

UFS EUR STOXX MinVar Fund

Simulated Fund Design & Research Project — UFS Asset Management Division

Reference period: Q1 2026

Base currency: EUR

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Simulated Fund Design Project. The fund presented in this document **does not exist** and is not available for investment. It is a hypothetical fund designed from scratch by student members of the UFS Asset Management Division as an academic exercise. All performance figures are backtested simulations. This document is published for educational purposes only and does **not** constitute investment advice, a financial product, or regulated financial research. See the Preamble and Appendix B for full disclaimers.

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Preamble: Nature, Purpose and Scope of This Project

Please read carefully before proceeding. This document presents a **simulated, hypothetical investment fund designed from scratch** by student members of the Unibo Fintech Society. The fund described herein **does not exist**, has never been launched, and is not available for investment. All portfolio choices, performance figures, risk metrics, and financial projections are the product of an academic simulation exercise. This document is published exclusively for educational purposes and must not be interpreted as investment advice, a financial product, or regulated financial research of any kind.

What this project is

This is a **simulated fund design and research project**. Starting from a blank slate, student analysts of the UFS Asset Management Division designed a hypothetical investment fund from the ground up, making all the strategic decisions that real portfolio managers face: defining a mandate, selecting an asset allocation framework, constructing a portfolio, applying risk management rules, and evaluating the resulting performance and risk profile using rigorous statistical methods.

The analytical work draws on historical market data to backtest the simulated fund's hypothetical performance and uses standard quantitative finance techniques — including time-series analysis, factor models, drawdown analysis, and scenario stress-testing — to assess how the fund would have behaved under different market conditions. All results are therefore **backtested and entirely hypothetical**: they reflect how the designed strategy *would have* performed under past market conditions, not how any real fund has actually performed.

The objective of the project is pedagogical: to give students hands-on experience with the full lifecycle of fund design and portfolio analysis, from strategic asset allocation choices to the production of a professional-grade research report.

The simulated fund: key design choices

The fund documented in this report is a **student-designed construct**. Every element — investment mandate, geographic and sector focus, asset allocation, portfolio construction rules, benchmark selection, fee structure, and risk limits — was chosen by the student team based on their analysis of the macroeconomic environment, relevant academic literature, and the strategic rationale they considered most sound at the time of the exercise. These choices do not reflect the actual strategy of any existing fund manager, and no affiliation with any real asset manager should be inferred.

Who produced it

This project was produced by undergraduate or postgraduate students enrolled at the University of Bologna or affiliated with the Unibo Fintech Society. The authors are **not** licensed financial advisors, portfolio managers, investment analysts, or any other category of regulated professional under Italian law (TUF — D.Lgs. 58/1998), European Union law (MiFID II — Directive 2014/65/EU), or any other applicable jurisdiction. No author holds any qualification or authorisation that would entitle them to provide investment advice or produce regulated financial research.

The Unibo Fintech Society is a voluntary student association. It is not a financial interme-

diary, an investment firm, an asset manager, a collective investment scheme, or any other entity regulated by Consob, the Bank of Italy, ESMA, or any other supervisory authority. It does not manage any real assets.

On backtested and simulated results

A critical warning regarding all performance and risk figures in this document: all returns, volatility estimates, Sharpe ratios, drawdown profiles, and other quantitative metrics presented herein are the result of backtesting or statistical simulation applied to historical market data. They represent how the *hypothetical* strategy *would have* behaved in the past, under the assumption that the designed portfolio had existed and been implemented without friction.

Backtested performance is subject to well-documented limitations and biases, including but not limited to: look-ahead bias, survivorship bias, data-mining bias, overfitting to historical regimes, and the absence of real-world implementation frictions (transaction costs, market impact, liquidity constraints, operational risk). **Hypothetical backtested performance is not a reliable indicator of future results and bears no guarantee of future performance.** Real implementation of any strategy similar to the one described here would likely produce materially different outcomes.

Data and sources

Historical market data used for backtesting and analysis is sourced from publicly available providers (e.g. Bloomberg, Refinitiv, Yahoo Finance, central bank databases, Eurostat, BLS) and is used solely for academic illustration. All team-generated estimates, assumptions, and model outputs are clearly labelled as such throughout the document. The authors make no warranty as to the accuracy, completeness, or timeliness of any data or analysis herein.

How to read this project

This document is best read as a **demonstration of analytical process**: the value lies in the methodology, the reasoning behind each design choice, and the rigour of the quantitative analysis — not in the specific numerical outputs, which are inherently hypothetical. Critical engagement with the assumptions and conclusions is encouraged. The views expressed are those of the student authors at the time of writing.

References to real-world instruments and indices. In the course of the analysis, this document may reference real market indices, asset classes, economic indicators, or publicly traded instruments as benchmarks or contextual comparators. Any such reference is made purely for analytical and illustrative purposes. No endorsement of, or recommendation regarding, any real-world security, index, or financial product is implied.

Executive Summary

Simulated Fund at a Glance. This simulated fund implements a systematic minimum-variance equity strategy designed to maximize risk-adjusted returns through disciplined portfolio optimization and diversification. The fund has a volatility target of 10% and a maximum cash allocation of 10%. The backtested results indicate a compound annual growth rate (CAGR) of 13.10%, outperforming the benchmark by +8.01%, while maintaining lower volatility (13.96% vs 15.35%) and a reduced beta of 0.85. Forward-looking optimization further enhances efficiency, with an expected return of 12.54%, Sharpe ratio of 1.64, and reduced ex-ante volatility of 7.65%.

Fund Size (EUR)	Inception	Strategy	Return (CAGR)	Volatility	Sharpe Ratio
20,000,000	April 2026	Active/Equity	+13.10%	13.96%	0.95

Key Takeaways

- **Investment Thesis:** A systematic minimum-variance approach can deliver superior risk-adjusted returns by exploiting persistent inefficiencies in equity market volatility and correlations.
- **Opportunity:** Persistent inefficiencies in covariance estimation and correlation instability create exploitable gaps for systematic minimum-variance optimization to enhance portfolio efficiency.
- **Risks:** Hormuz strait closure and ECB rate hikes.

Fund Overview & Investment Strategy

Fund Identity

Table 1. Simulated fund factsheet — hypothetical, not a real fund

Field	Detail
Fund Name	UFS EUR STOXX600 MinVar Fund
Simulated Manager	Active Fund Division - UFS
Strategy Type	Long Equity
Geographic Focus	Europe
Asset Class	Equities
Benchmark	STOXX EUROPE 600
Base Currency	EURO
Fund Domicile	Italy
Inception Date	April 2026
AUM	EUR 20,000,000
Management Fee	0.75% p.a. (hypothetical)
Performance Fee	None
Liquidity Terms	Daily redemption

Source: Fund prospectus / Fund manager.

Design choices

This section documents the strategic design decisions made by the student team. All fields describe a

hypothetical fund that does not exist.

Investment Philosophy

The goal of the fund is to take advantage of a premium through minimum variance optimization using the stocks in the STOXX Europe 600 index, but in such a way that constraints on individual security allocations and diversification within sectors will avoid the approach from becoming concentrated in utilities or telecommunications. On top of the optimization process is the stock-picking process, which is done via a proprietary five-factor scoring system consisting of valuation, earnings per share growth momentum, economic sensitivity, strength of near-term catalysts, and shareholder returns. Stocks can be underweight, benchmark, or even not included in the portfolio based on their scores, which help the fund make active allocation decisions relative to its benchmark.

Investment Process

The investment process entails a series of well-defined stages, ranging from top-down analysis to bottom-up stock picking, that are used when investing in the fund. These start with the idea generation stage, where sectors within the STOXX Europe 600 are screened, and the companies are selected through fundamental analysis to be considered for approval. Approved securities can be included in the portfolio using minimum variance optimisation, under conditions of diversification. Position size depends on volatilities, covariances, and diversification constraints, among other aspects.

Idea Generation & Screening

The universe for investment purposes comprises the STOXX Europe 600 stock index. First, a top-down sector filtering based on internal research view, geopolitical conflict impact assessment, and AI/reshoring tailwind assessment results in either Favourable, Tactical or Avoid ratings for the sectors under analysis. In this way, for April 2026, the filter left Energy, Industrials/Defence, Financials, Technology, Healthcare, and Consumer Staples as eligible sectors, while Consumer Discretionary/Luxury, Autos, and Real Estate ended up on the watchlist.

Ineligible stocks need to have an exceptionally compelling rationale on all five scorecard criteria in order to make the cut. Stocks within eligible sectors are then filtered based on fundamental factors, research coverage, and macro scenarios. Macroeconomic themes under consideration include a possible Strait of Hormuz disruption, ECB interest rates and structural growth driven by AI technology.

Due Diligence & Fundamental Analysis

Each candidate security receives scores between 1 and 5 in five weighted categories:

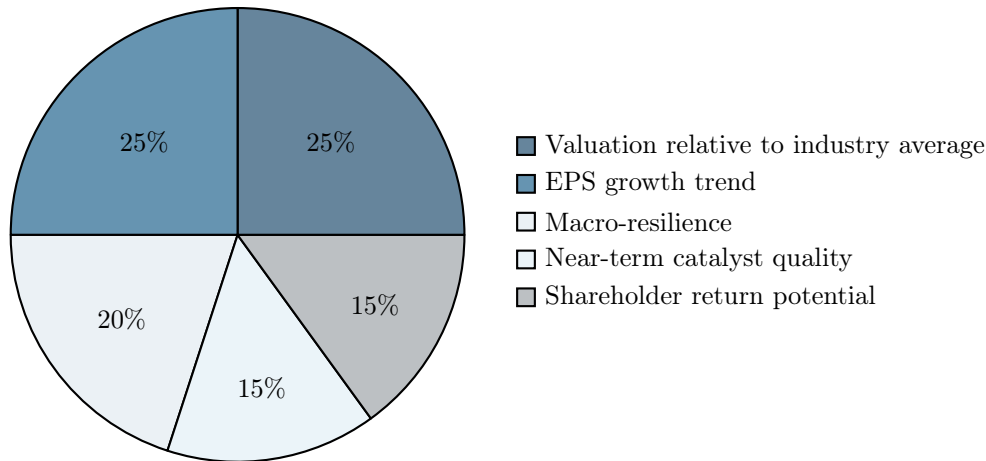


Figure 1. Scoring criteria weights

The scoring system is the following: a score of 5 for valuation indicates significant undervaluation at least 15% more so than industry peers; a score of 5 for resilience implies the firm benefits actively from conflict rather than merely lacking direct exposure. Total scores indicate signal classification as Strong Conviction (3.5), Consider (2.5-3.49), or Exclude (<2.5). Fundamental data is obtained from Bloomberg, Koyfin, and Simply Wall St. All portfolio holdings undergo stress testing under two macroeconomic scenarios: normalization of Hormuz Strait by 2026, and persistent stagflationary shock.

Portfolio Construction & Sizing

Scores are mapped to relative weights with respect to the benchmark according to a well-defined methodology: Strong Conviction equities are allocated their benchmark weight plus 1-2%; Consider stocks get benchmark weight; and Exclude stocks have zero weight or are underweight by 1-2%. At the end of the process, we ended up with 30 stocks, which were then submitted to the minimum variance optimiser. It uses 252-day lookback and Ledoit-Wolf shrinkage to construct an optimal solution under the following constraints: minimum position weight of 1% per security, maximum position weight of 15% per security, maximum sector weight of 25%, and trading period of 21 days.

Macroeconomic & Market Context

Global Macro Overview

Key Risk: The escalation of the ECB rate hike cycle past an increase of 25 basis points presents a significant risk of valuation compression for growth-focused European equities. Any extended disruption from the Hormuz Strait blockade would worsen the stagflation risk environment.

Relevant Market Regime

Table 2. Key macro indicators

Indicator	Current	6M Ago	YoY Change
GDP Growth	0.6%	0.2%	+1.4%
CPI	2.6%	2.1%	+2.6%
Policy Rate	2.0%	2.0%	-25bps
10Y Yield	3.1% p.a.	2.8% p.a.	+20bps
USD/EUR	1.1	1.2	+3.3%

Source: Bloomberg / ECB / Federal Reserve / Eurostat / BLS. Reference date: 24 April 2026.

Macro Chart

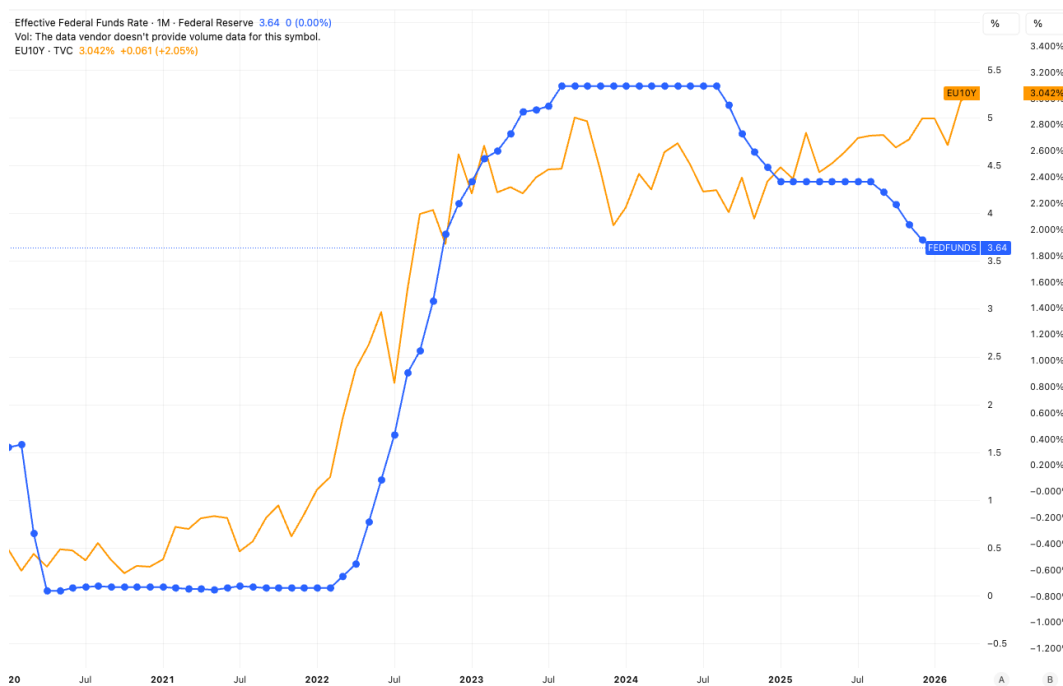


Figure 2. FEDFUNDS and European Bonds 10Y Chart

Source: TradingView

Macro Implications for the Strategy

Overall, the economic environment is likely to remain relatively unattractive for long term growth stocks, but well suited to the fund's minimum variance approach, since during periods of uncertainty and high interest rates, low volatility strategies have historically provided better protection than market-cap weighted indexes.

At the same time, the current energy crisis benefits industries that can take advantage of higher commodity prices or current geopolitical trends, especially the Energy and Industrials & Defence sectors, while putting pressure on profit margins in energy-intensive sectors such as Chemicals and Basic Materials.

If the ECB increases interest rates, this would reduce valuations for highly valued long-term growth stocks, which supports the fund's strategy of avoiding expensive stocks and investing in quality and value stocks trading at or below industry averages, particularly in the Commercial Services and Construction sectors, where valuations already reflect current expectations. The Consumer Discretionary and Luxury sectors will likely continue to face pressure until there are clearer signs of recovery in Chinese consumer spending and household incomes in Europe.

Any further strengthening of the euro would negatively affect major exporters, especially in France and Germany, which are not part of our strategy. Defensive sectors such as Insurance, Telecommunications, and Consumer Staples are likely to remain attractive because of ongoing uncertainty and their stable income streams.

Portfolio Composition & Statistics

Ex Ante Statistics Overview

Exp. Ann. Return	Portfolio Volatility	Sharpe Ratio	Daily VaR (95%)
+12.54%	7.65%	1.64	-0.68%
Skewness	Kurtosis	Nr of Assets	Cash Allocation
-0.56%	3.35	30	5.00%

Source: Internal estimates. 252-day lookback. Data as of 24 April 2026.

Hypothetical portfolio

All allocations, holdings, and weightings represent the simulated fund design chosen by the student team. No real assets have been purchased.

Sector / Factor Exposure

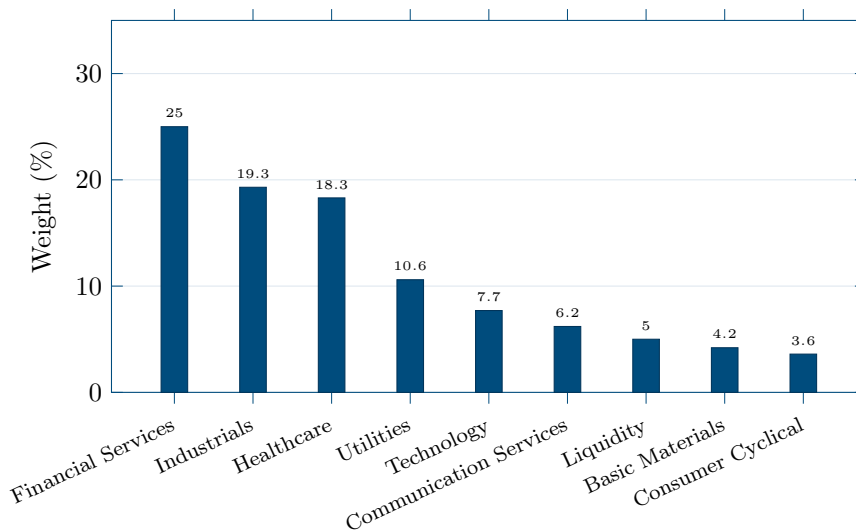


Figure 3. Sector exposure (% of portfolio)

Source: Fund factsheet. Data as of 24 April 2026.

Geographic Breakdown

Table 3. Portfolio by geography

Region	Weight
Switzerland	22.01%
Spain	12.64%
UK	19.11%
France	10.60%
Finland	11.80%
Norway	5.18%
Belgium	2.74%
Germany	3.61%
Poland	2.04%
Netherlands	1.25%
Denmark	1.00%
Austria	1.00%
Italy	1.00%
Cash	5.00%

Source: Fund factsheet. Data as of 24 April 2026.

Top Holdings

Table 4. Top 10 positions

#	Holdings	Sector	Weight	Returns
1	Naturgy Energy Group S.A.	Utilities	10.64%	1.40%
2	Galenica AG	Healthcare	9.45%	1.28%
3	Getlink SE	Industrials	7.53%	-0.46%
4	Admiral Group plc	Financial Services	7.09%	0.06%
5	Logitech International S.A.	Technology	6.47%	-2.74%
6	Novartis AG	Healthcare	6.09%	0.61%
7	Sampo plc	Financial Services	4.57%	1.43%
8	Rio Tinto plc	Basic Materials	4.23%	-0.46%
9	Elisa Oyj	Communication Services	3.60%	-0.53%
10	Games Workshop Group plc	Consumer Cyclical	3.60%	-0.05%

Source: Fund factsheet. Returns as of 23 April 2026.

Table 5. Benchmark Top 10 positions

#	Holdings	Sector	Weight
1	ASML Holding NV	Technology	3.57%
2	AstraZeneca PLC	Health Care	2.14%
3	Novartis AG	Health Care	2.04%
4	HSBC Holdings Plc	Financials	1.97%
5	Roche Holding AG	Health Care	1.95%
6	Shell Plc	Energy	1.91%
7	Nestlé SA	Consumer Staples	1.80%
8	TotalEnergies SE	Energy	1.46%
9	Siemens AG	Industrials	1.27%
10	SAP SE	Technology	1.23%

Source: Just ETF.

Performance Analysis

Absolute & Relative Performance

Simulated data

All figures in this section are backtested or statistically simulated. See Preamble and Appendix B.

Table 6. Performance summary vs. benchmark

Series	1M	3M	YTD	12M
Fund (net of fees)	4.92%	3.86%	6.05%	28.90%
Benchmark	6.49%	0.96%	3.61%	18.85%
Active return (net)	-1.56%	+2.90%	+2.44%	+10.04%

Source: Fund factsheet / Yahoo Finance / Manager report. Returns in base currency.

Historical Performance Chart



Figure 4. Historical performance comparison Fund (orange line) vs. Benchmark (blue line)

Source: Yahoo Finance / Fund Factsheet

Performance Commentary

The fund performed strongly, delivering a 12-month return of 28.90% compared to a benchmark return of 18.85%, outperforming the index by +10.04% over the period. Minimum-variance portfolio management showed its defensive strengths by reducing portfolio volatility (13.96% compared to 15.35%) and lowering beta to 0.85, making the portfolio more resilient under stress market conditions. On the upside, Naturgy Energy Group (Utilities, +1.40%) and Sampo (Financials, +1.43%) performed well due to the energy price hike tailwind and defensive income properties that are valued in the current macro environment. Galenica (Healthcare, +1.28%) and Novartis (+0.61%) contributed positively as they continue to grow, aligning with the fund’s overweight position in defensive Healthcare sectors. Negative contributors include Logitech (-2.74%) due to weakening hardware sales demand related to a decline in consumer spending. Elisa Oyj (-0.53%) and Getlink (-0.46%) detracted due to missing short-term catalysts in the defined reference period. The one-month active return

of -1.56% was attributed to the benchmark's momentum increase in April 2026, which is a phase where high-beta stocks outperform the fund's low-risk orientation.

Risk Analysis

Key Risk Metrics

Table 7. Risk dashboard

Metric	Current	Benchmark / Limit	Status
Annualised Volatility	13.96%	Limit: 15.35%	OK
Ex-ante Tracking Error	5.36%	Limit: 10%	OK
Sharpe Ratio (net, ann.)	0.95	Peer: 0.40	OK
Max Drawdown	-34.25%	Limit: -35.55%	OK
VaR (95%, 1-day)	-1.26%	Limit: -1.53%	OK
Portfolio Beta	0.85	Target: < 1	OK

Source: Internal estimates and calculations. Data as of 24 April 2026.

Simulated data

Risk metrics in this section are derived from backtested simulation on historical data, not from live fund management. See Preamble.

Drawdown Profile

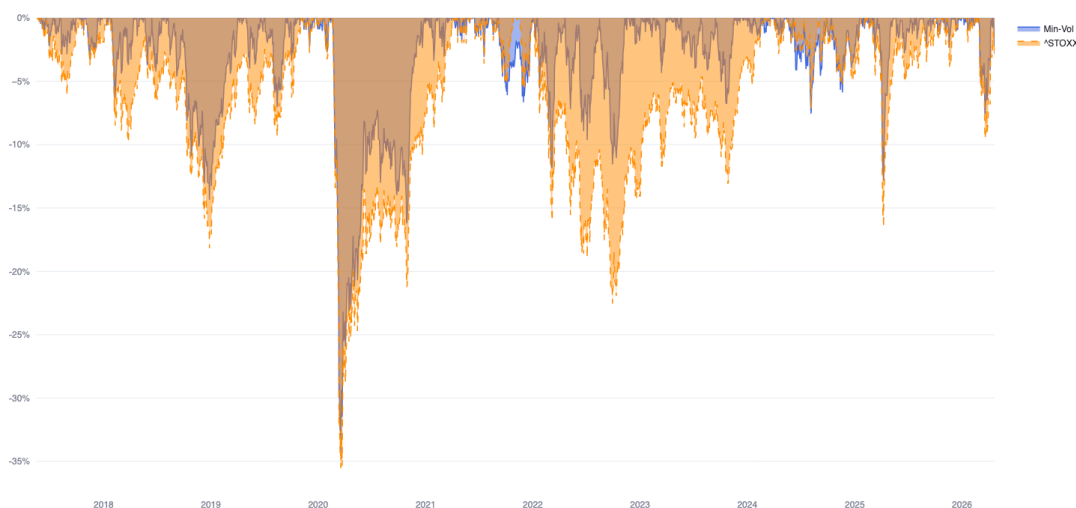


Figure 5. Historical Drawdown Chart

Source: Fund Factsheet

Scenario Analysis & Stress Tests

Table 8. Stress test scenarios

Scenario	Fund Impact	Benchmark Impact	Alpha
COVID Crash 2020	-14.19%	-17.41%	+3.22%
Rate Hike Shock 2022	3.75%	-13.29%	+17.04%

Source: Figures are based on past performance computed with VectorBT in Python.

Methodology note.

Stress tests are computed using a historical replay methodology. Once specific time periods are set, the proprietary program pulls out the portfolio and benchmark performance data on that exact window of time for the realised return, alpha, and volatility drawdowns. It does not make any assumptions about shocks to the parameters. The simulated shocks are considered without hedges. While the program simulates the performance of a portfolio of stocks with the objective of minimal variance along with cash, it does not take into account hedges such as shorts, options, and futures in its model. It should be pointed out, though, that the return generated by the portfolio under the stress scenario takes account of transaction costs.

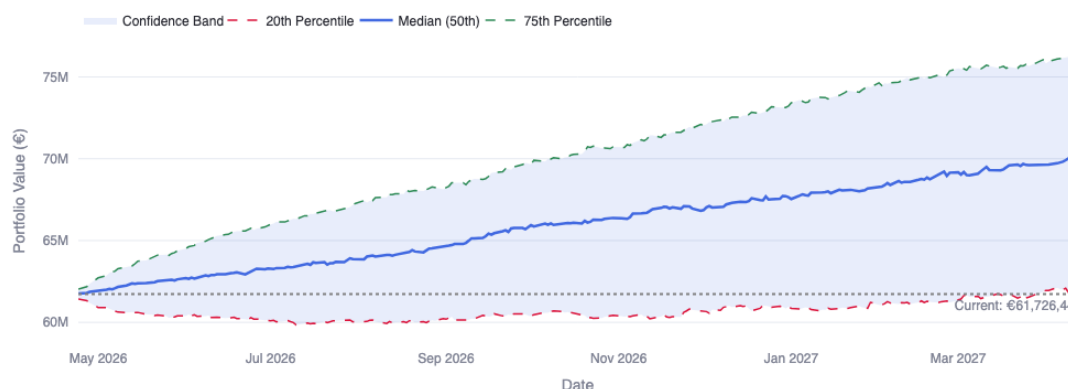


Figure 6. Monte Carlo Simulation, 252 Trading Days, 1,000 Simulations

Source: Fund Factsheet

Table 9. Scenario return matrix

Scenario	Key Assumption	Prob.	Ann. Return Est.
Bull	ECB rate cycle peaks; Hormuz normalises; Broad EPS upgrades	25%	23.38%
Base	ECB normalises gradually; Energy disruption contained; Moderate growth	65%	13.74%
Bear	ECB hikes > 25bps; Prolonged Hormuz closure; Stagflation and Recession	20%	0.10%
Expected Value	Probability-weighted composite	100%	+14.80%

Source: Team analysis. Probability-weighted over 1 year.

Key Risks & Mitigants

Table 10. Risk register

#	Risk Factor	Prob.	Impact	Description	Mitigant
1	Geopolitical tail risk	M	H	Strait of Hormuz conflict, stagflationary pressure and weakening Eurozone equity valuations.	Defensive Utilities and Healthcare exposure, 0.85 beta, provide downside protection.
2	ECB over-tightening	M	H	Multiple ECB rate hikes, increasing discount rates and pressuring portfolio valuations.	Minimum-variance strategy limits exposure to high-beta, rate-sensitive stocks.
3	Concentration & Drawdown risk	M	M	High concentration in the top holdings and sectors.	Portfolio constraints, sector caps, and 21-day rebalancing.

Source: Team analysis. Prob. = Probability; H = High, M = Medium, L = Low.

Risk Summary

There are two key exogenous macroeconomic variables, the ones that affect risk characteristics of the investment portfolio – interest rates set by the ECB and the timing when the conflict at the Strait of Hormuz will be solved. Combined, these two variables determine the spectrum of risks that the investment decision can take – the base case where the return will be +13.74% annually with a probability of 65% and the bear case with +0.10% and probability of 20%. Considering these risks, a return adjusted for probabilities of +14.80% together with the Sharpe ratio of 0.95 compared to 0.40 in the industry indicate that the risks will be properly managed in the scenarios of the base and bull cases. It is worth noting that stress test results were quite illustrative and revealed high tolerance of the investment portfolio to any adverse changes – alpha for COVID-19 crash shock was +3.22% while for interest rates' increase shock in 2022 – +17.04%. The only risk that will make the team reconsider its decision is the case of multiple hikes by the ECB, each of which will worsen portfolio valuation and covariance matrix used as the input data for optimisation.

Table 11. Peer comparison — key metrics

Fund	AUM	YTD	12M	Vol.	Sharpe	Fee
UFS MinVar Fund	€20m	6.05%	28.90%	13.96%	0.95	0.75%
iShares MSCI Eur. Min Vol (MVEU)	€822m	6.13%	11.06%	11.50%	1.09	0.25%
Amundi MSCI Eur. Min Vol (MIVA)	€209m	5.80%	10.50%	11.80%	0.85	0.23%
STOXX Europe 600 (Benchmark)	—	3.61%	18.85%	15.35%	0.40	—
Peer Mean	—	5.97%	10.78%	11.65%	0.87	0.24%

Source: JustETF, BlackRock, Amundi. Data as of 24/04/2026.

Competitive Strengths & Weaknesses

Strengths

- Superior 12M risk-adjusted alpha (+10.04% active return) vs. passive min-vol peers.
- Active stock-picking overlay captures macro themes (energy crisis, defence tailwind) that passive min-vol ETFs cannot exploit.
- Ledoit-Wolf shrinkage combined with TEV penalty produces more stable covariance estimates than standard optimisers.
- Sector weight cap (25%) prevents utility and telecom crowding endemic to unconstrained minimum-variance approaches.

Weaknesses

- Fee of 0.75% p.a. vs. 0.23–0.25% for passive equivalents.
- Higher realised volatility (13.96%) than passive peers (~11.5%), yielding a lower Sharpe ratio despite superior absolute returns.
- Concentrated top-10 positions representing 63.3% of AUM introduces meaningful idiosyncratic single-name risk.
- Small simulated AUM (€20m) limits diversification capacity and liquidity across the full STOXX 600 universe.

Conclusion & Team Recommendation

Academic Analytical Conclusion.

Team's concluding analytical view: **INITIATE COVERAGE.**

Important: this is a student research exercise. These terms are borrowed from sell-side convention for pedagogical purposes only. This conclusion is not investment advice, does not constitute a regulated financial recommendation, and must not be relied upon for any investment decision. See the Preamble and Appendix B for full disclaimers.

Summary of Findings

- **Strategy:** A systematic minimum-variance equity strategy combining quantitative optimisation.
- **Performance:** Strong and consistent simulated track record, delivering 13.10% CAGR and +8.01% outperformance vs benchmark, with improved risk-adjusted returns (Sharpe 0.95 vs 0.40 benchmark).
- **Positioning:** Diversified 30-stock portfolio with strict constraints, though moderately concentrated. Tilted toward defensive and macro-resilient sectors.
- **Valuation:** Current opportunity set is favourable, supported by rotation away from high-multiple growth stocks toward value and quality names aligned with higher-rate macro conditions.
- **Risk:** Attractive risk-return profile with lower beta (0.85) and controlled volatility, but exposed to macro shocks.
- **Competitive:** Outperforms both benchmark and peer average in returns and Sharpe ratio but has a slightly higher volatility than passive minimum-volatility ETFs.

Recommendation Rationale

We recommend initiating coverage due to the fund's ability to produce substantial risk-adjusted gains (+13.10% CAGR) over its benchmark, while maintaining lower volatility. The defensive approach helps protect the portfolio from negative economic influences, such as rising inflation and political turmoil. Scenario analysis shows that the investment approach has high structural robustness and is capable of producing significant alpha on adverse market conditions. High efficiency of the portfolio is shown by its beta and Sharpe ratio coefficients (0.85 and 0.95, respectively).

Monitoring Triggers

Table 12. Conditions that would prompt a recommendation revision

Trigger	Threshold / Condition	Revised View
Performance	12M return underperforms benchmark by >300 bps	Downgrade to Monitor
Risk Deterioration	Volatility >15% or Sharpe <0.70	Downgrade to Monitor
Macro Regime Shift	Sustained low-volatility bull market favouring high-beta equities	Reassess → Monitor
ECB Policy	More than one additional 25bps hike beyond base case	Put Under Review

Source: Team analysis. Next scheduled review: Q2 2026.

Appendix A: Data Sources & Methodology

Table 13. Data sources used in this report

Source	Data Used
Yahoo Finance	Daily price series for all portfolio holdings and ^STOXX benchmark; NAV series used for backtesting and performance attribution
Bloomberg	Macro indicators (GDP, CPI, policy rates, 10Y yields, USD/EUR); peer fund performance and AUM data
Koyfin	Fundamental screening data: EPS growth trends, valuation multiples, FCF yield, dividend history
Simply Wall St	Balance sheet quality scores, shareholder return metrics, and analyst consensus used in the five-factor scoring model
JustETF	Peer ETF factsheets, AUM, TER, and performance data for iShares MVEU and Amundi MIVA
ECB / Eurostat	European macro indicators: GDP growth, CPI, ECB policy rate, 10Y Bund yield
TradingView	FEDFUNDS and European 10Y bond yield chart (Figure 1)
VectorBT (Python)	Portfolio backtesting engine; stress test historical replay; Monte Carlo simulation (1,000 paths, 252 trading days)

Source: Team analysis. All data as of 24 April 2026 unless otherwise noted.

Methodology Notes

- **Returns:** All returns expressed in EUR (base currency), net of the hypothetical 0.75% p.a. management fee unless otherwise stated. Annualised returns use geometric compounding.
- **Risk metrics:** Annualised volatility and ex-ante Tracking Error calculated using a 252-day rolling window of daily log-returns. VaR is parametric at 95% confidence, 1-day horizon, assuming normally distributed returns.
- **Covariance estimation:** Ledoit-Wolf shrinkage applied to the sample covariance matrix over a 252-day lookback window. Rebalancing frequency: 21 trading days.
- **Stress tests:** Computed via historical replay methodology using VectorBT. Portfolio and benchmark returns extracted over the exact stress window without parameter shock assumptions. No hedging instruments (shorts, options, futures) included. Transaction costs applied.
- **Monte Carlo simulation:** 1,000 simulations over 252 trading days. Paths generated using the ex-ante return and covariance estimates from the forward-looking optimiser. Confidence band, 20th, 50th, and 75th percentiles reported.
- **Scoring model:** Five-factor composite score (valuation 25%, EPS growth 25%, macro-resilience 20%, catalyst quality 15%, shareholder return 15%) mapped to Strong Conviction (≥ 3.5), Consider (2.5–3.49), or Exclude (< 2.5).
- **Peer comparison:** Passive peer metrics sourced from JustETF and PortfoliosLab as of April 2026. Sharpe ratios computed using a 0% risk-free rate for comparability.

Appendix B: Full Legal Notice & Disclaimers

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