Equity Cashflow Projections: Sentral

Summary

- We project fund-level drawdowns, repayments, recallables, and NAV forward from a chosen cutoff quarter.
- The model is driven by historical fund behavior (by strategy, grade, and age) and a market factor (MSCI).
- Outputs are averaged across Monte Carlo simulations to provide a stable expected path and risk bands.

How the Projections Work

1) **Start from history** - We load all historical fund cashflows (draws, repayments, NAV) and fund attributes. - We define a cutoff quarter (e.g., 2025-09-30). History ends there; projections start immediately after.

2) **Simulate fund cashflows quarter by quarter** - **Drawdowns** follow historical draw patterns by strategy/grade/age. - **Repayments** occur with a historical probability and size relative to NAV. - **Recallables** occur only after repayments and are capped by legal and economic limits.

3) **NAV updates** - NAV evolves each quarter based on net cashflows and a market-sensitive growth rate (omega). - Omega is calibrated from history and linked to MSCI returns.

4) **Repeat many times (Monte Carlo)** - Each simulation draws random events and sizes consistent with history. - We average across simulations to get the expected portfolio path.

Model Assumptions

MSCI Projection (Market Path)

- We use a projected MSCI return path to represent the market environment.
- The model supports different scenarios (normal / bullish / bearish).
- MSCI returns do **not** directly create cashflows, but they influence **NAV growth** through the calibrated omega process.
- This gives NAV a market-sensitive drift while still respecting fund-specific cashflow dynamics.

NAV Dynamics

- NAV starts from the latest observed value and updates each quarter based on:
- **Net cashflow** (draws increase NAV, repayments reduce NAV).
- **Market-sensitive growth** (omega, calibrated by strategy/grade/age and MSCI).
- NAV is bounded to avoid unrealistic jumps, keeping projections stable.

• For late-life funds, optional NAV anchoring can smooth NAV relative to paid-in ratios.

Calibration of Cashflow Timing and Size

- **Timing**: Probability of drawdowns/repayments by strategy, grade, and age bucket.
- Draw timing is blended with historical draw frequency to match observed pacing.
- **Size**: Draw/repayment sizes are sampled from historical distributions.
- Size distributions are stratified by strategy, grade, and age bucket.
- Recallables are modelled only after repayments and capped by contractual limits.
- **Dependency structure**: Event timing and size draws use a one-factor copula.
- `rho_event` links **timing** across funds; `rho_size` links **sizes** across funds.
- This creates realistic cross-fund co-movement without forcing all funds to move together.
- **Hierarchical fitting**: If a bucket is sparse, the model falls back in order:
- strategy+grade+age → strategy+age → strategy → global
- This keeps the model stable while preserving the most specific information available.

Current Grade Logic

- Grades are derived from performance metrics (DPI, TVPI, IRR).
- Logic varies by fund type:
- **Debt**: IRR is the primary metric.
- **Venture Capital**: during investment period, TVPI is emphasized.
- **Other strategies**: DPI is emphasized during investment, IRR post-investment.
- For the first five years (from first close), grades are anchored to the seed grade to avoid premature downgrades.
- After that, grades can update every four quarters based on projected performance.

Automation and Consistency

- The entire process is automated once inputs are provided (portfolio file + calibration files).
- Scenario runs use the same calibrated mechanics, ensuring apples-to-apples comparisons.
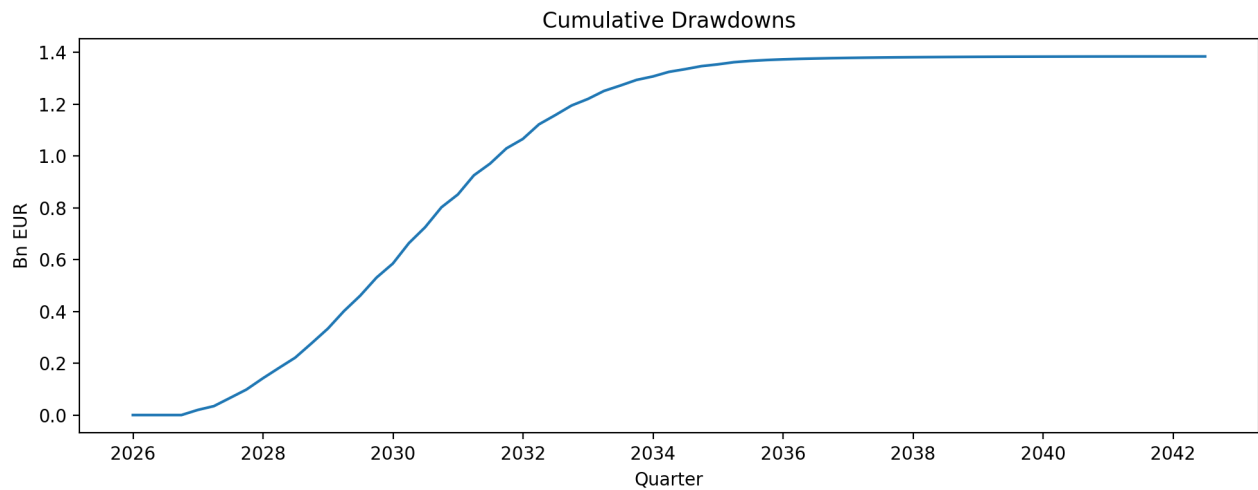- Diagnostics are produced alongside projections to highlight pacing, repayment rates, and grade shifts.

Key Drivers

- **Strategy mix and grade**: Higher grades and favorable strategies increase repayment rates and NAV growth.
- **Fund age**: Drawdown timing and repayment patterns change as funds mature.
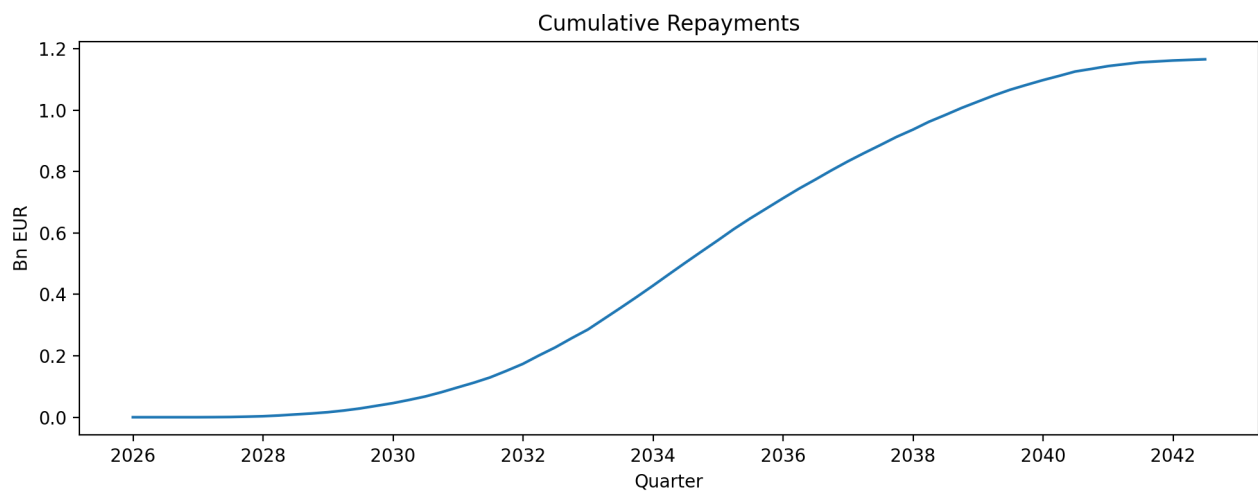- **Market environment (MSCI)**: MSCI paths feed into NAV growth through omega.

Latest Run (Charts)

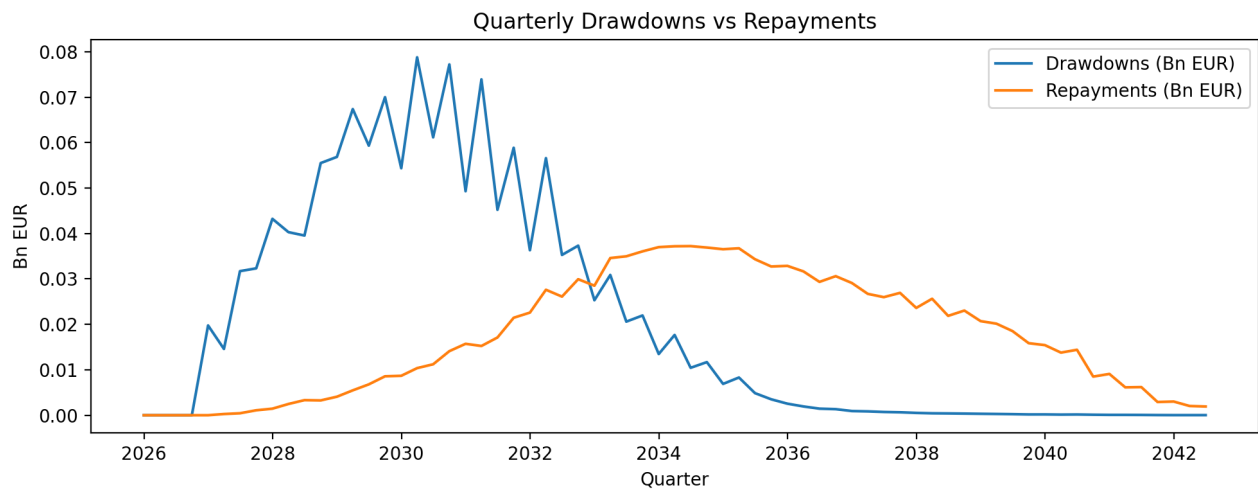These charts are generated from run tag **test_portfolio_2025Q3_Sentral**.
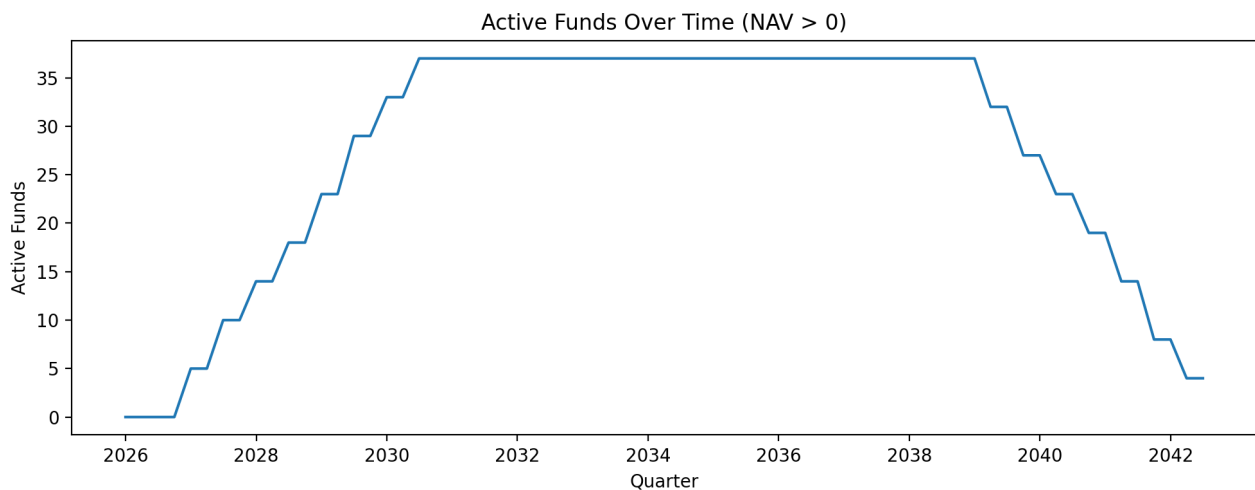
1) Cumulative Drawdowns (Portfolio)

Cumulative Drawdowns

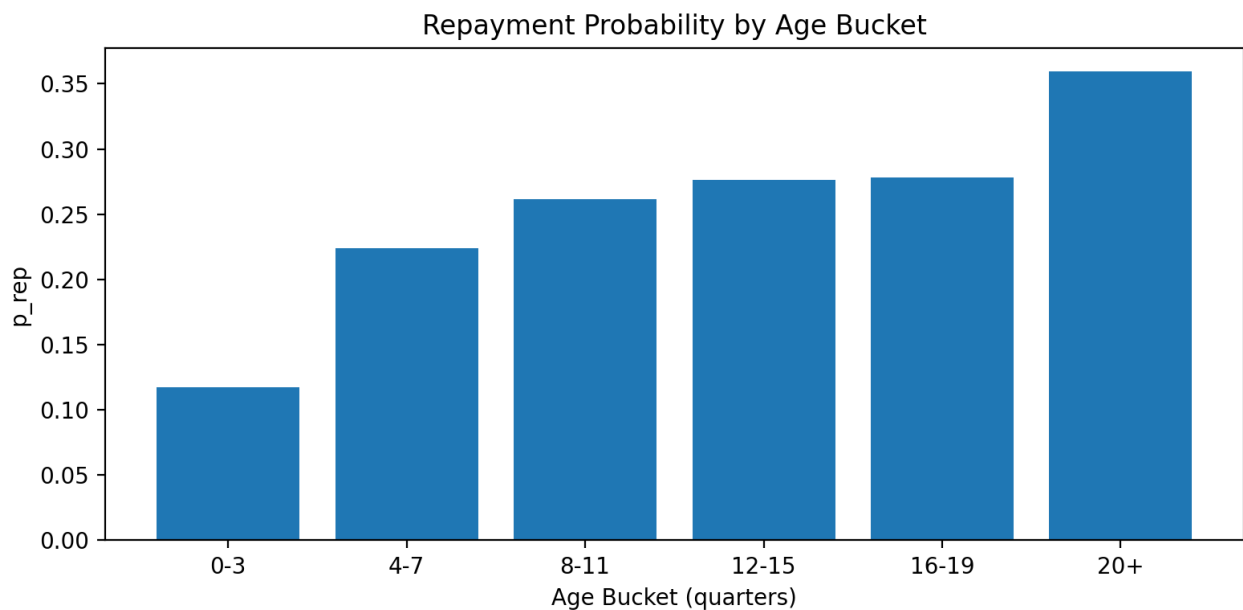# 2) Cumulative Repayments (Portfolio)

Cumulative Repayments

3) Quarterly Drawdowns vs Repayments

Quarterly Drawdowns vs Repayments

4) Active Funds Over Time

Active Funds Over Time (NAV > 0)

5) Repayment Probability by Age Bucket

Repayment Probability by Age Bucket

Notes on Grading

- Funds are assigned a grade based on performance metrics (DPI, TVPI, IRR).
- Grades influence expected drawdown and repayment behavior.
- For the test portfolio, we can either:
- Use the input grades as-is (static), or
- Enable dynamic updates (every 4 quarters) to reflect projected performance.

Sentral – Projection Table (Drawdowns & Repayments)

Year	Drawdowns (Bn EUR)	Repayments (Bn EUR)	Cumulative Drawdowns (Bn EUR)	Cumulative Repayments (Bn EUR)
2025	0.00	0.00	0.00	0.00
2026	0.02	0.00	0.02	0.00
2027	0.12	0.00	0.14	0.00
2028	0.19	0.01	0.33	0.02
2029	0.25	0.03	0.58	0.05
2030	0.27	0.05	0.85	0.10
2031	0.21	0.08	1.07	0.17
2032	0.15	0.11	1.22	0.29
2033	0.09	0.14	1.31	0.43
2034	0.05	0.15	1.35	0.58
2035	0.02	0.14	1.37	0.71
2036	0.01	0.12	1.38	0.83
2037	0.00	0.10	1.38	0.94
2038	0.00	0.09	1.38	1.03
2039	0.00	0.07	1.38	1.10
2040	0.00	0.05	1.38	1.14
2041	0.00	0.02	1.38	1.16
2042	0.00	0.00	1.38	1.17