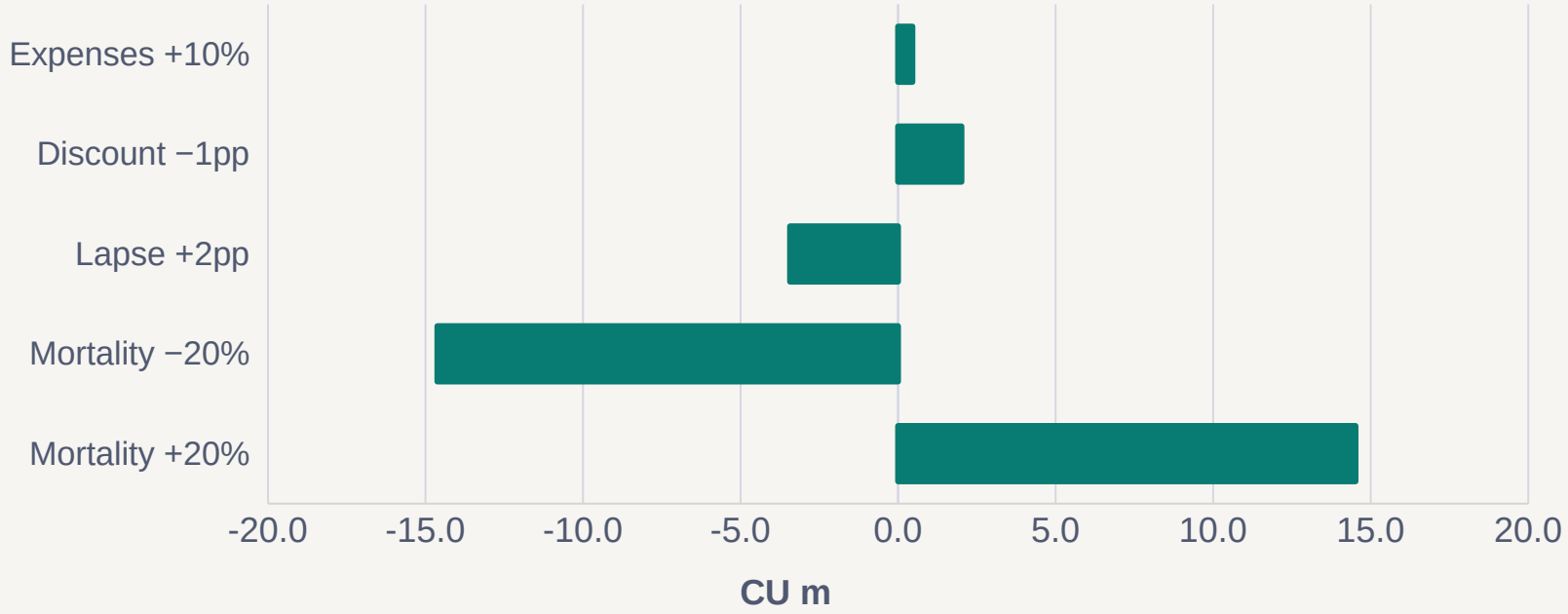
Results

Value guarantee shortfalls and test convergence, sensitivities and tail risk.

Illustrative model design. Confirm the stochastic engine, calibration and rider coverage before implementation.

Life reserve sensitivities by revaluation

Each result comes from re-running the 10-year term model. Change from base reserve, CU millions.



Mechanism

Mortality affects claims and the policies available to lapse later.

Lapse

Lost premium and avoided claims offset each other.

Interpretation

Single-factor results do not measure a joint stress.

Analysis of change report

Synthetic reserve bridge. CU millions. A production bridge uses a stated sequence of revaluations.

Step	Movement	Running reserve	Explanation
Opening	—	20.00	Prior approved closing reserve
Unwind / expected run-off	−1.00	19.00	Time progression and expected cash flows
New business	+2.50	21.50	New policies added to the model-point set
Experience / basis change	+1.20	22.70	Actual movements and revised assumptions
Economic / model change	−0.40	22.30	Curve and implementation changes
Interaction / residual	+0.10	22.40	Disclosed residual; investigate material amounts

Closing reserve = 20.00 − 1.00 + 2.50 + 1.20 − 0.40 + 0.10 = 22.40. Attribution depends on step order.

Sample life valuation review report

Term model TERM-ILL-01. Valuation date 31 December 2026. Synthetic closed cohort.

Report line	Result	Reviewer check
Opening policies	10,000	Reconcile to model-point control total
Projection term / basis	10 years / basis ILL-2026-01	Check contractual expiry and pinned versions
PV benefits / expenses	73.51 / 4.56m	Trace to discounted cash-flow detail
PV premiums / reserve	56.15 / 21.92m	Confirm reserve identity and sign
Mortality +20% reserve	36.44m	Confirm full revaluation and decrement effect
Release status	Illustrative example only	Production use needs independent review

Sample report layout created for this presentation. It is not a platform screenshot or a production export.

Traditional embedded value calculation

Synthetic profit and required-capital projections, CU millions. Hurdle 8%; capital earns 4%.

Component	Value	Interpretation
PV future profits	11.98	Discount the post-tax profit signature at 8%
Frictional cost of capital	5.54	Discount required capital × (8% − 4%)
Value of in-force profit stream	6.45	PVFP less cost of capital
Adjusted net worth	Separate input	Add if the reporting EV definition requires it

A simplified traditional EV illustration. It excludes stochastic options, guarantees and other framework-specific adjustments.

Profit emergence and new-business strain

Synthetic annual post-tax profit signature and required capital, CU millions.

Year 1 strain

Acquisition cost and initial reserve funding produce an 8m loss.

Capital capacity

The book also requires capital that cannot be distributed.

Pricing review

Check value per policy, return and the capacity to fund new volume.

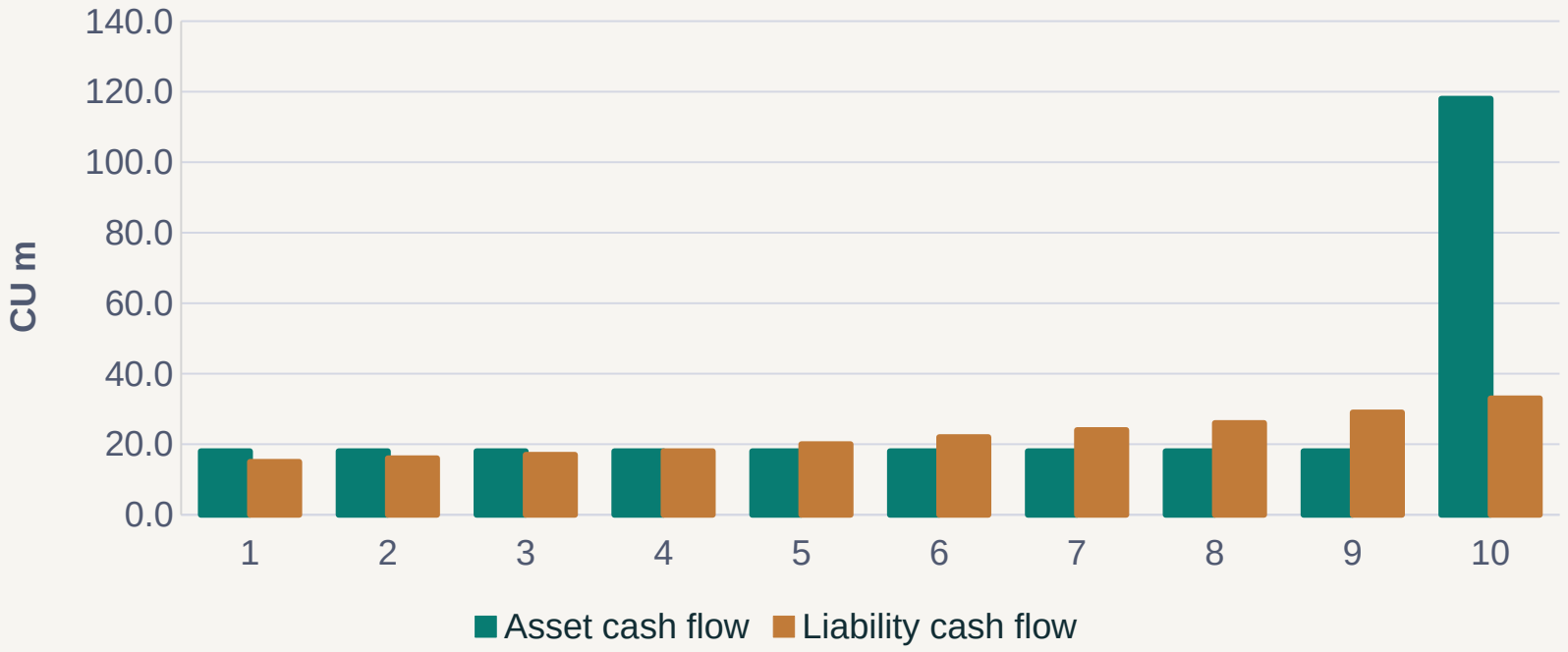
Life and annuity pricing process

Profitability depends on the projected contract cash flows and the capital supporting them.

Step	Calculation	Decision / report
Product specification	Benefits, premiums, guarantees and surrender terms	Product model and test cases
Best estimate	Mortality, lapse, expenses and economic basis	Expected profit signature
Risk and capital	Adverse scenarios and required capital	Capital strain and sensitivity report
Price iteration	Re-run alternative premiums, fees or benefits	Target margin / return comparison
Approval and monitoring	Independent challenge and experience tracking	Approved basis and repricing triggers

Asset and liability cash-flow mismatch

Synthetic asset portfolio and benefit obligations, CU millions. A terminal bond maturity creates concentration.



Liquidity

Annual surplus does not remove shortfalls in other periods.

Reinvestment

Interim surpluses require an explicit reinvestment assumption.

Concentration

Year 10 asset maturity dominates the portfolio cash flow.

Duration and dollar-duration report

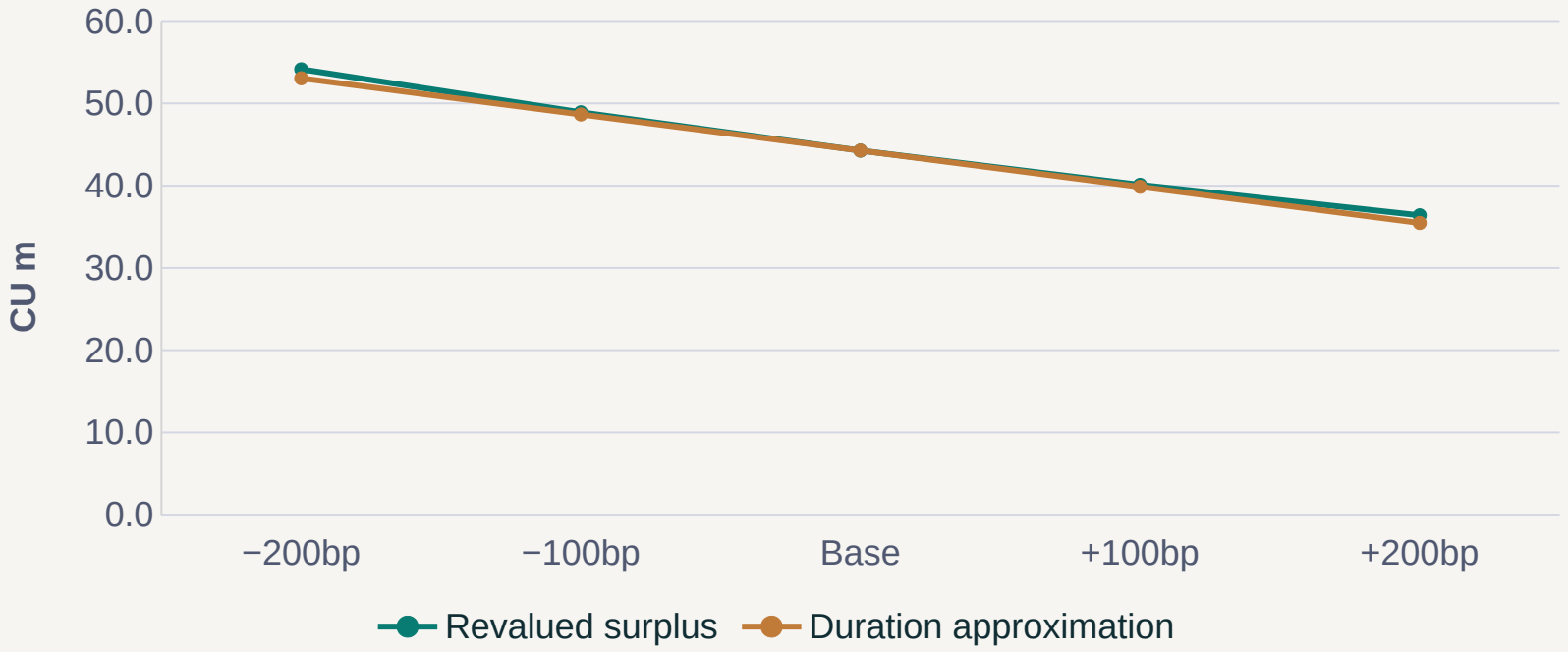
Flat 3% rate. Modified duration measures first-order sensitivity to a parallel yield shift.

Metric	Assets	Liabilities	Gap / implication
Present value, CU m	227.95	183.69	44.26m surplus
Modified duration, years	6.61	5.81	0.80 years
Dollar duration, CU m	1,506.02	1,066.56	439.45m
+100bp surplus change	−DD assets × 1%	−DD liabilities × 1%	-4.39m first-order

Matching duration in years is insufficient when asset and liability values differ. Convexity and curve twists need separate tests.

ALM surplus under parallel rate shocks

Full cash-flow revaluation at flat rates of 1%, 2%, 3%, 4% and 5%. CU millions.



Nonlinearity

The difference from the straight-line estimate reflects higher-order effects.

Next tests

Curve twists, spreads, defaults and liquidity are separate risks.

Model boundary

Fixed cash flows here exclude behaviour changes as rates move.

IFRS 17 measurement model selection

Contract features and eligibility determine the applicable measurement approach.

Approach	Core measurement idea	Primary review outputs
GMM	Fulfilment cash flows plus unearned profit in the CSM	FCF, risk adjustment, CSM and service result
VFA	Modification for qualifying direct participation contracts	Variable fee effects and CSM movements
PAA	Simplified measurement of remaining coverage when eligible	Remaining coverage and incurred-claim liabilities
Onerous groups	Recognise loss when a group is onerous	Loss component and subsequent movements

This is a high-level model map. Eligibility, grouping and detailed accounting treatment require the applicable IFRS 17 analysis.

CSM roll-forward report

Synthetic GMM illustration, CU millions. Movement signs reflect this example’s group.

Movement	CU m	Explanation
Opening CSM	40.00	Prior period closing balance
Interest accretion	+1.20	Accretion on the applicable basis
New business	+6.00	Unearned profit from new groups
Future-service assumption change	−3.00	Change allocated to CSM in this illustration
Release for service	−5.20	Profit recognised for services provided
Closing CSM	39.00	40.00 + 1.20 + 6.00 − 3.00 − 5.20

Illustrative arithmetic only. VFA mechanics and actual accounting classification may differ.

IFRS 17 measurement and reconciliation pack

A useful report connects the measurement result to accounting movements and review evidence.

Report	What it shows	Reconciliation
Measurement summary	PV cash flows, risk adjustment, CSM / loss component	Group results to entity measurement totals
Liability roll-forward	Opening, service, finance, cash flows and closing	Opening + movements = closing
CSM analysis	New business, assumption effects and service release	Coverage-unit basis and remaining CSM
Onerous group report	Loss recognition and subsequent allocation	Loss component to the measured group
Assumption / data report	Basis versions, source changes and exceptions	Model inputs to approved datasets

Proposed reporting pack. The examples are presentation layouts, not claimed built-in PDF exports.

P&C reserving methods

Each method uses a different balance of observed claims and prior expectations.

Method	Calculation	Main dependency
Chain ladder	Ultimate = latest cumulative loss × CDF	Stable development pattern
Bornhuetter-Ferguson	Latest + expected ultimate × unreported fraction	Prior expected loss and emergence pattern
Cape Cod	Estimate expected loss ratio from adjusted experience	Exposure / premium comparability
Expected loss ratio	Ultimate = premium × selected loss ratio	Selected expectation
Munich chain ladder	Joint information from paid and incurred triangles	Paid–incurred residual relationship

Loss development triangle

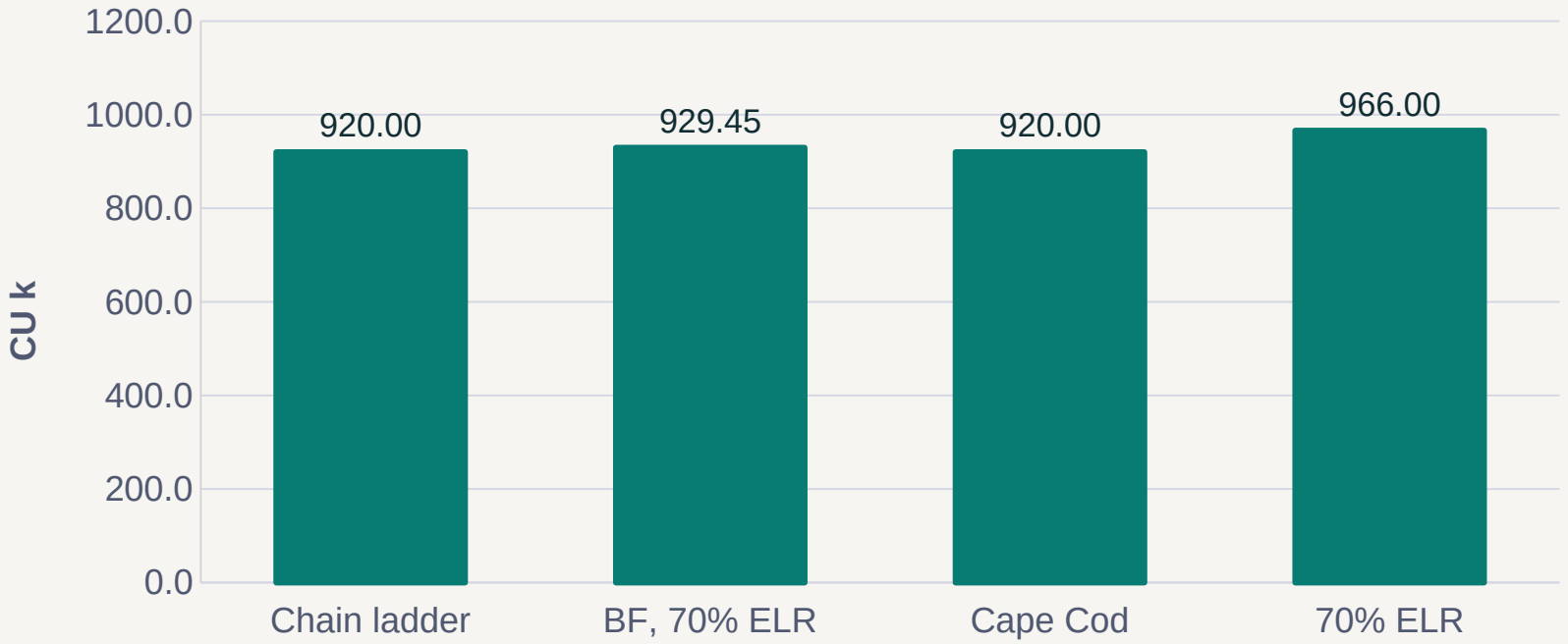
Synthetic cumulative reported claims, CU thousands. Empty cells represent future development.

Accident year	12 months	24 months	36 months	48 months
2023	100.00	160.00	190.00	200.00
2024	110.00	176.00	209.00	—
2025	120.00	192.00	—	—
2026	130.00	—	—	—
Selected factor	1.6000	1.1875	1.0526	1.0000

Volume-weighted age-to-age factors. This short example assumes no development after 48 months.

Four methods on the same triangle

Estimated total ultimate claims, CU thousands. Paid-to-date is separate from reported-to-date.



Chain ladder

920.00k develops observed experience.

Cape Cod

Implied loss ratio = 66.67%.

Selection

Differences are model evidence; the average is not automatically the reserve.

Reserve uncertainty models

Mack and bootstrap answer uncertainty questions under different model assumptions.

Mack standard error

Analytic prediction error around chain-ladder estimates. Review development independence, volume assumptions and the distinction between estimation and process risk.

Residual bootstrap

Fit the development model, resample adjusted residuals, rebuild pseudo-triangles and simulate future development. Retain seed, iteration count and convergence checks.

The source describes a reserving bootstrap capped at 5,000 iterations. This is distinct from the aggregate-loss demo.

Paid / incurred reconciliation and credibility

Two additional methods address different sources of instability.

Munich chain ladder

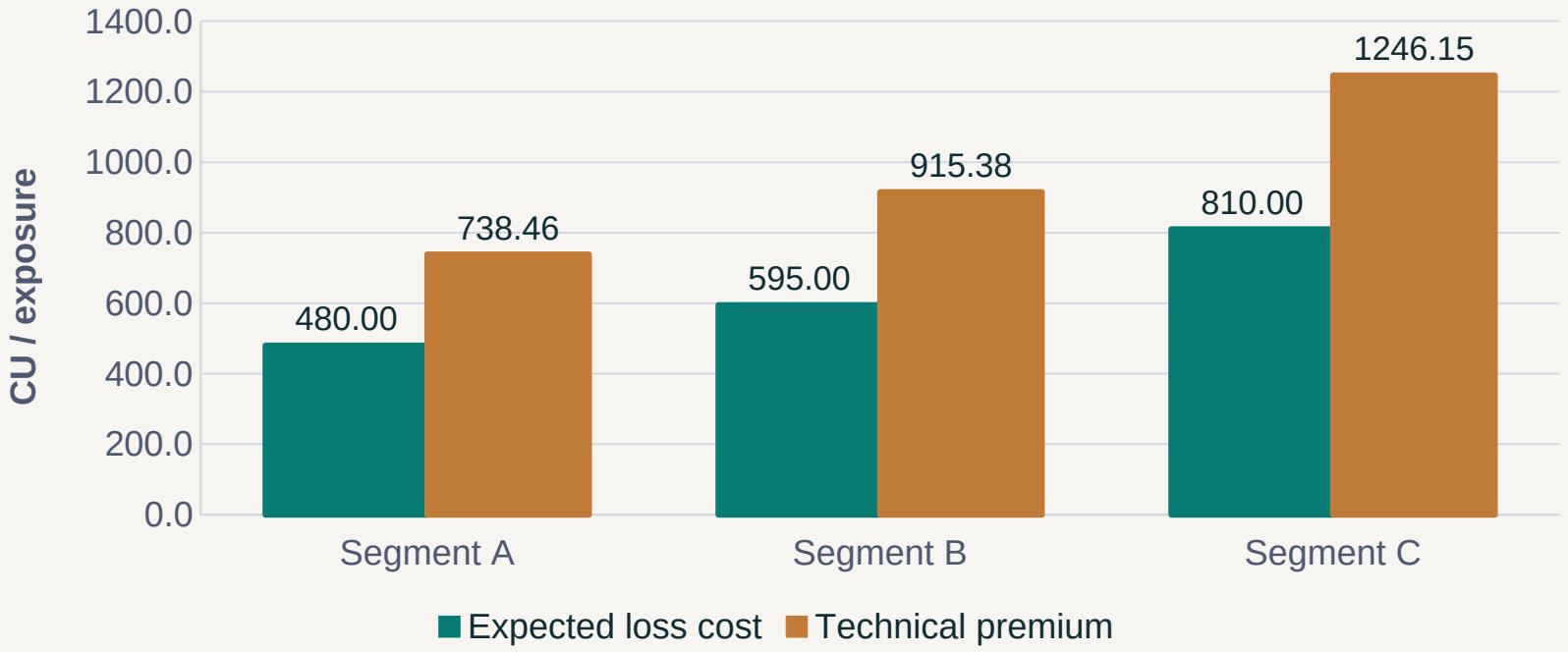
Uses information in both paid and incurred triangles. Compare the remaining ultimate gap and the fitted relationship; investigate changes in settlement and case-reserving practice.

Bühlmann-Straub

Credibility-weights segment experience using exposure and variance components. Retain segment weights, portfolio basis and the adjusted estimate in the selection report.

Frequency and severity pricing components

Synthetic segments. Expected loss cost = claim frequency × mean severity.



Segment A

6% × 8,000 = 480 loss cost.

Loads

35% combined expense and margin assumption leaves 65% for loss.

Rate review

Trend, on-level premium and credibility precede comparison to the current rate.

Severity distributions and fit diagnostics

The pricing demonstration compares several candidate distributions on the same sample.

Distribution	Shape / application	Diagnostic
Lognormal	Positive, skewed claim sizes	Tail quantiles and log-scale residuals
Gamma	Positive costs with flexible skew	Likelihood and systematic residual pattern
Exponential	Constant hazard; mean equals standard deviation	Compare tail fit to more flexible families
Pareto	Heavy-tail behaviour above a threshold	Shape stability and existence of moments

Distribution fit does not validate censoring, deductibles, inflation or the choice of tail threshold.

Catastrophe and reinsurance analysis

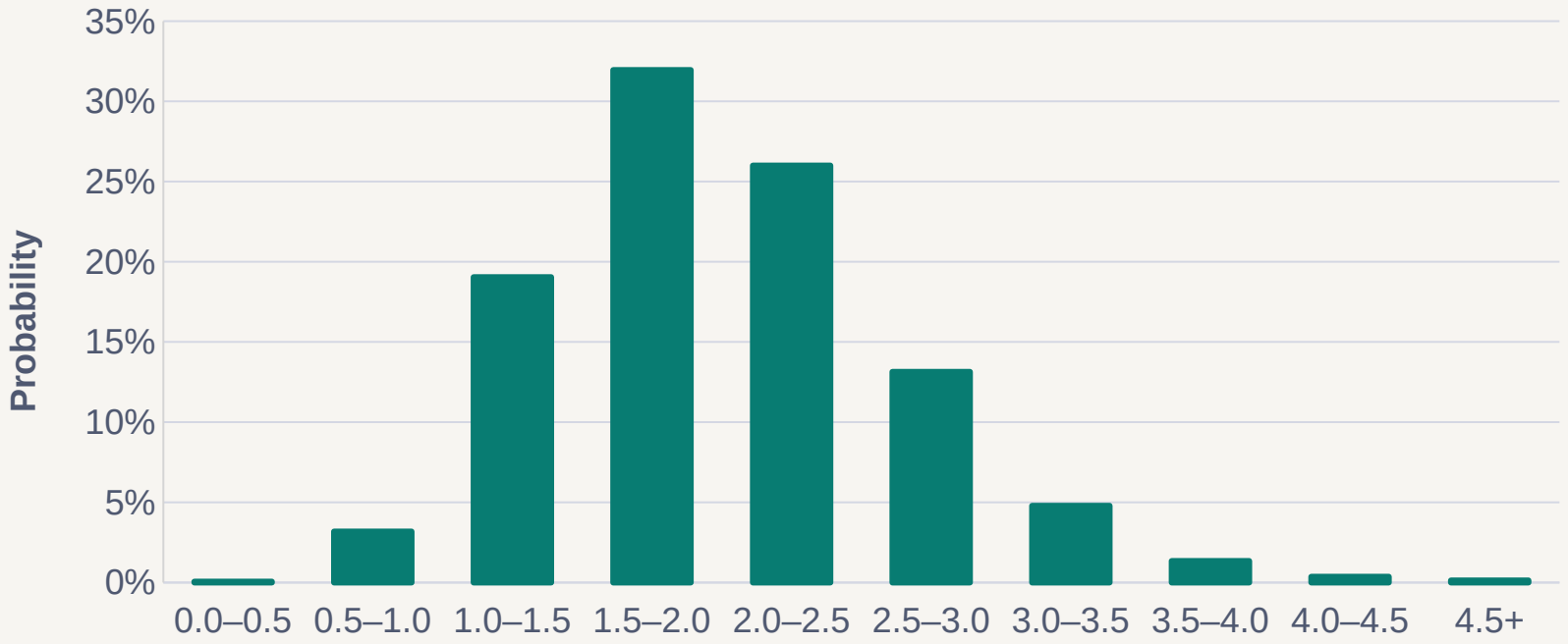
Exposure accumulation and risk-transfer terms must feed the calculation.

Calculation	Required inputs	Report
Zone accumulation	Insured values, location, occupancy, policy terms	Concentration by zone and peril
PML assessment	Exposure and explicit damage / event assumptions	Loss estimate with basis and limitations
Occurrence layer	Each event loss, attachment, limit and reinstatement	Recovery by event and probability of attachment
Aggregate cover	Annual aggregate loss and aggregate terms	Annual recoveries and retained-loss distribution

An accumulation PML does not establish a validated catastrophe event-set model or a return-period curve.

Aggregate loss distribution

Synthetic compound Poisson model: mean count 20; lognormal severity mean 100,000 and CV 1.



Reproducibility

20,000 trials; seed 20260928. Frequency and severity are independent.

Closed-form check

Expected loss = 2.00m; standard deviation = 0.632m.

Simulated result

Mean 2.00m; standard deviation 0.63m.

Horizontal bins show CU millions. This independently calculated example is not the platform reserving bootstrap.

Tail-risk report

VaR is the loss percentile. TVaR here is the mean of simulated losses at or beyond that percentile.

Percentile	VaR, CU m	TVaR, CU m	Trials in tail
50.0%	1.93	2.49	10001
90.0%	2.83	3.23	2001
95.0%	3.12	3.51	1001
99.0%	3.74	4.12	201
99.5%	4.00	4.38	101

The extreme tail contains few trials. Review Monte Carlo error and model sensitivity before using a capital metric.

Correlation aggregation of capital

Simplified three-risk example, CU millions. The correlation assumptions are illustrative.

Element	Value	Calculation
Standalone components	30, 20, 10	Sum of standalone capital = 60
Pairwise correlation	25%	Illustrative common correlation
Diversified component	44.16	Square root of Σi Σj ρij × Ki × Kj
Diversification benefit	15.84	60 less diversified component
Full regulatory result	Separate calculation	Apply required modules, adjustments and rules

This demonstrates aggregation, not a complete Solvency II SCR calculation. The capital demo also shows SCR and economic-capital allocation.

NAIC RBC review report

Synthetic ratio example. Total adjusted capital / authorised control level RBC.

Scenario	Total adjusted capital	ACL RBC	Ratio
Base	120m	40m	300%
Adverse claims	100m	45m	222%
Combined stress	80m	50m	160%

Ratios alone are not a solvency opinion. Use the entity-specific formula and current rules for regulatory interpretation.

Economic capital and ruin models

Capital adequacy needs both a loss-tail view and a view of the business over time.

Economic capital allocation

The capital demo includes Co-TVaR allocation. Attribute each risk’s expected contribution in portfolio-tail scenarios and reconcile contributions to the diversified total.

Ruin / buffer analysis

The actuarial demo includes a capital-buffer workflow. Project premium inflow and claims outflow against opening capital, and examine whether the buffer crosses zero under the specified process.

A finite-horizon ruin probability and a one-year loss percentile answer different questions.

Production data and assumption controls

The release decision must reflect the state of the data and basis at run time.

Control	Behaviour described by the platform	Evidence
Data quality	Measure reconciliation and row-level exceptions	Quality results against a source version
Certification	Named person authorises an eligible dataset	Purpose, scope, validity and decision
Assumptions	Pin version IDs and require independent approval	Approved basis used by the run
Exploration	Permit analysis while restricting reportability	Exploratory label and unresolved conditions
Release	Retain review and approved result identity	Reviewer, timestamp and evidence-pack hash

AI assistance within actuarial work

Cortex prepares and coordinates work around the calculation. Actuaries own methods and conclusions.

Workflow	AI-assisted task	Output for actuarial review
Input preparation	Identify mapping gaps and prepare exception explanations	Source-linked data issue report
Model review	Explain diagnostics and locate relevant assumptions	Model / basis review pack
Result analysis	Draft commentary on movements and sensitivities	Cited draft tied to run outputs
Close / reporting	Assemble evidence and flag missing approvals	Review checklist and report draft
Follow-up	Route unresolved issues to named owners	Issue history and resolution record

Numerical results must come from the specified calculation engine and reconcile to the reviewed run.

Model validation process

A syntactically valid model still needs independent testing of its economic and numerical behaviour.

Test level	Example test	Acceptance evidence
Data	Policy counts and premiums match source totals	Reconciliation with resolved exceptions
Cell / formula	Independent one-policy decrement and PV calculation	Expected-versus-model comparison
Portfolio	Grouped versus individual runs and roll-forwards	Material differences explained
Sensitivity	Direction, size and nonlinearity of shocks	Revaluation table and rationale
Benchmark	Alternative method or independent implementation	Difference attribution
Release regression	Prior approved cases after model changes	Versioned test results and sign-off

Report catalogue

Each report should identify the model, source version, assumption version and run date.

Report	Principal contents	Primary user
Life valuation	Reserve, PV components, roll-forward, sensitivities	Valuation actuary / finance
Annuity / ALM	Payment run-off, survival, gaps, duration, stresses	ALM and risk teams
Experience	Exposure, actual, expected, A/E and credibility	Assumption committee
Pricing / profitability	Loss cost or profit signature, capital and rate tests	Pricing / product committee
Reserving / capital	Method comparison, tail metrics and capital ratios	Reserving / capital committee
Validation / evidence	Tests, limitations, approvals and source references	Independent reviewer / audit

Sample presentation layouts show the intended information. Confirm available export formats in the chosen platform release.

Sample model validation report

Synthetic term model TERM-ILL-01. Numerical checks accompany the business review.

Check	Expected	Result	Assessment
Opening in-force	10,000	10,000	Reconciled
Year 1 deaths	10,000 × 0.002	20	Matched
Year 1 closing	10,000 − 20 − 598.8	9,381.2	Matched
Reserve identity	PV benefits + expenses − premiums	21.92m	Matched
Contract expiry	No cash flows after year 10	Reserve = 0	Matched
Accounting interpretation	Purpose-specific review	Pending	Not a production approval

These checks validate the teaching calculation only. They do not validate the AegisNow implementation.

Current capability boundaries

A demonstration establishes a workflow to evaluate. Production coverage needs a specific configuration and tests.

Area	What the reviewed material supports	Boundary to confirm
Life / value / ALM	Term projection, traditional EV and duration demo	Whole-life riders, MCEV and stochastic guarantees
IFRS / statutory	GMM, VFA and PAA described on the product page	PBR / VM-20 not implemented; LDTI is a filing category
Capital	Live demo shows aggregate risk, SCR and allocation	Product page contains older conflicting capital limits
Evidence exports	Sealed JSON evidence pack described	No built-in PDF / XLSX pack rendering claimed
Execution / monitoring	Versioned runs, diagnostics and approval controls	Input caps, job execution and drift-monitor scope

Capability review: 28 September 2026. Confirm conflicting descriptions against the deployed version during a working demonstration.

Working demonstration and acceptance

A meaningful evaluation follows one life or annuity book through the complete process.

Demonstration	What the team should see	Acceptance question
Load a representative book	Controls, model points and reconciled premiums	Can the team reproduce the input totals?
Run the valuation	Cash flows, basis IDs, failures and reserve components	Can a reviewer reproduce selected cells?
Stress and explain	Mortality, lapse, curve and expense revaluations	Can the team explain the movements?
Review and report	Valuation pack, validation and limitations	Is the evidence sufficient for the intended use?
Reproduce the run	Same source, model and assumption versions	Do the calculations agree within tolerance?

Actuarial AI
A model you can inspect

Begin with a life or annuity portfolio, its current valuation basis, and the reports your team already reviews.

The working session

Policy data, model coverage, valuation outputs, sensitivities and acceptance tests.

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The result

A defined implementation scope and a concrete demonstration against your calculations.

Discuss your workflow