

Case study

Buyside – hedge funds

Enhancing Portfolio Risk Decomposition and Surveillance for a Leading US Multi-Strategy Hedge Fund to Minimize Hedging Costs While Limiting Exposures

Background



The client faced challenges in assessing and monitoring the risk of complex portfolios. A US-based multi-strategy hedge fund was keen to develop a robust and customizable risk management system easily accessible to portfolio managers and risk teams

CRISIL solution*



A. Solution construct

- During consultative discussions, it was recommended to build a multifactor model to estimate cross-sectional risk and develop the requisite mechanisms and a custom index
- Additionally, a suggestion was made to develop a single source of truth dashboard to monitor key metrics for portfolio and risk managers across the firm, enabling easy access to *MSCI Barra* models
- To deploy a real-time risk monitoring framework using *BarraOne* resources

B. Execution

- Worked with trading desks across asset classes to identify and define the relevant factors such as value, volatility, momentum, growth, etc
- Combined multifactor models to analyze the overall risk scenario, calculating factor risk contribution using variance-covariance and asset weight matrices
- Assisted in hedging risk factors at different levels and analyzed the performance of baseline vis-à-vis custom index on out-of-sample data
- Collaborated with the *MSCI* team to understand their programmable API to fetch data (rather than the GUI platform). Developed a Python code to get risk and performance attribution data from *Barra API* on a daily, weekly and monthly basis, as needed
- Developed a *Power BI* dashboard to monitor metrics such as return, volatility, tracking error, Z-score, exposure by factor (country, currency, industry and style), contribution to total risk and active risk

Client impact



- Increased granularity of risk factors and surveillance helped reduce the portfolio hedging cost
- A broader benchmarking approach was adopted through the creation of a customized index comparable with the market benchmarks
- Client risk managers could access *Barra* risk and performance attribution data through simple SQL queries, rather than manually using *Barra GUI* or working through API
- Enhanced efficiency within the risk monitoring process and developed SOPs for dashboard maintenance - worked with a daily combined file size of over 1 GB and more than 1,800 risk and performance metrics at an asset-level detail

*CRISIL team is proficient in using Barra, Wolfe, Black-Litterman, BHB and Brinson models

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