



QUANTITATIVE RESEARCH REPORT

Portfolio Stress Testing & Risk Analysis

Historical Scenario Analysis of the SEN AM Equity Portfolio

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Introduction

Risk management is a cornerstone of sound portfolio construction. Standard metrics such as variance and the Sharpe ratio describe how a portfolio behaves on average. What they cannot tell you is how it behaves under pressure. When markets seize up, correlations spike, diversification compresses, and losses cluster in ways that no normal-period statistic can anticipate. Stress testing fills this gap. By simulating portfolio performance under specific historical crises, it surfaces vulnerabilities that only become visible when the market is under strain. The goal of this report is not to show how sophisticated our models are. The goal is to generate four concrete answers: which positions cost us the most in a crisis? Where does our diversification actually hold? What is the realistic range of losses we could face? And what portfolio implications emerge as a result?

This report applies that framework to the SEN AM equity portfolio across two historically significant scenarios: the Covid-19 crash of February to March 2020 and the 2022 interest rate shock. These two crises were chosen deliberately because they represent opposite types of stress. Covid-19 was a sudden, broad-based demand collapse that hit every sector at once. The 2022 rate shock was a slow, structural repricing that rewarded some sectors and crushed others based on their interest rate sensitivity. A portfolio that is resilient across both scenarios has genuinely robust construction. One that is resilient in only one reveals a specific, identifiable blind spot. By the end of this report, we can identify which category SEN AM most closely falls into and which structural vulnerabilities deserve the most attention.

Portfolio Composition

The SEN AM portfolio holds 14 equity positions across seven sectors. MilDef Group is the single largest position at 11.9%, followed by Hacksaw at 9.6% and Sweco B at 8.9%. The sector distribution spans seven categories, with Industrials at 20.7%, Technology at 15.5% and Consumer Discretionary at 14.8%. Two sector clusters deserve particular attention before we begin. Technology and Real Estate together represent close to 27% of the portfolio. Both are acutely sensitive to interest rate movements, making them the primary vulnerability in any tightening cycle. Defense and Healthcare together represent around 16%, providing a counter-cyclical anchor that proves critical in both scenarios examined here.

The sector distribution is not just a description of what we hold. It is the primary determinant of how the portfolio responds to different types of stress. A demand shock like Covid-19 hits cyclicals hardest. A rate shock like 2022 targets long-duration assets with precision. Note that MilDef Group commands a significantly larger weight than any other single position. As the stress analysis will show, this concentration works in our favour across both scenarios. But its outsized weight means its behaviour under stress matters more than any other holding, and that warrants careful attention in how we manage it.

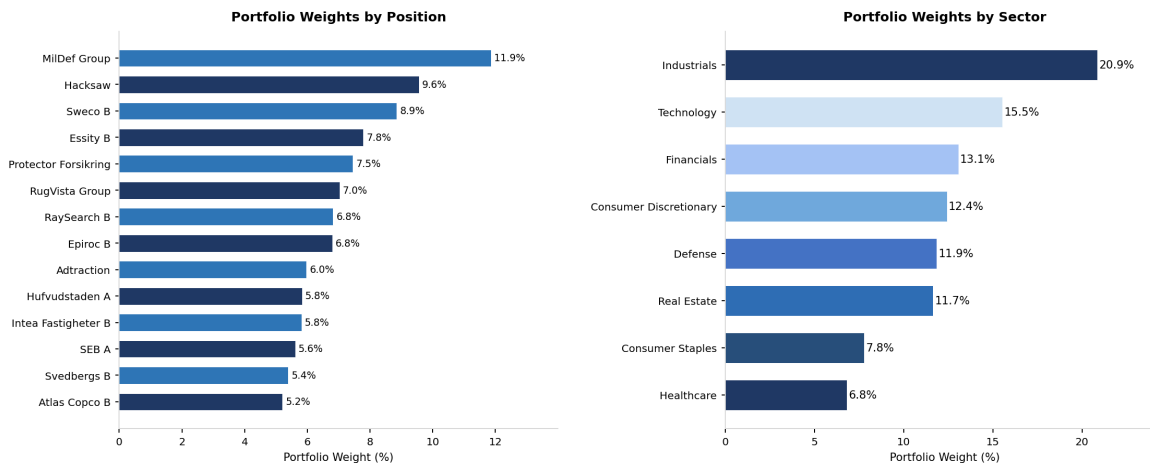


Figure 1: Portfolio weights by position (left) and sector (right). MilDef Group is the largest single position at 11.9%.

Methodology

The two scenarios We apply two historically documented crisis periods to the current portfolio weights using historical simulation: • **Covid-19 Crash (Feb 19 to Mar 23, 2020)**: 23 trading days from peak to trough. OMXSPI fell 34.5%. Tests exposure to a broad, acute demand shock. • **2022 Rate Shock (Jan 3 to Oct 13, 2022)**: Around 200 trading days. OMXSPI fell 33.8%, with sharp divergence between rate-sensitive losers and financial sector winners. Tests structural sensitivity to monetary tightening. Historical simulation applies each period's actual return pattern to today's weights. We are not modelling a hypothetical. We are asking a direct question: if the portfolio had existed in its current form during these crises, what would have happened?

The two risk measures In addition to the scenario analysis, we estimate two tail risk measures using daily returns over 2022 to 2024, a period that includes the rate shock volatility and therefore provides a conservative baseline. • **Value at Risk (VaR)**: Measures the maximum expected daily loss on a given percentage of trading days. On a typical bad day, how much do we lose? • **Conditional Value at Risk (CVaR)**: Measures the average loss on the worst days beyond the VaR threshold. When things are truly bad, what is the average damage? • **Why both matter**: Together they complement the scenario analysis. Scenarios show what a specific crisis looks like. VaR and CVaR describe the distribution of ordinary losses. The most important insight is that they give fundamentally different answers. VaR looks modest. The scenarios look severe. Both are correct.

***Methodological note on MilDef Group and Hacksaw:** Both companies listed on Nasdaq Stockholm in November 2021, after the Covid-19 crash period. No actual price data therefore exists for either position during the February to March 2020 scenario. For MilDef, the Covid-19 return is estimated using the European Aerospace and Defence sector as a proxy, specifically the average performance of comparable listed peers including BAE Systems, Rheinmetall and Saab, which collectively fell roughly 15% during this period. For Hacksaw, a European gaming and technology mid-cap proxy was applied, reflecting a decline of around 30%. Both figures are clearly estimates rather than observed data, and the Covid-19 scenario results for these two positions should be interpreted with that caveat in mind. The 2022 rate shock scenario uses actual sector and peer data for both positions, as both were listed and actively traded throughout that period.*

What Stress Does to Diversification

Here is the uncomfortable truth about diversification: it works exactly when you least need it and fails exactly when you most need it. Under normal market conditions in 2019, the SEN AM portfolio had an average pairwise correlation of 0.16 across its 14 holdings. That is a genuinely low number. It means the positions were largely moving independently of each other, spreading risk effectively. During the Covid-19 crash, that average jumped to 0.39, an increase of 140%. In practice this means that as the crisis deepened, the positions that were supposed to cushion each other instead moved together. SEB fell. RugVista fell. Atlas Copco fell. Epiroc fell. They fell for different fundamental reasons but at the same time, driven by the same force: panic-driven liquidation compressing all risk assets at once. This is not a flaw in the portfolio. It is a structural feature of equity markets during systemic crises, and it affects every diversified equity portfolio in the world.

The correlation matrices below make this visible. In the 2019 matrix on the left, most cells are light, reflecting low pairwise correlations. In the Covid-19 stress matrix on the right, the matrix darkens as correlations converge upward across nearly every pair. Two critical exceptions stand out. MilDef Group shows near-zero or slightly negative stress correlations with the rest of the portfolio. When everything else was falling in a demand-driven panic, defense budgets were untouched. Governments do not cancel defense contracts because of a virus. This makes MilDef a genuine structural hedge, one of the few equity assets that does not join the correlation compression during a systemic shock. Essity B also maintains lower stress correlations than the cyclical majority. Households continue buying hygiene products regardless of what financial markets are doing. **Positions that maintain low stress correlations are worth more to the portfolio than their return alone suggests. MilDef and Essity appear unique within the current portfolio composition in this regard.**

Correlation Structure: Normal vs Stress Period

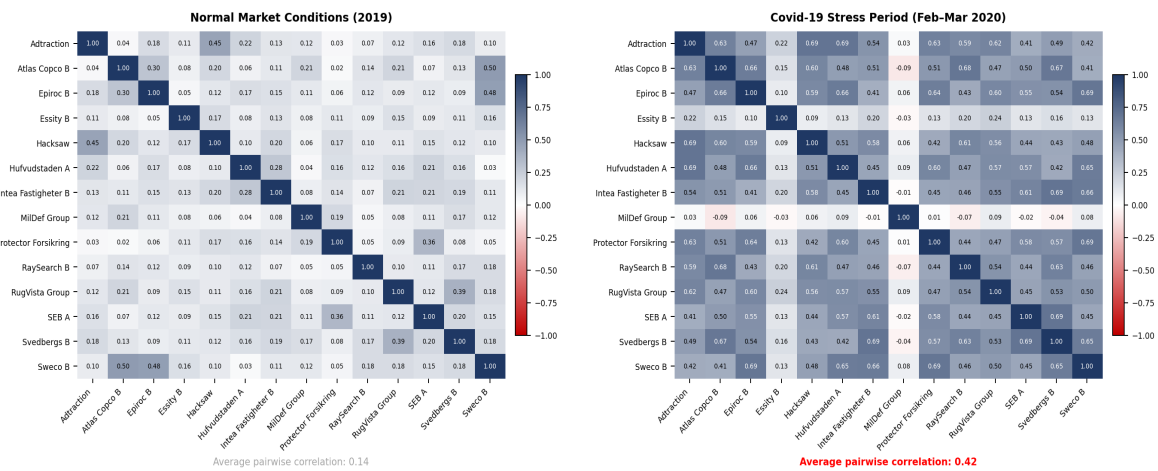


Figure 2: Pairwise correlation matrices under normal conditions (2019, left) and the Covid-19 stress period (right). Average correlation rises from 0.16 to 0.39 during the crisis, compressing diversification precisely when it is most needed.

What the Scenarios Tell Us

Covid-19 Crash: The portfolio held up, but the mechanism matters Under the Covid-19 crash, SEN AM would have declined by around 30.8% against the OMXSPI's 34.5%, an outperformance of 3.8 percentage points. That is a meaningful margin in a crash that hit nearly everything at once. The outperformance did not come from clever sector calls. It came from three positions whose cash flows were structurally disconnected from the economic shock. Essity's consumer staples revenues continued. RaySearch's hospital software contracts ran for years and were not cancelled. MilDef, estimated via a European defence sector proxy given its 2021 listing, would have seen limited impact as defence budgets were largely unaffected by the pandemic. The lesson is not that we got lucky. The lesson is that the portfolio already contains a layer of structural resilience that operates independently of market timing. The question is whether we are being deliberate enough about sizing and maintaining it.

2022 Rate Shock: Where the portfolio truly earned its edge The 2022 scenario is the more revealing of the two because it was not uniform. It sorted winners from losers based on one factor: how much a business's valuation depends on discounting distant future cash flows. SEN AM would have declined by around 24.8% against the OMXSPI's 33.8%, an outperformance of nearly 9 percentage points. This is the largest single piece of evidence that the portfolio's construction is working. The driver of that outperformance was MilDef Group, which delivered around +35% as Russia's invasion of Ukraine triggered a fundamental shift in European defence budgets. One position offset the losses of several others. SEB A and Protector Forsikring also contributed positively as higher rates improved their earnings directly. The losers are equally instructive. Adtraction, Hacksaw, Intea Fastigheter and Hufvudstaden fell sharply because their valuations rest on long-duration cash flows that are mechanically sensitive to rising discount rates. **These four positions, representing roughly 27% of the portfolio, appear to be the portfolio's clearest structural vulnerability in any rate-rising environment.**

Stress Test: Portfolio Performance Under Historical Scenarios

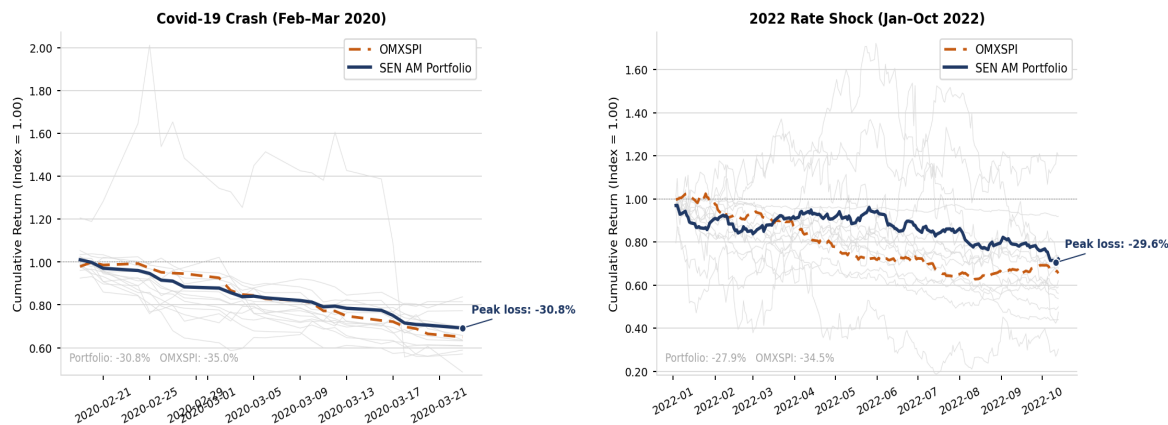


Figure 3: Simulated cumulative portfolio performance under each stress scenario versus the OMXSPI. Individual position paths are shown in grey. Peak loss is marked for each scenario.

Which Positions Drive the Outcomes

The contribution charts below are the most actionable output of this analysis. They answer the question that matters for portfolio management: not how much did the portfolio lose, but which specific positions were responsible and why. **Covid-19 Crash: Four positions account for most of the damage** SEB A, RugVista Group, Atlas Copco B and Epiroc B together account for the majority of the Covid-19 drawdown. What unites them is not sector but underlying risk driver: all four are businesses whose revenues, credit quality or earnings are directly linked to aggregate demand. When demand collapses, they fall together and they fall hard. This concentration of demand risk does not show up in the normal-period correlation matrix, because in normal times these positions move somewhat independently. Only under crisis conditions does the shared underlying driver reveal itself. **If we want to reduce the Covid-type drawdown, reducing combined exposure to this demand-cyclical cluster is the single most effective lever available to us.**

2022 Rate Shock: One position changes everything The 2022 contribution chart tells a fundamentally different story. MilDef Group's contribution of around +3.25% does not sound like much in absolute terms. But against a backdrop where nearly every other position is negative, it is the difference between a portfolio that performed in line with the market and one that outperformed by nearly 9 percentage points. This is what a genuine structural hedge looks like in practice. MilDef does not just generate returns. It generates returns that are negatively correlated with the losses of the rest of the portfolio during the specific type of stress that hurts the rest of the portfolio most. That property is not currently matched by any other position in the portfolio. **MilDef should be evaluated not just as an investment thesis but as a risk management asset. Its position size should reflect both its return potential and its portfolio-level hedging value, which are additive rather than alternatives.**

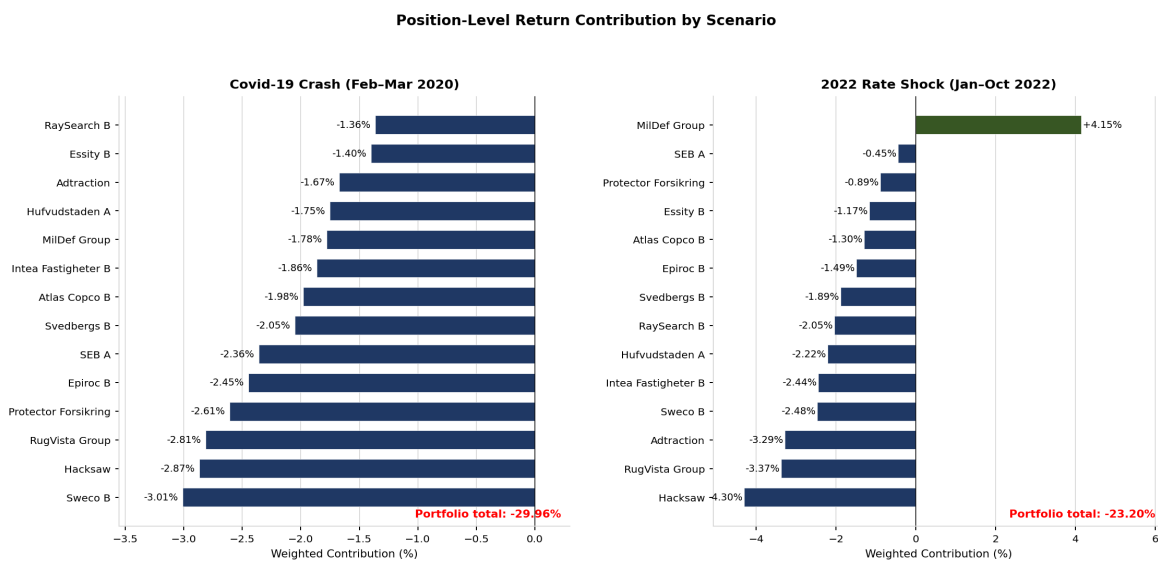


Figure 4: Weighted return contribution per position under each stress scenario. Green bars indicate positive contributions; blue bars show losses. Portfolio totals shown in red.

What VaR and CVaR Add to the Picture

The scenario analysis tells us what a specific, named crisis looks like for this portfolio. VaR and CVaR answer a different question: what does an ordinary bad day look like, and how bad do the truly worst days get? Estimated on daily returns over 2022 to 2024, the results are:

- On 95% of trading days, daily losses do not exceed **0.84%**
- On the worst 5% of days, the average loss is **1.02%**
- On the worst 1% of days, the average loss is **1.38%**

A CVaR of 1.38% at the 99% level means that on the very worst trading days, the expected average daily loss is around 1.4% of total portfolio value. The annualised portfolio volatility of roughly 8.3% is meaningfully lower than the average volatility of individual positions, confirming that diversification does reduce day-to-day risk under normal conditions.

Now compare those numbers to the scenario results. The 99% CVaR of 1.38% per day implies a maximum plausible daily loss of around 1 to 2%. Yet under the Covid-19 crash, the portfolio fell more than 30% across just 23 trading days, implying average daily losses well above the 99% CVaR throughout the entire crash period. This is not a failure of the model. It is an expected feature of stress dynamics. VaR implicitly assumes that historical return dynamics remain broadly stable over time. During crises, that assumption breaks down as volatility and correlations both spike at once. Bad days cluster together in ways the historical distribution does not capture, which is why the gap between VaR estimates and actual losses is not a modelling error but an expected consequence of stress dynamics. **The practical implication: VaR gives a useful picture of normal-period tail risk but systematically underestimates crisis losses. Anyone managing this portfolio using only VaR is looking at the wrong risk measure during the moments that matter most. The scenario analysis is not optional. It is the primary tool.**

Confidence Level	VaR (Historical)	CVaR (Expected Shortfall)
90%	0.65%	0.88%
95%	0.84%	1.02%
99%	1.11%	1.38%

Table 1: Daily VaR and CVaR estimates from historical simulation (2022–2024). Values represent daily portfolio loss as a percentage of total portfolio value.

Value at Risk & Conditional Value at Risk – SEN AM Portfolio

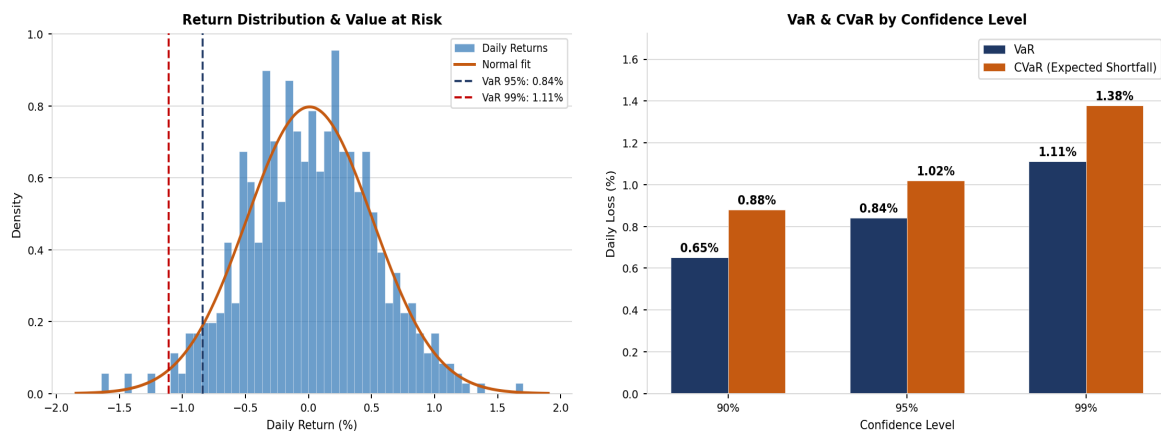


Figure 5: Return distribution with VaR thresholds (left) and VaR/CVaR comparison across confidence levels (right).

How Deep and How Long: Drawdown Under Stress

Maximum drawdown is the risk metric that feels most real to anyone who has managed money through a crisis. It answers the question that return statistics obscure: if you were fully invested at the worst possible moment, how much would you have lost before the recovery began? Under the Covid-19 crash, the portfolio reaches a maximum drawdown of roughly 32%, occurring almost entirely within three weeks. There were no meaningful relief rallies. The path was nearly monotonically downward. No rebalancing decision made during the crash would have materially changed the outcome because the crash was over before anyone could respond. The portfolio's drawdown of 32% compared favourably to the OMXSPI's 38% decline, confirming that the defensive tilts provided genuine protection. But the more important insight is this: **in an acute systemic shock, the correct defence is built before the crisis, not during it.** The positions that protected the portfolio in the Covid-19 crash were in place before February 2020.

2022 Rate Shock: Drawn out, volatile and manageable with active positioning The 2022 rate shock produced a drawdown of close to 29%, but spread over nine months rather than three weeks. This is a fundamentally different management challenge. The slower pace meant there were genuine opportunities to adjust positioning, and the multiple partial recoveries along the way created windows to rebalance. The portfolio's outperformance in 2022 (close to 9 percentage points versus OMXSPI) was larger than in the Covid-19 crash (roughly 3.8 percentage points). This reflects a clear principle: sector-specific shocks reward active positioning more than systemic shocks do. When the market is pricing a specific macro factor, having the right sector exposure matters enormously. When the market is in pure panic mode, sector exposure matters much less. **The implication: rate-sensitive positioning in Technology and Real Estate should be actively monitored relative to our view on the rate environment. Systemic-shock resilience through MilDef and Essity should be maintained as a structural baseline regardless of macro view, because systemic shocks arrive without warning.**

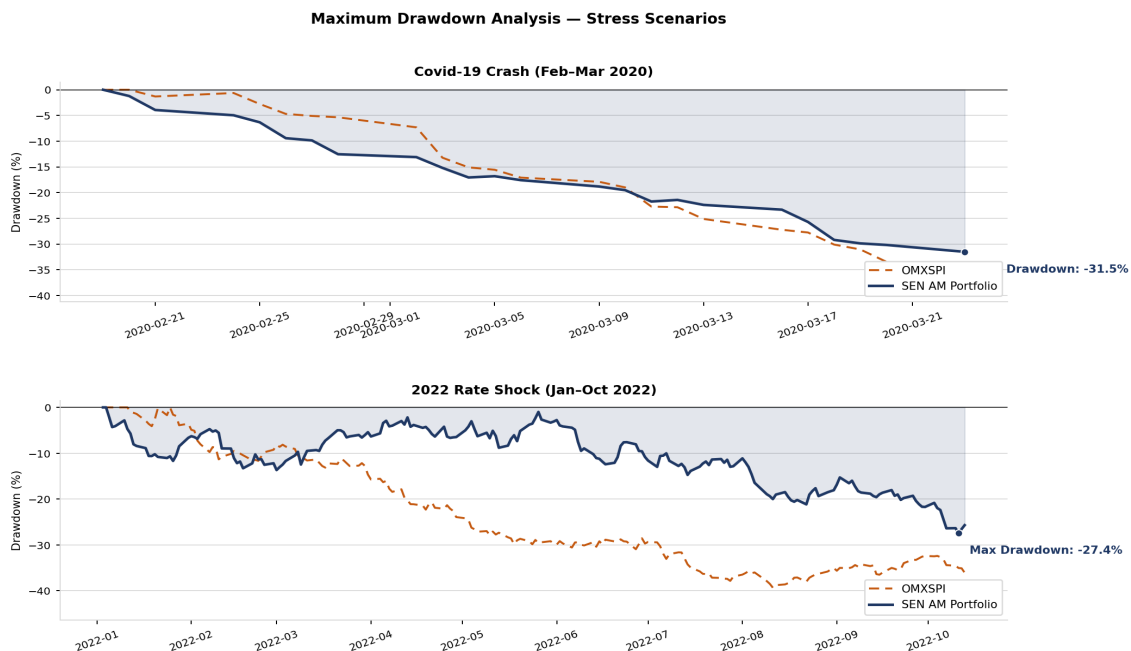


Figure 6: Rolling drawdown of the SEN AM portfolio versus the OMXSPI under each stress scenario. Maximum drawdown points are marked.

What We Do With This

This analysis was designed to produce actionable conclusions. Here is what the data tells us. **What is working and should be preserved** The portfolio has genuine stress resilience. It outperformed the OMXSPI by 3.8 percentage points during a systemic crash and by nearly 9 percentage points during a rate-driven correction. That reflects a portfolio construction that has created meaningful counter-cyclical exposure through MilDef Group, partial defensive anchoring through Essity B, and sector diversification broad enough to absorb single-sector shocks. MilDef Group in particular is doing something unusual for an equity position: it is acting as a structural hedge within the portfolio. Its low stress correlation with every other holding, combined with its strong absolute performance during geopolitical disruption and rate normalisation, makes it categorically different from the rest of the book. We should be explicit about this in how we size and manage it. The correlation analysis also confirms that Essity B and to a lesser extent Protector Forsikring maintain lower stress correlations than the cyclical majority. These positions are providing value that does not fully show up in their return contribution.

What needs attention The analysis identifies two structural vulnerabilities that warrant active monitoring. The first is the rate-sensitive cluster: Adtraction, Hacksaw, Intea Fastigheter and Hufvudstaden together represent roughly 27% of the portfolio. In any environment where central banks are tightening, this cluster will underperform systematically. The mechanism is mathematical: their valuations depend on discounting distant cash flows, and rising rates compress those valuations. The question is not whether this cluster is vulnerable to rate rises but how much of that vulnerability we are prepared to carry. The second is the demand-cyclical cluster: SEB, RugVista, Atlas Copco and Epiroc represent the primary Covid-type vulnerability. In a sudden demand freeze, these four positions fall together for the same underlying reason. Reducing combined exposure to this cluster would directly lower the portfolio's systemic-shock drawdown. **Beyond these adjustments, this analysis creates the foundation for the next generation of quantitative work at SEN AM: factor decomposition to understand what is actually driving returns, dynamic correlation monitoring to track when diversification is eroding in real time, and forward-looking scenario construction to stress test against crises that have not happened yet. The infrastructure is built. The next step is to use it.**

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