

Validation Report

# Instrument Validation Report

STATUS

**Green**

Instrument validation evidence across all published CENARYX validation packs, generated from deployed static validation assets.

PACKS

**9**

Published packs

TOTAL INSTRUMENTS

**49**

Published instrument rows

GREEN

**49**

Ready evidence

AMBER

**0**

Limited evidence

RED

**0**

Critical gaps

DQ RULES

**114**

Executed DQ rule tests

## Run Metadata

RUN ID

df29f45eac8a4056bfd00e06871c693

SOURCE COMMIT

85ca2b3a

BUILD VERSION

validation-phase-1

PUBLISHED PROFILE

instrument-validation-pack

REPORT SCOPE

All published validation packs

SELECTED VERSION

Latest for each pack

PACK COUNT

9

## Contents

1. Vanilla Bonds	4
1.1. Positions	4
1.2. Valuation and Model Validation	5
1.3. DQ Summary	9
2. Euro Vanilla Options	10
2.1. Positions	10
2.2. Valuation and Model Validation	11
2.3. DQ Summary	18
3. Interest Rate Swaps	19
3.1. Positions	19
3.2. Valuation and Model Validation	20
3.3. DQ Summary	26
4. Caps Floors Collars	27
4.1. Positions	27
4.2. Valuation and Model Validation	28
4.3. DQ Summary	35
5. Callables Convertibles	36
5.1. Positions	36
5.2. Valuation and Model Validation	37
5.3. DQ Summary	40
6. Exotic Options	41
6.1. Positions	41
6.2. Valuation and Model Validation	42
6.3. DQ Summary	55
7. Basic Instruments	56
7.1. Positions	56
7.2. Valuation and Model Validation	57
7.3. DQ Summary	63
8. Future/Forward	64
8.1. Positions	64
8.2. Valuation and Model Validation	65
8.3. DQ Summary	69
9. Inflation	70
9.1. Positions	70
9.2. Valuation and Model Validation	71
9.3. DQ Summary	79

## Published Packs

Pack	Description	Scope	Instruments	Status
Vanilla Bonds	Fixed-rate, floating-rate, and zero-coupon bond validation evidence.	Rates cash bonds	3	Green
Euro Vanilla Options	European vanilla option validation evidence for call/put ITM, ATM and OTM cases.	Equity European options	6	Green
Interest Rate Swaps	EUR interest rate swap validation evidence for payer, receiver, frequency and high-notional variants.	EUR rates derivatives	5	Green
Caps Floors Collars	EUR vanilla cap, floor and collar validation evidence.	EUR rates options	6	Green
Callables Convertibles	Callable and convertible bond validation evidence using production-core pricing engines and Analyzer DQ checks.	Rates and hybrid bonds	2	Green
Exotic Options	Barrier, Asian, digital, lookback and chooser option validation evidence using production-core pricing engines and Analyzer DQ checks.	Equity exotic options	12	Green
Basic Instruments	Stocks, currency pairs, commodities and equity index quote validation with component-level DAX split.	Market quote underlyings	5	Green
Future/Forward	Equity future, FX forward and bond future validation evidence with CTD basket detail.	Listed and OTC forwards	3	Green
Inflation	CPI bonds/swaps, HICP zero-coupon bonds/cap-floor and HICP year-on-year bond/cap/floor validation evidence.	Inflation-linked rates instruments	7	Green

## Vanilla Bonds Portfolio

Vanilla Bond Validation Pack · 3 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-BOND-FIXED-001	FixedRateBond	EUR	2031-01-01	1,000,000
VAL-BOND-FLOAT-001	FloatingRateBond	EUR	2031-01-01	1,000,000
VAL-BOND-ZERO-001	ZeroBond	EUR	2031-01-01	1,000,000

## Vanilla Bonds

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
FixedRateBond	Rates	Green	Green	Green	Green	Green	Green	Green	Green
FloatingRateBond	Rates	Green	Green	Green	Green	Green	Green	Green	Green
ZeroBond	Rates	Green	Green	Green	Green	Green	Green	Green	Green

## FixedRateBond

### Pricing Green

Expected	1047788.857653
Actual	1047788.857653
Model	QLNet FixedRateBond + DiscountingBondEngine
Benchmark	ClosedForm discounted cashflow trace
Tolerance	0.10
Evidence	evidence/bonds/flat-rate-bond-pricing.json
Dataset	datasets/bonds/flat-rate-bond-flat-curve.json
Limitation	n/a

### Cashflows Green

Expected	Expected 6 QLNet cashflows and aggregate PV equal to price PV
Actual	Actual 6 cashflows; aggregate PV 1047788.857653
Model	QLNet FixedRateBond + DiscountingBondEngine
Benchmark	ExpectedCashflowDataset
Tolerance	0.10
Evidence	evidence/bonds/flat-rate-bond-cashflows.json
Dataset	datasets/bonds/flat-rate-bond-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Native production scenario engine and sensitivity converter produce finite IR delta
Actual	-4917593.737132
Model	QLNet FixedRateBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskSensitivityConverter
Tolerance	Finite non-zero IR sensitivity
Evidence	evidence/bonds/flat-rate-bond-sensis.json
Dataset	datasets/bonds/flat-rate-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk FirstOrderSensitivityConverter in-process; service orchestration and persistence are intentionally not invoked.

### Scenarios Green

Expected	Four deterministic parallel rate scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	QLNet FixedRateBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/bonds/flat-rate-bond-scenarios.json
Dataset	datasets/bonds/flat-rate-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk ScenarioPnlConverter in-process; service orchestration and persistence are intentionally not invoked.

### VaR Green

Expected	Deterministic toy 250-observation HistSim vector produces VaR/ES
Actual	VaR 10625.463010; ES 11547.874912
Model	Native in-process HistSim evidence
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter+DeterministicToyDataset
Tolerance	Finite positive VaR
Evidence	evidence/bonds/flat-rate-bond-histsim.json
Dataset	datasets/bonds/flat-rate-bond-histsim-shocks.json
Limitation	Validates VaR/ES calculation using production ScenarioEngine and Risk ScenarioPnlConverter in-process on deterministic synthetic shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required vanilla bond validation cases pass
Actual	6/6 required cases Green/N/A
Model	QLNet FixedRateBond + DiscountingBondEngine
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/bonds/flat-rate-bond-validation.json
Dataset	datasets/bonds/flat-rate-bond-flat-curve.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/bonds/flat-rate-bond-dq.json
Dataset	datasets/bonds/flat-rate-bond-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FloatingRateBond

### Pricing Green

Expected	1000119.456734
Actual	1000119.456734
Model	QLNet FloatingRateBond + DiscountingBondEngine
Benchmark	ClosedForm discounted cashflow trace
Tolerance	0.10
Evidence	evidence/bonds/floating-rate-bond-pricing.json
Dataset	datasets/bonds/floating-rate-bond-flat-curve.json
Limitation	n/a

### Cashflows Green

Expected	Expected 6 QLNet cashflows and aggregate PV equal to price PV
Actual	Actual 6 cashflows; aggregate PV 1000119.456734
Model	QLNet FloatingRateBond + DiscountingBondEngine
Benchmark	ExpectedCashflowDataset
Tolerance	0.10
Evidence	evidence/bonds/floating-rate-bond-cashflows.json
Dataset	datasets/bonds/floating-rate-bond-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Native production scenario engine and sensitivity converter produce finite IR delta
Actual	-349.778023
Model	QLNet FloatingRateBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskSensitivityConverter
Tolerance	Finite non-zero IR sensitivity
Evidence	evidence/bonds/floating-rate-bond-sensis.json
Dataset	datasets/bonds/floating-rate-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk FirstOrderSensitivityConverter in-process; service orchestration and persistence are intentionally not invoked.

### Scenarios Green

Expected	Four deterministic parallel rate scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	QLNet FloatingRateBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/bonds/floating-rate-bond-scenarios.json
Dataset	datasets/bonds/floating-rate-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk ScenarioPnlConverter in-process; service orchestration and persistence are intentionally not invoked.

### VaR Green

Expected	Deterministic toy 250-observation HistSim vector produces VaR/ES
Actual	VaR 0.754951; ES 0.820411
Model	Native in-process HistSim evidence
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter+DeterministicToyDataset
Tolerance	Finite positive VaR
Evidence	evidence/bonds/floating-rate-bond-histsim.json
Dataset	datasets/bonds/floating-rate-bond-histsim-shocks.json
Limitation	Validates VaR/ES calculation using production ScenarioEngine and Risk ScenarioPnlConverter in-process on deterministic synthetic shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required vanilla bond validation cases pass
Actual	6/6 required cases Green/N/A
Model	QLNet FloatingRateBond + DiscountingBondEngine
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/bonds/floating-rate-bond-validation.json
Dataset	datasets/bonds/floating-rate-bond-flat-curve.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/bonds/floating-rate-bond-dq.json
Dataset	datasets/bonds/floating-rate-bond-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## ZeroBond

### Pricing Green

Expected	904440.776706
Actual	904440.776706
Model	QLNet ZeroCouponBond + DiscountingBondEngine
Benchmark	ClosedForm discounted cashflow trace
Tolerance	0.10
Evidence	evidence/bonds/zero-bond-pricing.json
Dataset	datasets/bonds/zero-bond-flat-curve.json
Limitation	n/a

### Cashflows Green

Expected	Expected 1 QLNet cashflows and aggregate PV equal to price PV
Actual	Actual 1 cashflows; aggregate PV 904440.776706
Model	QLNet ZeroCouponBond + DiscountingBondEngine
Benchmark	ExpectedCashflowDataset
Tolerance	0.10
Evidence	evidence/bonds/zero-bond-cashflows.json
Dataset	datasets/bonds/zero-bond-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Native production scenario engine and sensitivity converter produce finite IR delta
Actual	-4497860.108167
Model	QLNet ZeroCouponBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskSensitivityConverter
Tolerance	Finite non-zero IR sensitivity
Evidence	evidence/bonds/zero-bond-sensis.json
Dataset	datasets/bonds/zero-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk FirstOrderSensitivityConverter in-process; service orchestration and persistence are intentionally not invoked.

### Scenarios Green

Expected	Four deterministic parallel rate scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	QLNet ZeroCouponBond + DiscountingBondEngine
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/bonds/zero-bond-scenarios.json
Dataset	datasets/bonds/zero-bond-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk ScenarioPnlConverter in-process; service orchestration and persistence are intentionally not invoked.

### VaR Green

Expected	Deterministic toy 250-observation HistSim vector produces VaR/ES
Actual	VaR 9719.521927; ES 10563.382047
Model	Native in-process HistSim evidence
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter+DeterministicToyDataset
Tolerance	Finite positive VaR
Evidence	evidence/bonds/zero-bond-histsim.json
Dataset	datasets/bonds/zero-bond-histsim-shocks.json
Limitation	Validates VaR/ES calculation using production ScenarioEngine and Risk ScenarioPnlConverter in-process on deterministic synthetic shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required vanilla bond validation cases pass
Actual	6/6 required cases Green/N/A
Model	QLNet ZeroCouponBond + DiscountingBondEngine
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/bonds/zero-bond-validation.json
Dataset	datasets/bonds/zero-bond-flat-curve.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/bonds/zero-bond-dq.json
Dataset	datasets/bonds/zero-bond-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Vanilla Bonds DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**12/12**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
BondConfig · Bond configuration	Prod Profile: ConfigurationChecks	vanilla-bonds	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	vanilla-bonds	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	vanilla-bonds	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	vanilla-bonds	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	vanilla-bonds	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	vanilla-bonds	False	False	Critical	Green
SensitivityRiskVectorCoverage · SensitivityRiskVectorCoverage	Prod Profile: Sensitivity	vanilla-bonds	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	vanilla-bonds	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	vanilla-bonds	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	vanilla-bonds	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	vanilla-bonds	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	vanilla-bonds	False	False	Critical	Green

## Euro Vanilla Options Portfolio

European Vanilla Option Validation Portfolio · 6 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-OPT-CALL-ITM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000
VAL-OPT-CALL-ATM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000
VAL-OPT-CALL-OTM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000
VAL-OPT-PUT-ITM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000
VAL-OPT-PUT-ATM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000
VAL-OPT-PUT-OTM-001	EuropeanVanillaOption	EUR	2027-01-15	10,000

## Euro Vanilla Options

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
OPT/EUR/CALL/ATM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/CALL/ITM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/CALL/OTM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/PUT/ATM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/PUT/ITM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/PUT/OTM (EuropeanVanillaOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green

## OPT/EUR/CALL/ATM (EuropeanVanillaOption)

### Pricing Green

Expected	89837.633675
Actual	89738.297215
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	449.188168 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-call-atm-pricing.json
Dataset	datasets/options/euro-vanilla-option-call-atm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-call-atm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-call-atm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	5798.008505
Actual	5794.070379
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-call-atm-sensis.json
Dataset	datasets/options/euro-vanilla-option-call-atm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-call-atm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-call-atm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 33889.420452; ES 36778.254684
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-call-atm-histsim.json
Dataset	datasets/options/euro-vanilla-option-call-atm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-call-atm-validation.json
Dataset	datasets/options/euro-vanilla-option-call-atm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-call-atm-dq.json
Dataset	datasets/options/euro-vanilla-option-call-atm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/CALL/ITM (EuropeanVanillaOption)

### Pricing Green

Expected	148661.039099
Actual	148535.842166
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	743.305195 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-call-itm-pricing.json
Dataset	datasets/options/euro-vanilla-option-call-itm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-call-itm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-call-itm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	7656.409071
Actual	7653.316324
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-call-itm-sensis.json
Dataset	datasets/options/euro-vanilla-option-call-itm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-call-itm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-call-itm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 43225.191693; ES 46784.255201
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-call-itm-histsim.json
Dataset	datasets/options/euro-vanilla-option-call-itm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-call-itm-validation.json
Dataset	datasets/options/euro-vanilla-option-call-itm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-call-itm-dq.json
Dataset	datasets/options/euro-vanilla-option-call-itm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/CALL/OTM (EuropeanVanillaOption)

### Pricing Green

Expected	50065.576508
Actual	49996.023209
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	250.327883 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-call-otm-pricing.json
Dataset	datasets/options/euro-vanilla-option-call-otm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-call-otm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-call-otm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	3928.527878
Actual	3924.655027
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-call-otm-sensis.json
Dataset	datasets/options/euro-vanilla-option-call-otm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-call-otm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-call-otm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 23892.212892; ES 26010.965165
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-call-otm-histsim.json
Dataset	datasets/options/euro-vanilla-option-call-otm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-call-otm-validation.json
Dataset	datasets/options/euro-vanilla-option-call-otm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-call-otm-dq.json
Dataset	datasets/options/euro-vanilla-option-call-otm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/PUT/ATM (EuropeanVanillaOption)

### Pricing Green

Expected	69764.067386
Actual	69863.535440
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	348.820337 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-put-atm-pricing.json
Dataset	datasets/options/euro-vanilla-option-put-atm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-put-atm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-put-atm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	-4201.991495
Actual	-4205.929621
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-put-atm-sensis.json
Dataset	datasets/options/euro-vanilla-option-put-atm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-put-atm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-put-atm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 26644.248271; ES 28421.330742
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-put-atm-histsim.json
Dataset	datasets/options/euro-vanilla-option-put-atm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-put-atm-validation.json
Dataset	datasets/options/euro-vanilla-option-put-atm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-put-atm-dq.json
Dataset	datasets/options/euro-vanilla-option-put-atm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/PUT/ITM (EuropeanVanillaOption)

### Pricing Green

Expected	127984.653589
Actual	128133.785257
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	639.923268 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-put-itm-pricing.json
Dataset	datasets/options/euro-vanilla-option-put-itm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-put-itm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-put-itm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	-6071.472122
Actual	-6075.344973
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-put-itm-sensis.json
Dataset	datasets/options/euro-vanilla-option-put-itm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-put-itm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-put-itm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 36908.100509; ES 39269.015954
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-put-itm-histsim.json
Dataset	datasets/options/euro-vanilla-option-put-itm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-put-itm-validation.json
Dataset	datasets/options/euro-vanilla-option-put-itm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-put-itm-dq.json
Dataset	datasets/options/euro-vanilla-option-put-itm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/PUT/OTM (EuropeanVanillaOption)

### Pricing Green

Expected	30594.829438
Actual	30648.556569
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	ClosedFormBlackScholes
Tolerance	152.974147 (0.5% relative PV tolerance)
Evidence	evidence/options/euro-vanilla-option-put-otm-pricing.json
Dataset	datasets/options/euro-vanilla-option-put-otm-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for European vanilla option validation pack
Actual	Pricer core option valuation is payoff based; no cashflow extraction evidence generated
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/options/euro-vanilla-option-put-otm-cashflows.json
Dataset	datasets/options/euro-vanilla-option-put-otm-market.json
Limitation	Cashflow extraction is not a required capability for the phase-1 European vanilla option pack.

### Sensis Green

Expected	-2343.590929
Actual	-2346.683676
Model	Production ScenarioEngine + Risk EquityDelta converter
Benchmark	ClosedFormBlackScholesDelta
Tolerance	1% relative delta tolerance
Evidence	evidence/options/euro-vanilla-option-put-otm-sensis.json
Dataset	datasets/options/euro-vanilla-option-put-otm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic equity spot scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/options/euro-vanilla-option-put-otm-scenarios.json
Dataset	datasets/options/euro-vanilla-option-put-otm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation equity spot HistSim vector produces VaR/ES
Actual	VaR 15704.901945; ES 16810.434511
Model	Production ScenarioEngine option HistSim evidence
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/options/euro-vanilla-option-put-otm-histsim.json
Dataset	datasets/options/euro-vanilla-option-put-otm-histsim-shocks.json
Limitation	Validates option VaR calculation using production ScenarioEngine in-process on deterministic synthetic equity spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required European vanilla option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/options/euro-vanilla-option-put-otm-validation.json
Dataset	datasets/options/euro-vanilla-option-put-otm-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 11/11 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/options/euro-vanilla-option-put-otm-dq.json
Dataset	datasets/options/euro-vanilla-option-put-otm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Euro Vanilla Options DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**11/11**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
OptionConfig · Option configuration	Prod Profile: ConfigurationChecks	euro-vanilla-options	False	False	Critical	Green
OptionDividendMap · OptionDividendMap	Prod Profile: Sensitivity	euro-vanilla-options	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	euro-vanilla-options	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	euro-vanilla-options	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	euro-vanilla-options	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	euro-vanilla-options	False	False	Critical	Green
EqSensitivity · EqSensitivity	Prod Profile: Sensitivity	euro-vanilla-options	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	euro-vanilla-options	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	euro-vanilla-options	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	euro-vanilla-options	False	False	Critical	Green
EqVector · EqVector	Prod Profile: VaR	euro-vanilla-options	False	False	Critical	Green

## Interest Rate Swaps Portfolio

Interest Rate Swap Validation Portfolio · 5 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-IRS-PAYER-ANNUAL-001	InterestRateSwap	EUR	2031-01-15	1,000,000
VAL-IRS-RECEIVER-SEMI-001	InterestRateSwap	EUR	2031-01-15	1,000,000
VAL-IRS-QUARTERLY-FIXED-001	InterestRateSwap	EUR	2031-01-15	1,000,000
VAL-IRS-MONTHLY-FLOAT-001	InterestRateSwap	EUR	2031-01-15	1,000,000
VAL-IRS-HIGH-NOTIONAL-001	InterestRateSwap	EUR	2031-01-15	5,000,000

## Interest Rate Swaps

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
IRS/EUR/PAYER/5Y/ANN-3M (InterestRateSwap)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
IRS/EUR/PAYER/5Y/QTR-3M (InterestRateSwap)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
IRS/EUR/PAYER/5Y/SA-6M/HIGH (InterestRateSwap)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
IRS/EUR/RECEIVER/5Y/ANN-1M (InterestRateSwap)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
IRS/EUR/RECEIVER/5Y/SA-3M (InterestRateSwap)	Rates	Green	Green	Green	Green	Green	Green	Green	Green

## IRS/EUR/PAYER/5Y/ANN-3M (InterestRateSwap)

### Pricing Green

Expected	Finite IRS NPV from Pricer core swap builder
Actual	-5709.189925
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore InterestRateSwapInstrumentBuilder
Tolerance	Finite value
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-pricing.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-market.json
Limitation	n/a

### Cashflows Green

Expected	Swap produces fixed and floating leg cashflows
Actual	25 future cashflows
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore QLNet VanillaSwap leg cashflows
Tolerance	At least one cashflow on each leg
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-cashflows.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero IRS IR delta
Actual	4735050.128337
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite non-zero sensitivity
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-sensis.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite scenario values
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-scenarios.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation IRS HistSim vector produces VaR/ES
Actual	VaR 10487.920209; ES 11102.037135
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-histsim.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-histsim-shocks.json
Limitation	Validates IRS VaR calculation using deterministic validation IR shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required IRS validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-validation.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/swaps/irs-eur-payer-5y-ann-3m-dq.json
Dataset	datasets/swaps/irs-eur-payer-5y-ann-3m-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## IRS/EUR/PAYER/5Y/QTR-3M (InterestRateSwap)

### Pricing Green

Expected	Finite IRS NPV from Pricer core swap builder
Actual	553.295299
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore InterestRateSwapInstrumentBuilder
Tolerance	Finite value
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-pricing.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-market.json
Limitation	n/a

### Cashflows Green

Expected	Swap produces fixed and floating leg cashflows
Actual	40 future cashflows
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore QLNet VanillaSwap leg cashflows
Tolerance	At least one cashflow on each leg
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-cashflows.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero IRS IR delta
Actual	4680195.641737
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite non-zero sensitivity
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-sensis.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite scenario values
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-scenarios.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation IRS HistSim vector produces VaR/ES
Actual	VaR 10366.381963; ES 10973.379840
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-histsim.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-histsim-shocks.json
Limitation	Validates IRS VaR calculation using deterministic validation IR shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required IRS validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-validation.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/swaps/irs-eur-payer-5y-qtr-3m-dq.json
Dataset	datasets/swaps/irs-eur-payer-5y-qtr-3m-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## IRS/EUR/PAYER/5Y/SA-6M/HIGH (InterestRateSwap)

### Pricing Green

Expected	Finite IRS NPV from Pricer core swap builder
Actual	-30519.491824
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore InterestRateSwapInstrumentBuilder
Tolerance	Finite value
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-pricing.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-market.json
Limitation	n/a

### Cashflows Green

Expected	Swap produces fixed and floating leg cashflows
Actual	20 future cashflows
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore QLNet VanillaSwap leg cashflows
Tolerance	At least one cashflow on each leg
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-cashflows.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero IRS IR delta
Actual	23552450.630956
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite non-zero sensitivity
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-sensis.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite scenario values
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-scenarios.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation IRS HistSim vector produces VaR/ES
Actual	VaR 52167.626936; ES 55222.287640
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-histsim.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-histsim-shocks.json
Limitation	Validates IRS VaR calculation using deterministic validation IR shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required IRS validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-validation.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/swaps/irs-eur-payer-5y-sa-6m-high-dq.json
Dataset	datasets/swaps/irs-eur-payer-5y-sa-6m-high-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## IRS/EUR/RECEIVER/5Y/ANN-1M (InterestRateSwap)

### Pricing Green

Expected	Finite IRS NPV from Pricer core swap builder
Actual	-10647.088184
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore InterestRateSwapInstrumentBuilder
Tolerance	Finite value
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-pricing.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-market.json
Limitation	n/a

### Cashflows Green

Expected	Swap produces fixed and floating leg cashflows
Actual	64 future cashflows
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore QLNet VanillaSwap leg cashflows
Tolerance	At least one cashflow on each leg
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-cashflows.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero IRS IR delta
Actual	-4688513.742015
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite non-zero sensitivity
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-sensis.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite scenario values
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-scenarios.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation IRS HistSim vector produces VaR/ES
Actual	VaR 10130.653865; ES 11010.126562
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-histsim.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-histsim-shocks.json
Limitation	Validates IRS VaR calculation using deterministic validation IR shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required IRS validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-validation.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/swaps/irs-eur-receiver-5y-ann-1m-dq.json
Dataset	datasets/swaps/irs-eur-receiver-5y-ann-1m-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## IRS/EUR/RECEIVER/5Y/SA-3M (InterestRateSwap)

### Pricing Green

Expected	Finite IRS NPV from Pricer core swap builder
Actual	1539.120554
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore InterestRateSwapInstrumentBuilder
Tolerance	Finite value
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-pricing.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-market.json
Limitation	n/a

### Cashflows Green

Expected	Swap produces fixed and floating leg cashflows
Actual	30 future cashflows
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	PricerCore QLNet VanillaSwap leg cashflows
Tolerance	At least one cashflow on each leg
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-cashflows.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero IRS IR delta
Actual	-4697612.888617
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite non-zero sensitivity
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-sensis.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice
Tolerance	Finite scenario values
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-scenarios.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation IRS HistSim vector produces VaR/ES
Actual	VaR 10150.227015; ES 11031.390471
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production InstrumentFactory bump-and-reprice + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-histsim.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-histsim-shocks.json
Limitation	Validates IRS VaR calculation using deterministic validation IR shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required IRS validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> InterestRateSwapInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-validation.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/swaps/irs-eur-receiver-5y-sa-3m-dq.json
Dataset	datasets/swaps/irs-eur-receiver-5y-sa-3m-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Interest Rate Swaps DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**12/12**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
SwapConfig · Swap configuration	Prod Profile: ConfigurationChecks	interest-rate-swaps	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	interest-rate-swaps	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	interest-rate-swaps	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	interest-rate-swaps	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	interest-rate-swaps	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	interest-rate-swaps	False	False	Critical	Green
SensitivityRiskVectorCoverage · SensitivityRiskVectorCoverage	Prod Profile: Sensitivity	interest-rate-swaps	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	interest-rate-swaps	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	interest-rate-swaps	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	interest-rate-swaps	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	interest-rate-swaps	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	interest-rate-swaps	False	False	Critical	Green

## Caps Floors Collars Portfolio

Cap Floor Collar Validation Portfolio · 6 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-CAP-3Y-ATM-001	VanillaCapFloor	EUR	2029-02-15	1,000,000
VAL-CAP-5Y-OTM-001	VanillaCapFloor	EUR	2031-02-15	1,000,000
VAL-FLOOR-3Y-ATM-001	VanillaCapFloor	EUR	2029-02-15	1,000,000
VAL-FLOOR-5Y-ITM-001	VanillaCapFloor	EUR	2031-02-15	1,000,000
VAL-COLLAR-5Y-001	VanillaCollar	EUR	2031-02-15	1,000,000
VAL-COLLAR-3Y-WIDE-001	VanillaCollar	EUR	2029-02-15	1,000,000

## Caps Floors Collars

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
CAP/EUR/3Y/ATM (VanillaCapFloor)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
CAP/EUR/5Y/OTM (VanillaCapFloor)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
COLLAR/EUR/0.50-4.00/3Y (VanillaCollar)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
COLLAR/EUR/1.00-3.00/5Y (VanillaCollar)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
FLOOR/EUR/3Y/ATM (VanillaCapFloor)	Rates	Green	Green	Green	Green	Green	Green	Green	Green
FLOOR/EUR/5Y/ITM (VanillaCapFloor)	Rates	Green	Green	Green	Green	Green	Green	Green	Green

## CAP/EUR/3Y/ATM (VanillaCapFloor)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	324299.819031
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/cap-eur-3y-atm-pricing.json
Dataset	datasets/capfloors/cap-eur-3y-atm-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	12 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/cap-eur-3y-atm-cashflows.json
Dataset	datasets/capfloors/cap-eur-3y-atm-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	969457.021407
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IRDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/cap-eur-3y-atm-sensis.json
Dataset	datasets/capfloors/cap-eur-3y-atm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/cap-eur-3y-atm-scenarios.json
Dataset	datasets/capfloors/cap-eur-3y-atm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 2175.587969; ES 2304.790267
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/cap-eur-3y-atm-histsim.json
Dataset	datasets/capfloors/cap-eur-3y-atm-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/cap-eur-3y-atm-validation.json
Dataset	datasets/capfloors/cap-eur-3y-atm-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/cap-eur-3y-atm-dq.json
Dataset	datasets/capfloors/cap-eur-3y-atm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## CAP/EUR/5Y/OTM (VanillaCapFloor)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	680482.278555
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/cap-eur-5y-otm-pricing.json
Dataset	datasets/capfloors/cap-eur-5y-otm-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	20 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/cap-eur-5y-otm-cashflows.json
Dataset	datasets/capfloors/cap-eur-5y-otm-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	482860.917773
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IrDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/cap-eur-5y-otm-sensis.json
Dataset	datasets/capfloors/cap-eur-5y-otm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/cap-eur-5y-otm-scenarios.json
Dataset	datasets/capfloors/cap-eur-5y-otm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 1090.493554; ES 1155.757934
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/cap-eur-5y-otm-histsim.json
Dataset	datasets/capfloors/cap-eur-5y-otm-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/cap-eur-5y-otm-validation.json
Dataset	datasets/capfloors/cap-eur-5y-otm-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/cap-eur-5y-otm-dq.json
Dataset	datasets/capfloors/cap-eur-5y-otm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## COLLAR/EUR/0.50-4.00/3Y (VanillaCollar)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	-1597.590604
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-pricing.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	6 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-cashflows.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	2368542.227904
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IrDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-sensis.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-scenarios.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 5246.084024; ES 5553.407908
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-histsim.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-validation.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/collar-eur-0.50-4.00-3y-dq.json
Dataset	datasets/capfloors/collar-eur-0.50-4.00-3y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## COLLAR/EUR/1.00-3.00/5Y (VanillaCollar)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	6140.666312
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-pricing.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	20 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-cashflows.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	4508985.762307
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IrDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-sensis.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-scenarios.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 9986.201456; ES 10570.953932
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-histsim.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCollarInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-validation.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/collar-eur-1.00-3.00-5y-dq.json
Dataset	datasets/capfloors/collar-eur-1.00-3.00-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FLOOR/EUR/3Y/ATM (VanillaCapFloor)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	322167.888200
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/floor-eur-3y-atm-pricing.json
Dataset	datasets/capfloors/floor-eur-3y-atm-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	12 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/floor-eur-3y-atm-cashflows.json
Dataset	datasets/capfloors/floor-eur-3y-atm-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	-1900324.731622
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IRDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/floor-eur-3y-atm-sensis.json
Dataset	datasets/capfloors/floor-eur-3y-atm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/floor-eur-3y-atm-scenarios.json
Dataset	datasets/capfloors/floor-eur-3y-atm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 4124.521747; ES 4484.319023
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/floor-eur-3y-atm-histsim.json
Dataset	datasets/capfloors/floor-eur-3y-atm-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/floor-eur-3y-atm-validation.json
Dataset	datasets/capfloors/floor-eur-3y-atm-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/floor-eur-3y-atm-dq.json
Dataset	datasets/capfloors/floor-eur-3y-atm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FLOOR/EUR/5Y/ITM (VanillaCapFloor)

### Pricing Green

Expected	Finite cap/floor/collar NPV from Pricer core builder
Actual	684968.108850
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore cap/floor/collar instrument builders
Tolerance	Finite value
Evidence	evidence/capfloors/floor-eur-5y-itm-pricing.json
Dataset	datasets/capfloors/floor-eur-5y-itm-market.json
Limitation	n/a

### Cashflows Green

Expected	Cap/floor/collar exposes floating-leg cashflows
Actual	10 future cashflows
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	PricerCore QLNet CapFloor/Collar floating leg
Tolerance	At least one floating-leg cashflow
Evidence	evidence/capfloors/floor-eur-5y-itm-cashflows.json
Dataset	datasets/capfloors/floor-eur-5y-itm-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite non-zero cap/floor/collar IR delta
Actual	-4443705.642365
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk IrDelta converter
Tolerance	Finite non-zero sensitivity
Evidence	evidence/capfloors/floor-eur-5y-itm-sensis.json
Dataset	datasets/capfloors/floor-eur-5y-itm-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic parallel IR scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/capfloors/floor-eur-5y-itm-scenarios.json
Dataset	datasets/capfloors/floor-eur-5y-itm-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation cap/floor/collar HistSim vector produces VaR/ES
Actual	VaR 9636.871529; ES 10476.704703
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/capfloors/floor-eur-5y-itm-histsim.json
Dataset	datasets/capfloors/floor-eur-5y-itm-histsim-shocks.json
Limitation	Validates cap/floor/collar VaR calculation using production ScenarioEngine in-process on deterministic synthetic IR curve shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required cap/floor/collar validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaCapFloorInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/capfloors/floor-eur-5y-itm-validation.json
Dataset	datasets/capfloors/floor-eur-5y-itm-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/capfloors/floor-eur-5y-itm-dq.json
Dataset	datasets/capfloors/floor-eur-5y-itm-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Caps Floors Collars DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**12/12**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
CapFloorConfig · Cap/floor configuration	Prod Profile: ConfigurationChecks	cap-floor-collar	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	cap-floor-collar	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	cap-floor-collar	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	cap-floor-collar	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	cap-floor-collar	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	cap-floor-collar	False	False	Critical	Green
SensitivityRiskVectorCoverage · SensitivityRiskVectorCoverage	Prod Profile: Sensitivity	cap-floor-collar	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	cap-floor-collar	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	cap-floor-collar	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	cap-floor-collar	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	cap-floor-collar	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	cap-floor-collar	False	False	Critical	Green

## Callables Convertibles Portfolio

Callable and Convertible Bond Validation Portfolio · 2 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-CALLABLE-BOND-001	CallableBond	EUR	2031-02-15	1,000,000
VAL-CONVERTIBLE-BOND-001	ConvertibleBond	EUR	2031-02-15	1,000,000

## Callables Convertibles

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
BND/EUR/CONVERTIBLE/5Y (ConvertibleBond)	Hybrid	Green	Green	Green	Green	Green	Green	Green	Green
BND/EUR/CALLABLE/5Y (CallableBond)	Rates	Green	Green	Green	Green	Green	Green	Green	Green

## BND/EUR/CONVERTIBLE/5Y (ConvertibleBond)

### Pricing Green

Expected	976096.408386
Actual	976096.408386
Model	PricerCore InstrumentFactory -> ConvertibleBondInstrumentBuilder
Benchmark	ClosedForm discounted cashflow trace
Tolerance	0.10
Evidence	evidence/bonds/bnd-eur-convertible-5y-pricing.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-flat-curve.json
Limitation	n/a

### Cashflows Green

Expected	Expected 6 QLNet cashflows and aggregate PV equal to price PV
Actual	Actual 6 cashflows; aggregate PV 976096.408386
Model	PricerCore InstrumentFactory -> ConvertibleBondInstrumentBuilder
Benchmark	ExpectedCashflowDataset
Tolerance	0.10
Evidence	evidence/bonds/bnd-eur-convertible-5y-cashflows.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Native production scenario engine and sensitivity converter produce finite IR delta
Actual	-4710695.205529
Model	PricerCore InstrumentFactory -> ConvertibleBondInstrumentBuilder
Benchmark	NativeProductionScenarioEngine+RiskSensitivityConverter
Tolerance	Finite non-zero IR sensitivity
Evidence	evidence/bonds/bnd-eur-convertible-5y-sensis.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk FirstOrderSensitivityConverter in-process; service orchestration and persistence are intentionally not invoked.

### Scenarios Green

Expected	Four deterministic parallel rate scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ConvertibleBondInstrumentBuilder
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/bonds/bnd-eur-convertible-5y-scenarios.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk ScenarioPnlConverter in-process; service orchestration and persistence are intentionally not invoked.

### VaR Green

Expected	Deterministic toy 250-observation HistSim vector produces VaR/ES
Actual	VaR 10178.875570; ES 11062.562756
Model	Native in-process HistSim evidence
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter+DeterministicToyDataset
Tolerance	Finite positive VaR
Evidence	evidence/bonds/bnd-eur-convertible-5y-histsim.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-histsim-shocks.json
Limitation	Validates VaR/ES calculation using production ScenarioEngine and Risk ScenarioPnlConverter in-process on deterministic synthetic shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required vanilla bond validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ConvertibleBondInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/bonds/bnd-eur-convertible-5y-validation.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-flat-curve.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/bonds/bnd-eur-convertible-5y-dq.json
Dataset	datasets/bonds/bnd-eur-convertible-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## BND/EUR/CALLABLE/5Y (CallableBond)

### Pricing Green

Expected	Finite positive option-adjusted PV from production callable bond engine
Actual	1035802.778351
Model	PricerCore InstrumentFactory -> CallableBondInstrumentBuilder
Benchmark	Production callable bond engine execution
Tolerance	0.10
Evidence	evidence/bonds/bnd-eur-callable-5y-pricing.json
Dataset	datasets/bonds/bnd-eur-callable-5y-flat-curve.json
Limitation	n/a

### Cashflows Green

Expected	Expected 6 contractual callable bond cashflows
Actual	Actual 6 cashflows; contractual aggregate PV 1059759.230367; option-adjusted PV 1035802.778351
Model	PricerCore InstrumentFactory -> CallableBondInstrumentBuilder
Benchmark	Production callable bond cashflow extraction
Tolerance	0.10
Evidence	evidence/bonds/bnd-eur-callable-5y-cashflows.json
Dataset	datasets/bonds/bnd-eur-callable-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Native production scenario engine and sensitivity converter produce finite IR delta
Actual	-3515531.667412
Model	PricerCore InstrumentFactory -> CallableBondInstrumentBuilder
Benchmark	NativeProductionScenarioEngine+RiskSensitivityConverter
Tolerance	Finite non-zero IR sensitivity
Evidence	evidence/bonds/bnd-eur-callable-5y-sensis.json
Dataset	datasets/bonds/bnd-eur-callable-5y-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk FirstOrderSensitivityConverter in-process; service orchestration and persistence are intentionally not invoked.

### Scenarios Green

Expected	Four deterministic parallel rate scenarios produce shifted PV and PnL
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> CallableBondInstrumentBuilder
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter
Tolerance	Finite scenario values
Evidence	evidence/bonds/bnd-eur-callable-5y-scenarios.json
Dataset	datasets/bonds/bnd-eur-callable-5y-scenario-shocks.json
Limitation	Uses production ScenarioEngine and Risk ScenarioPnlConverter in-process; service orchestration and persistence are intentionally not invoked.

### VaR Green

Expected	Deterministic toy 250-observation HistSim vector produces VaR/ES
Actual	VaR 7512.348739; ES 8154.329354
Model	Native in-process HistSim evidence
Benchmark	NativeProductionScenarioEngine+RiskScenarioPnlConverter+DeterministicToyDataset
Tolerance	Finite positive VaR
Evidence	evidence/bonds/bnd-eur-callable-5y-histsim.json
Dataset	datasets/bonds/bnd-eur-callable-5y-histsim-shocks.json
Limitation	Validates VaR/ES calculation using production ScenarioEngine and Risk ScenarioPnlConverter in-process on deterministic synthetic shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required vanilla bond validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> CallableBondInstrumentBuilder
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/bonds/bnd-eur-callable-5y-validation.json
Dataset	datasets/bonds/bnd-eur-callable-5y-flat-curve.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/bonds/bnd-eur-callable-5y-dq.json
Dataset	datasets/bonds/bnd-eur-callable-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Callables Convertibles DQ Summary and Rule Tests

<p>FINDINGS</p> <p><b>0</b></p> <p>Total findings</p>	<p>CRITICAL</p> <p><b>0</b></p> <p>Critical findings</p>	<p>WARNINGS</p> <p><b>0</b></p> <p>Warning findings</p>
<p>RULES</p> <p><b>12/12</b></p> <p>Passed / executed</p>	<p>NEGATIVE CASES</p> <p><b>0/0</b></p> <p>Detected / executed</p>	

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
BondConfig · Bond configuration	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
CallableConvertibleConfig · Callable/convertible configuration	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	callables-convertibles	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	callables-convertibles	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	callables-convertibles	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	callables-convertibles	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	callables-convertibles	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	callables-convertibles	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	callables-convertibles	False	False	Critical	Green

## Exotic Options Portfolio

Exotic Option Validation Portfolio · 12 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-EXOTIC-BARRIER-001	BarrierOption	EUR	2027-01-15	10,000
VAL-EXOTIC-DOUBLE-BARRIER-001	DoubleBarrierOption	EUR	2027-01-15	10,000
VAL-EXOTIC-ASIAN-001	AsianOption	EUR	2027-01-15	10,000
VAL-EXOTIC-DIGITAL-001	DigitalOption	EUR	2027-01-15	10,000
VAL-EXOTIC-LOOKBACK-FIXED-001	FixedLookbackOption	EUR	2027-01-15	10,000
VAL-EXOTIC-LOOKBACK-FLOATING-001	LookbackOption	EUR	2027-01-15	10,000
VAL-EXOTIC-LOOKBACK-PARTIAL-FIXED-001	PartialFixedLookbackOption	EUR	2027-01-15	10,000
VAL-EXOTIC-LOOKBACK-PARTIAL-FLOATING-001	PartialFloatingLookbackOption	EUR	2027-01-15	10,000
VAL-EXOTIC-HOLDER-EXTENSIBLE-001	HolderExtensibleOption	EUR	2027-01-15	10,000
VAL-EXOTIC-MAGRABE-001	MagrabeOption	EUR	2027-01-15	10,000
VAL-EXOTIC-CHOOSER-SIMPLE-001	SimpleChooserOption	EUR	2027-01-15	10,000
VAL-EXOTIC-CHOOSER-COMPLEX-001	ComplexChooserOption	EUR	2027-01-15	10,000

## Exotic Options

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
OPT/EUR/ASIAN/AVG-PRICE-CALL (AsianOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/BARRIER/DOWN-OUT-CALL (BarrierOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/CHOOSEER/COMPLEX (ComplexChooserOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/CHOOSEER/SIMPLE (SimpleChooserOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/DIGITAL/CASH-OR-NOTHING (DigitalOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/DOUBLE-BARRIER/KNOCK-OUT-CALL (DoubleBarrierOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/HOLDER-EXTENSIBLE/CALL (HolderExtensibleOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/LOOKBACK/FIXED-STRIKE (FixedLookbackOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/LOOKBACK/FLOATING-STRIKE (LookbackOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/LOOKBACK/PARTIAL-FIXED (PartialFixedLookbackOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/LOOKBACK/PARTIAL-FLOATING (PartialFloatingLookbackOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
OPT/EUR/MAGRABE/EXCHANGE (MagrabeOption)	Equity	Green	N/A	Green	Green	Green	Green	Green	Green

## OPT/EUR/ASIAN/AVG-PRICE-CALL (AsianOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	53101.845051
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-pricing.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-cashflows.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	5363.452601
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-sensis.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-scenarios.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 33097.686338; ES 36044.919670
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-histsim.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildContinuousAsian
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-validation.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-asian-avg-price-call-dq.json
Dataset	datasets/exotic-options/opt-eur-asian-avg-price-call-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/BARRIER/DOWN-OUT-CALL (BarrierOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	64520.695479
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-pricing.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-cashflows.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	4122.827229
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-sensis.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-scenarios.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 24172.277493; ES 26211.635954
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-histsim.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildBarrier
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-validation.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-barrier-down-out-call-dq.json
Dataset	datasets/exotic-options/opt-eur-barrier-down-out-call-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/CHOOSER/COMPLEX (ComplexChooserOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	128751.327258
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-chooser-complex-pricing.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-chooser-complex-cashflows.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	1627.294423
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-chooser-complex-sensis.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-chooser-complex-scenarios.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 14736.081516; ES 16385.964271
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-chooser-complex-histsim.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildComplexChooser
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-chooser-complex-validation.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-chooser-complex-dq.json
Dataset	datasets/exotic-options/opt-eur-chooser-complex-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/CHOOSER/SIMPLE (SimpleChooserOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	283226.437250
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and >= 0
Evidence	evidence/exotic-options/opt-eur-chooser-simple-pricing.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-chooser-simple-cashflows.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	2898.959790
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-chooser-simple-sensis.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-chooser-simple-scenarios.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 17365.594034; ES 18867.968800
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-chooser-simple-histsim.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildSimpleChooser
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-chooser-simple-validation.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-chooser-simple-dq.json
Dataset	datasets/exotic-options/opt-eur-chooser-simple-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/DIGITAL/CASH-OR-NOTHING (DigitalOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	579407.044329
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-pricing.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-cashflows.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	25210.359218
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-sensis.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-scenarios.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 134562.689034; ES 144943.442304
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-histsim.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildDigital
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-validation.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-digital-cash-or-nothing-dq.json
Dataset	datasets/exotic-options/opt-eur-digital-cash-or-nothing-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/DOUBLE-BARRIER/KNOCK-OUT-CALL (DoubleBarrierOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	32612.349548
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-pricing.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-cashflows.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	3089.591342
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-sensis.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-scenarios.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 18716.278550; ES 20379.885396
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-histsim.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> VanillaOptionInstrumentBuilder.BuildDoubleBarrier
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-validation.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-double-barrier-knock-out-call-dq.json
Dataset	datasets/exotic-options/opt-eur-double-barrier-knock-out-call-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/HOLDER-EXTENSIBLE/CALL (HolderExtensibleOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	102879.361257
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-pricing.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-cashflows.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	5801.315052
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-sensis.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-scenarios.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 33550.261597; ES 36382.241743
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-histsim.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildHolderExtensible
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-validation.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-holder-extensible-call-dq.json
Dataset	datasets/exotic-options/opt-eur-holder-extensible-call-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/LOOKBACK/FIXED-STRIKE (FixedLookbackOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	234498.597690
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-pricing.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-cashflows.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	12146.238275
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-sensis.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-scenarios.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 69678.613779; ES 74837.300943
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-histsim.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFixedLookback
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-validation.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-lookback-fixed-strike-dq.json
Dataset	datasets/exotic-options/opt-eur-lookback-fixed-strike-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/LOOKBACK/FLOATING-STRIKE (LookbackOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	204129.120175
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-pricing.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-cashflows.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	2041.291202
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-sensis.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-scenarios.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 10987.904048; ES 11851.969542
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-histsim.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildFloatingLookback
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-validation.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-lookback-floating-strike-dq.json
Dataset	datasets/exotic-options/opt-eur-lookback-floating-strike-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/LOOKBACK/PARTIAL-FIXED (PartialFixedLookbackOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	227884.129041
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-pricing.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-cashflows.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	10335.782087
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-sensis.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-scenarios.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 57567.194492; ES 62238.702752
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-histsim.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFixedLookback
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-validation.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-lookback-partial-fixed-dq.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-fixed-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/LOOKBACK/PARTIAL-FLOATING (PartialFloatingLookbackOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	199807.448957
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-pricing.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-cashflows.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	1998.074490
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-sensis.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-scenarios.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 10755.276245; ES 11601.048382
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-histsim.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildPartialFloatingLookback
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-validation.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-lookback-partial-floating-dq.json
Dataset	datasets/exotic-options/opt-eur-lookback-partial-floating-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## OPT/EUR/MAGRABE/EXCHANGE (MagrabeOption)

### Pricing Green

Expected	Finite non-negative PV from production exotic option engine
Actual	99416.351323
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	ProductionEngineCalculationGateway
Tolerance	PV must be finite and $\geq 0$
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-pricing.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule required for standalone exotic option payoff validation
Actual	N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-cashflows.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-market.json
Limitation	Standalone exotic option validation is payoff based; cashflow extraction is not a required capability for this pack.

### Sensis Green

Expected	Finite EQ delta from production ScenarioEngine and exotic option engine
Actual	994.163513
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	Production ScenarioEngine + Risk EquityDelta converter
Tolerance	Finite delta; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-sensis.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-scenario-shocks.json
Limitation	n/a

### Scenarios Green

Expected	Four deterministic EQ spot scenarios execute through production exotic option engine
Actual	4 scenarios executed
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter
Tolerance	Finite shifted PV/PnL values; TL equals EQ contribution
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-scenarios.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation EQ spot shock set produces VaR/ES through production exotic option engine
Actual	VaR 5351.403701; ES 5772.226750
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	Production ScenarioEngine + Risk ScenarioPnlConverter + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-histsim.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-histsim-shocks.json
Limitation	Validates exotic option VaR calculation using production ScenarioEngine in-process on deterministic synthetic EQ spot shocks; workflow orchestration is out of scope for this validation pack.

### Validation Green

Expected	Required exotic option validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> ExoticOptionInstrumentBuilder.BuildMagrabe
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/exotic-options/opt-eur-magrabe-exchange-validation.json
Dataset	datasets/exotic-options/opt-eur-magrabe-exchange-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 12/12 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/exotic-options/opt-eur-magrabexchange-dq.json
Dataset	datasets/exotic-options/opt-eur-magrabexchange-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Exotic Options DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**12/12**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
OptionConfig · Option configuration	Prod Profile: ConfigurationChecks	exotic-options	False	False	Critical	Green
ExoticOptionFeatureConfig · Exotic option feature configuration	Prod Profile: ConfigurationChecks	exotic-options	False	False	Critical	Green
OptionDividendMap · OptionDividendMap	Prod Profile: Sensitivity	exotic-options	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	exotic-options	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	exotic-options	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	exotic-options	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	exotic-options	False	False	Critical	Green
EqSensitivity · EqSensitivity	Prod Profile: Sensitivity	exotic-options	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	exotic-options	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	exotic-options	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	exotic-options	False	False	Critical	Green
EqVector · EqVector	Prod Profile: VaR	exotic-options	False	False	Critical	Green

## Basic Instruments Portfolio

Basic Instruments Validation Portfolio · 5 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-BASIC-STOCK-SAP-001	Stock	EUR	2026-02-15	1,000
VAL-BASIC-STOCK-SIE-001	Stock	EUR	2026-02-15	1,000
VAL-BASIC-FX-EURUSD-001	CurrencyPair	EUR	2026-02-15	1,000,000
VAL-BASIC-CMDTY-BRENT-001	Commodity	USD	2026-02-15	1,000
VAL-BASIC-EQX-DAX-001	EquityIndex	EUR	2026-02-15	10

## Basic Instruments

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
CMDTY/BRENT	Commodity	Green	N/A	Green	Green	Green	Green	Green	Green
EQU/STK/SAP	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
EQU/STK/SIE	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
EQX/DAX	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
FX/EURUSD	FX	Green	N/A	Green	Green	Green	Green	Green	Green

## CMDTY/BRENT

### Pricing Green

Expected	Finite NPV from Pricer core quote instrument builder
Actual	82350.000000
Model	ProductionEngineCalculationGateway
Benchmark	PricerCore InstrumentFactory quote instrument builder
Tolerance	Finite value
Evidence	evidence/basic-instruments/cmdty-brent-pricing.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule for spot quote instruments
Actual	N/A
Model	QuoteInstrumentSpotModel
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/basic-instruments/cmdty-brent-cashflows.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	Basic instruments are market quote underlyings; cashflow extraction is not applicable.

### Sensis Green

Expected	Spot delta from production quote instrument path; equity index splits by component weight
Actual	1000.000000
Model	PricerCore quote instrument bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote exposure
Evidence	evidence/basic-instruments/cmdty-brent-sensis.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	n/a

### Scenarios Green

Expected	Four relative quote scenarios produce finite shifted values and PnL allocation
Actual	4 scenarios executed
Model	PricerCore quote instrument scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote shock
Evidence	evidence/basic-instruments/cmdty-brent-scenarios.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation quote shock set produces finite VaR/ES
Actual	VaR 3478.563866; ES 3701.130375
Model	PricerCore quote instrument historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation quote shocks
Tolerance	Finite positive VaR
Evidence	evidence/basic-instruments/cmdty-brent-histsim.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	Validates quote-instrument VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

### Validation Green

Expected	Required basic instrument validation cases pass
Actual	6/6 required cases Green/N/A
Model	QuoteInstrumentValidationPack
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/basic-instruments/cmdty-brent-validation.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 13/13 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/basic-instruments/cmdty-brent-dq.json
Dataset	datasets/basic-instruments/cmdty-brent-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## EQU/STK/SAP

### Pricing Green

Expected	Finite NPV from Pricer core quote instrument builder
Actual	176420.000000
Model	ProductionEngineCalculationGateway
Benchmark	PricerCore InstrumentFactory quote instrument builder
Tolerance	Finite value
Evidence	evidence/basic-instruments/equ-stk-sap-pricing.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule for spot quote instruments
Actual	N/A
Model	QuoteInstrumentSpotModel
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/basic-instruments/equ-stk-sap-cashflows.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	Basic instruments are market quote underlyings; cashflow extraction is not applicable.

### Sensis Green

Expected	Spot delta from production quote instrument path; equity index splits by component weight
Actual	1000.000000
Model	PricerCore quote instrument bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote exposure
Evidence	evidence/basic-instruments/equ-stk-sap-sensis.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	n/a

### Scenarios Green

Expected	Four relative quote scenarios produce finite shifted values and PnL allocation
Actual	4 scenarios executed
Model	PricerCore quote instrument scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote shock
Evidence	evidence/basic-instruments/equ-stk-sap-scenarios.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation quote shock set produces finite VaR/ES
Actual	VaR 7452.194744; ES 7929.003288
Model	PricerCore quote instrument historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation quote shocks
Tolerance	Finite positive VaR
Evidence	evidence/basic-instruments/equ-stk-sap-histsim.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	Validates quote-instrument VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

### Validation Green

Expected	Required basic instrument validation cases pass
Actual	6/6 required cases Green/N/A
Model	QuoteInstrumentValidationPack
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/basic-instruments/equ-stk-sap-validation.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 13/13 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/basic-instruments/equ-stk-sap-dq.json
Dataset	datasets/basic-instruments/equ-stk-sap-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## EQU/STK/SIE

### Pricing Green

Expected	Finite NPV from Pricer core quote instrument builder
Actual	184150.000000
Model	ProductionEngineCalculationGateway
Benchmark	PricerCore InstrumentFactory quote instrument builder
Tolerance	Finite value
Evidence	evidence/basic-instruments/equ-stk-sie-pricing.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	n/a

### Cashflows N/A

Expected	No contractual cashflow schedule for spot quote instruments
Actual	N/A
Model	QuoteInstrumentSpotModel
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/basic-instruments/equ-stk-sie-cashflows.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	Basic instruments are market quote underlyings; cashflow extraction is not applicable.

### Sensis Green

Expected	Spot delta from production quote instrument path; equity index splits by component weight
Actual	1000.000000
Model	PricerCore quote instrument bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote exposure
Evidence	evidence/basic-instruments/equ-stk-sie-sensis.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	n/a

### Scenarios Green

Expected	Four relative quote scenarios produce finite shifted values and PnL allocation
Actual	4 scenarios executed
Model	PricerCore quote instrument scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote shock
Evidence	evidence/basic-instruments/equ-stk-sie-scenarios.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation quote shock set produces finite VaR/ES
Actual	VaR 7778.719318; ES 8276.419655
Model	PricerCore quote instrument historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation quote shocks
Tolerance	Finite positive VaR
Evidence	evidence/basic-instruments/equ-stk-sie-histsim.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	Validates quote-instrument VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

### Validation Green

Expected	Required basic instrument validation cases pass
Actual	6/6 required cases Green/N/A
Model	QuoteInstrumentValidationPack
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/basic-instruments/equ-stk-sie-validation.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 13/13 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/basic-instruments/equ-stk-sie-dq.json
Dataset	datasets/basic-instruments/equ-stk-sie-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## EQX/DAX

**Pricing** Green

Expected	Finite NPV from Pricer core quote instrument builder
Actual	186503.700000
Model	ProductionEngineCalculationGateway
Benchmark	PricerCore InstrumentFactory quote instrument builder
Tolerance	Finite value
Evidence	evidence/basic-instruments/eqx-dax-pricing.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	n/a

**Cashflows** N/A

Expected	No contractual cashflow schedule for spot quote instruments
Actual	N/A
Model	QuoteInstrumentSpotModel
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/basic-instruments/eqx-dax-cashflows.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	Basic instruments are market quote underlyings; cashflow extraction is not applicable.

**Sensis** Green

Expected	Spot delta from production quote instrument path; equity index splits by component weight
Actual	20.000000
Model	PricerCore quote instrument bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote exposure
Evidence	evidence/basic-instruments/eqx-dax-sensis.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	n/a

**Scenarios** Green

Expected	Four relative quote scenarios produce finite shifted values and PnL allocation
Actual	4 scenarios executed
Model	PricerCore quote instrument scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote shock
Evidence	evidence/basic-instruments/eqx-dax-scenarios.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	n/a

**VaR** Green

Expected	Deterministic 250-observation quote shock set produces finite VaR/ES
Actual	VaR 7878.142461; ES 8382.204118
Model	PricerCore quote instrument historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation quote shocks
Tolerance	Finite positive VaR
Evidence	evidence/basic-instruments/eqx-dax-histsim.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	Validates quote-instrument VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

**Validation** Green

Expected	Required basic instrument validation cases pass
Actual	6/6 required cases Green/N/A
Model	QuoteInstrumentValidationPack
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/basic-instruments/eqx-dax-validation.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 13/13 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/basic-instruments/eqx-dax-dq.json
Dataset	datasets/basic-instruments/eqx-dax-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FX/EURUSD

**Pricing** Green

Expected	Finite NPV from Pricer core quote instrument builder
Actual	1082500.000000
Model	ProductionEngineCalculationGateway
Benchmark	PricerCore InstrumentFactory quote instrument builder
Tolerance	Finite value
Evidence	evidence/basic-instruments/fx-eurUSD-pricing.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	n/a

**Cashflows** N/A

Expected	No contractual cashflow schedule for spot quote instruments
Actual	N/A
Model	QuoteInstrumentSpotModel
Benchmark	Model scope
Tolerance	Not applicable
Evidence	evidence/basic-instruments/fx-eurUSD-cashflows.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	Basic instruments are market quote underlyings; cashflow extraction is not applicable.

**Sensis** Green

Expected	Spot delta from production quote instrument path; equity index splits by component weight
Actual	1000000.000000
Model	PricerCore quote instrument bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote exposure
Evidence	evidence/basic-instruments/fx-eurUSD-sensis.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	n/a

**Scenarios** Green

Expected	Four relative quote scenarios produce finite shifted values and PnL allocation
Actual	4 scenarios executed
Model	PricerCore quote instrument scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	Exact deterministic quote shock
Evidence	evidence/basic-instruments/fx-eurUSD-scenarios.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	n/a

**VaR** Green

Expected	Deterministic 250-observation quote shock set produces finite VaR/ES
Actual	VaR 45726.112700; ES 48651.774500
Model	PricerCore quote instrument historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation quote shocks
Tolerance	Finite positive VaR
Evidence	evidence/basic-instruments/fx-eurUSD-histsim.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	Validates quote-instrument VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

**Validation** Green

Expected	Required basic instrument validation cases pass
Actual	6/6 required cases Green/N/A
Model	QuoteInstrumentValidationPack
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/basic-instruments/fx-eurUSD-validation.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 13/13 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/basic-instruments/fx-eurUSD-dq.json
Dataset	datasets/basic-instruments/fx-eurUSD-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Basic Instruments DQ Summary and Rule Tests

<p>FINDINGS</p> <p><b>0</b></p> <p>Total findings</p>	<p>CRITICAL</p> <p><b>0</b></p> <p>Critical findings</p>	<p>WARNINGS</p> <p><b>0</b></p> <p>Warning findings</p>
<p>RULES</p> <p><b>13/13</b></p> <p>Passed / executed</p>	<p>NEGATIVE CASES</p> <p><b>0/0</b></p> <p>Detected / executed</p>	

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	basic-instruments	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	basic-instruments	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	basic-instruments	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	basic-instruments	False	False	Critical	Green
EqSensitivity · EqSensitivity	Prod Profile: Sensitivity	basic-instruments	False	False	Critical	Green
FxSensitivity · FxSensitivity	Prod Profile: Sensitivity	basic-instruments	False	False	Critical	Green
CmSensitivity · CmSensitivity	Prod Profile: Sensitivity	basic-instruments	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	basic-instruments	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	basic-instruments	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	basic-instruments	False	False	Critical	Green
EqVector · EqVector	Prod Profile: VaR	basic-instruments	False	False	Critical	Green
FxVector · FxVector	Prod Profile: VaR	basic-instruments	False	False	Critical	Green
CmVector · CmVector	Prod Profile: VaR	basic-instruments	False	False	Critical	Green

## Future/Forward Portfolio

Future Forward Validation Portfolio · 3 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-FWD-EQU-SAP-SEP26-001	EquityFuture	EUR	2026-09-18	100
VAL-FWD-FX-EURUSD-6M-001	FxForward	EUR	2026-09-18	1,000,000
VAL-FUT-BUND-SEP26-001	BondFuture	EUR	2026-09-18	100,000

## Future/Forward

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
FUT/EQU/SAP/202609	Equity	Green	N/A	Green	Green	Green	Green	Green	Green
FWD/FX/EURUSD/6M	FX	Green	N/A	Green	Green	Green	Green	Green	Green
FUT/BOND/BUND/202609	Rates	Green	N/A	Green	Green	Green	Green	Green	Green

## FUT/EQU/SAP/202609

**Pricing** Green

Expected	Forward/future PV is produced by production pricing components
Actual	0.518911
Model	Cost-of-carry equity future validation model
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-equ-sap-202609-pricing.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	n/a

**Cashflows** N/A

Expected	No periodic coupon/dividend cashflow schedule required for this validation sample
Actual	N/A
Model	FutureForwardSettlementModel
Benchmark	Contract settlement evidence
Tolerance	n/a
Evidence	evidence/future-forward/fut-equ-sap-202609-cashflows.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	Cashflow extraction for listed futures/forwards is represented as settlement evidence, not a coupon schedule.

**Sensis** Green

Expected	Sensitivity is produced through the production gateway bump-and-reprice path
Actual	1.000000
Model	PricerCore future/forward bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-equ-sap-202609-sensis.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	n/a

**Scenarios** Green

Expected	Deterministic scenario values are produced by production gateway bump-and-reprice
Actual	Max abs PnL 35.284000
Model	PricerCore future/forward scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-equ-sap-202609-scenarios.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	n/a

**VaR** Green

Expected	Deterministic 250-observation shock set produces finite VaR/ES
Actual	VaR 7.452195; ES 7.929003
Model	PricerCore future/forward historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/future-forward/fut-equ-sap-202609-histsim.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	Validates future/forward VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

**Validation** Green

Expected	Required future/forward validation cases pass
Actual	6/6 required cases acceptable
Model	FutureForwardValidationAggregator
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/future-forward/fut-equ-sap-202609-validation.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	n/a

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 16/16 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/future-forward/fut-equ-sap-202609-dq.json
Dataset	datasets/future-forward/fut-equ-sap-202609-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FWD/FX/EURUSD/6M

### Pricing Green

Expected	Forward/future PV is produced by production pricing components
Actual	1.000000
Model	Domestic/foreign discount factor FX forward validation model
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-pricing.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	n/a

### Cashflows N/A

Expected	No periodic coupon/dividend cashflow schedule required for this validation sample
Actual	N/A
Model	FutureForwardSettlementModel
Benchmark	Contract settlement evidence
Tolerance	n/a
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-cashflows.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	Cashflow extraction for listed futures/forwards is represented as settlement evidence, not a coupon schedule.

### Sensis Green

Expected	Sensitivity is produced through the production gateway bump-and-reprice path
Actual	1082500.000000
Model	PricerCore future/forward bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-sensis.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	n/a

### Scenarios Green

Expected	Deterministic scenario values are produced by production gateway bump-and-reprice
Actual	Max abs PnL 216500.000000
Model	PricerCore future/forward scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-scenarios.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation shock set produces finite VaR/ES
Actual	VaR 45726.112746; ES 48651.774512
Model	PricerCore future/forward historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-histsim.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	Validates future/forward VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

### Validation Green

Expected	Required future/forward validation cases pass
Actual	6/6 required cases acceptable
Model	FutureForwardValidationAggregator
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-validation.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 16/16 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/future-forward/fwd-fx-eurUSD-6m-dq.json
Dataset	datasets/future-forward/fwd-fx-eurUSD-6m-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## FUT/BOND/BUND/202609

### Pricing Green

Expected	Forward/future PV is produced by production pricing components
Actual	-476.405170
Model	CTD basket bond future validation model
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-bond-bund-202609-pricing.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	n/a

### Cashflows N/A

Expected	No periodic coupon/dividend cashflow schedule required for this validation sample
Actual	N/A
Model	FutureForwardSettlementModel
Benchmark	Contract settlement evidence
Tolerance	n/a
Evidence	evidence/future-forward/fut-bond-bund-202609-cashflows.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	Cashflow extraction for listed futures/forwards is represented as settlement evidence, not a coupon schedule.

### Sensis Green

Expected	Sensitivity is produced through the production gateway bump-and-reprice path
Actual	-723026.851765
Model	PricerCore future/forward bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-bond-bund-202609-sensis.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	n/a

### Scenarios Green

Expected	Deterministic scenario values are produced by production gateway bump-and-reprice
Actual	Max abs PnL 17869.543403
Model	PricerCore future/forward scenario bump-and-reprice
Benchmark	ProductionEngineCalculationGateway
Tolerance	0.000001
Evidence	evidence/future-forward/fut-bond-bund-202609-scenarios.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	n/a

### VaR Green

Expected	Deterministic 250-observation shock set produces finite VaR/ES
Actual	VaR 1744.292193; ES 1896.536561
Model	PricerCore future/forward historical bump-and-reprice
Benchmark	ProductionEngineCalculationGateway + deterministic validation shocks
Tolerance	Finite positive VaR
Evidence	evidence/future-forward/fut-bond-bund-202609-histsim.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	Validates future/forward VaR exposure using deterministic synthetic shocks; workflow orchestration is out of scope.

### Validation Green

Expected	Required future/forward validation cases pass
Actual	6/6 required cases acceptable
Model	FutureForwardValidationAggregator
Benchmark	Production component validation pack with deterministic market data
Tolerance	No critical failures
Evidence	evidence/future-forward/fut-bond-bund-202609-validation.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 16/16 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/future-forward/fut-bond-bund-202609-dq.json
Dataset	datasets/future-forward/fut-bond-bund-202609-market.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Future/Forward DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**16/16**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	future-forward	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	future-forward	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	future-forward	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	future-forward	False	False	Critical	Green
BondFutureCtdBasketConfig · Bond future CTD basket configuration	Prod Profile: ConfigurationChecks	future-forward	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	future-forward	False	False	Critical	Green
SensitivityRiskVectorCoverage · SensitivityRiskVectorCoverage	Prod Profile: Sensitivity	future-forward	False	False	Critical	Green
EqSensitivity · EqSensitivity	Prod Profile: Sensitivity	future-forward	False	False	Critical	Green
FxSensitivity · FxSensitivity	Prod Profile: Sensitivity	future-forward	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	future-forward	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	future-forward	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	future-forward	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	future-forward	False	False	Critical	Green
EqVector · EqVector	Prod Profile: VaR	future-forward	False	False	Critical	Green
FxVector · FxVector	Prod Profile: VaR	future-forward	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	future-forward	False	False	Critical	Green

## Inflation Portfolio

Inflation Validation Portfolio · 7 trade(s)

Trade	Instrument	Currency	Maturity	Notional
VAL-INF-CPI-BOND-001	CPIBond	EUR	2031-02-15	1,000,000
VAL-INF-CPI-SWAP-001	CPISwap	EUR	2031-02-15	1,000,000
VAL-INF-HICPZC-BOND-001	HICPZCBond	EUR	2031-02-15	1,000,000
VAL-INF-HICPZC-CAPFLOOR-001	HICPZCCapFloor	EUR	2031-02-15	1,000,000
VAL-INF-HICPYY-BOND-001	HICPYYBond	EUR	2031-02-15	1,000,000
VAL-INF-HICPYY-CAP-001	HICPYYCap	EUR	2031-02-15	1,000,000
VAL-INF-HICPYY-FLOOR-001	HICPYYFloor	EUR	2031-02-15	1,000,000

## Inflation

Instrument	Asset	Pricing	Cashflows	Sensis	Scenarios	VaR	Validation	DQ	Status
INF/CPI/BOND/5Y (CPIBond)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/CPI/SWAP/PAYER/5Y (CPISwap)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/HICPYY/BOND/5Y (HICPYYBond)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/HICPYY/CAP/5Y (HICPYYCap)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/HICPYY/FLOOR/5Y (HICPYYFloor)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/HICPZC/BOND/5Y (HICPZCBond)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green
INF/HICPZC/CAPFLOOR/5Y (HICPZCCapFloor)	Inflation	Green	Green	Green	Green	Green	Green	Green	Green

## INF/CPI/BOND/5Y (CPIBond)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	1072043.438290
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-cpi-bond-5y-pricing.json
Dataset	datasets/inflation/inf-cpi-bond-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	6 cashflows; NPV 1072043.438290
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-cpi-bond-5y-cashflows.json
Dataset	datasets/inflation/inf-cpi-bond-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	602.754807
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-cpi-bond-5y-sensis.json
Dataset	datasets/inflation/inf-cpi-bond-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -58879.450281
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-cpi-bond-5y-scenarios.json
Dataset	datasets/inflation/inf-cpi-bond-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 8798.453467; ES95 9523.941598
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-cpi-bond-5y-histsim.json
Dataset	datasets/inflation/inf-cpi-bond-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> CPI bond production validation via CPIBond builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-cpi-bond-5y-validation.json
Dataset	datasets/inflation/inf-cpi-bond-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-cpi-bond-5y-dq.json
Dataset	datasets/inflation/inf-cpi-bond-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/CPI/SWAP/PAYER/5Y (CPISwap)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	133136.404490
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-pricing.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	0 cashflows; NPV 133136.404490
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-cashflows.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	621.949864
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-sensis.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -60767.657328
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-scenarios.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 9078.932134; ES95 9827.573926
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-histsim.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> CPI swap production validation via CPISwap builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-validation.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-cpi-swap-payer-5y-dq.json
Dataset	datasets/inflation/inf-cpi-swap-payer-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/HICPYY/BOND/5Y (HICPYYBond)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	28291.459175
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-hicpyy-bond-5y-pricing.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-market.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	0 cashflows; NPV 28291.459175
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-hicpyy-bond-5y-cashflows.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-expected-cashflows.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	471.524320
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-hicpyy-bond-5y-sensis.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-market.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -47152.431958
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-hicpyy-bond-5y-scenarios.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-scenario-shocks.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 6906.553343; ES95 7478.224111
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-hicpyy-bond-5y-histsim.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-histsim-shocks.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> HICP year-on-year bond position mapped to production YearOnYearInflationSwap builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-hicpyy-bond-5y-validation.json
Dataset	datasets/inflation/inf-hicpyy-bond-5y-market.json
Limitation	Dedicated production YoY inflation bond type is not currently exposed; validation maps this requested position to the production YearOnYearInflationSwap builder.

**DQ** Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-hicppy-bond-5y-dq.json
Dataset	datasets/inflation/inf-hicppy-bond-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/HICPY/CAP/5Y (HICPYCap)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	29798.196710
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-hicpy-cap-5y-pricing.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	5 cashflows; NPV 29798.196710
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-hicpy-cap-5y-cashflows.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	225.381483
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-hicpy-cap-5y-sensis.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -16883.165423
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-hicpy-cap-5y-scenarios.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 3173.554853; ES95 3424.540515
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-hicpy-cap-5y-histsim.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> HICP year-on-year cap production validation via YoYInflationCapFloor builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-hicpy-cap-5y-validation.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-hicpy-cap-5y-dq.json
Dataset	datasets/inflation/inf-hicpy-cap-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/HICPYY/FLOOR/5Y (HICPYYFloor)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	15421.244010
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-hicpyy-floor-5y-pricing.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	5 cashflows; NPV 15421.244010
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-hicpyy-floor-5y-cashflows.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	-133.426539
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-hicpyy-floor-5y-sensis.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -9273.836932
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-hicpyy-floor-5y-scenarios.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 1903.186906; ES95 2019.008396
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-hicpyy-floor-5y-histsim.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> HICP year-on-year floor production validation via YoYInflationCapFloor builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-hicpyy-floor-5y-validation.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-hicpyy-floor-5y-dq.json
Dataset	datasets/inflation/inf-hicpyy-floor-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/HICPZC/BOND/5Y (HICPZCBond)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	1071297.228404
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-hicpzc-bond-5y-pricing.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	6 cashflows; NPV 1071297.228404
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-hicpzc-bond-5y-cashflows.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	603.599557
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-hicpzc-bond-5y-sensis.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -58961.301138
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-hicpzc-bond-5y-scenarios.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 8810.770033; ES95 9537.272422
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-hicpzc-bond-5y-histsim.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> HICP zero-coupon bond production validation via CPIBond builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-hicpzc-bond-5y-validation.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-hicpzc-bond-5y-dq.json
Dataset	datasets/inflation/inf-hicpzc-bond-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## INF/HICPZC/CAPFLOOR/5Y (HICPZCCapFloor)

### Pricing Green

Expected	Finite inflation-linked NPV from Pricer core production builder
Actual	18237.617434
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	PricerCore InstrumentFactory inflation builders
Tolerance	Finite value
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-pricing.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-market.json
Limitation	n/a

### Cashflows Green

Expected	Inflation valuation exposes cashflow detail where available and finite NPV for all instruments
Actual	0 cashflows; NPV 18237.617434
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	PricerCore inflation cashflow schedules
Tolerance	Finite NPV required
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-cashflows.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-expected-cashflows.json
Limitation	n/a

### Sensis Green

Expected	Finite inflation delta from production simulation shock engine
Actual	443.029043
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	Native scenario engine symmetric inflation bump
Tolerance	All rows finite
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-sensis.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-market.json
Limitation	n/a

### Scenarios Green

Expected	4 deterministic inflation scenarios execute
Actual	4 scenarios; worst PnL -17650.994734
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	Native production scenario engine
Tolerance	All scenario PnL values finite
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-scenarios.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-scenario-shocks.json
Limitation	n/a

### VaR Green

Expected	250-observation inflation historical simulation produces finite VaR/ES
Actual	VaR95 5020.097447; ES95 5395.870524
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	Native production scenario engine + empirical historical simulation
Tolerance	Finite VaR and ES
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-histsim.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-histsim-shocks.json
Limitation	n/a

### Validation Green

Expected	Required inflation validation cases pass
Actual	6/6 required cases Green/N/A
Model	PricerCore InstrumentFactory -> HICP zero-coupon cap/floor production validation via CPICapFloor builder
Benchmark	Production component validation pack with deterministic inflation data
Tolerance	No critical failures
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-validation.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-market.json
Limitation	n/a

### DQ Green

Expected	0 critical findings from production Analyzer configuration checks
Actual	0 critical findings; 14/14 production checks passed
Model	Analyzer ConfigurationChecks
Benchmark	Production Analyzer ConfigurationChecks strategies executed in-process
Tolerance	No critical findings allowed
Evidence	evidence/inflation/inf-hicpzc-capfloor-5y-dq.json
Dataset	datasets/inflation/inf-hicpzc-capfloor-5y-dq-positive.json
Limitation	Production Analyzer configuration strategies are executed against validation-pack snapshots; synthetic negative cases are not used for this evidence.

## Inflation DQ Summary and Rule Tests

FINDINGS

**0**

Total findings

CRITICAL

**0**

Critical findings

WARNINGS

**0**

Warning findings

RULES

**14/14**

Passed / executed

NEGATIVE CASES

**0/0**

Detected / executed

Rule	Test Case	Instrument	Expected Finding	Actual Finding	Severity	Status
BondConfig · Bond configuration	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
SwapConfig · Swap configuration	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
CapFloorConfig · Cap/floor configuration	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
InstrumentGraphIntegrity · Instrument graph integrity	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
MaturityDatePresent · Maturity date present	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
PositiveNotional · Positive notional	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
ValGroupMapping · Val group mapping	Prod Profile: ConfigurationChecks	inflation	False	False	Critical	Green
SensitivityResultCompleteness · SensitivityResultCompleteness	Prod Profile: Sensitivity	inflation	False	False	Critical	Green
SensitivityRiskVectorCoverage · SensitivityRiskVectorCoverage	Prod Profile: Sensitivity	inflation	False	False	Critical	Green
IrSensitivity · IrSensitivity	Prod Profile: Sensitivity	inflation	False	False	Critical	Green
VarResultCompleteness · VarResultCompleteness	Prod Profile: VaR	inflation	False	False	Critical	Green
ScenarioCount · ScenarioCount	Prod Profile: VaR	inflation	False	False	Critical	Green
VarRiskVectorCoverage · VarRiskVectorCoverage	Prod Profile: VaR	inflation	False	False	Critical	Green
IrVector · IrVector	Prod Profile: VaR	inflation	False	False	Critical	Green

## Version History

Pack	Generated	Run ID	Mode	Environment	Commit	Version
Vanilla Bonds	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Euro Vanilla Options	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Interest Rate Swaps	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Caps Floors Collars	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Callables Convertibles	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Exotic Options	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Basic Instruments	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Future/Forward	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1
Inflation	2026-06-14 18:05:16	df29f45eac8a4056bfd00e06871c693	inprocess-production	local	85ca2b3a	validation-phase-1