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FINCAD Analytics Suite: Powering an investment strategy for a quantitative hedge fund with Python-based derivatives pricers

Client: US-based quantitative hedge fund that invests in a range of cash and derivatives credit instruments, needing a framework to run high frequency backtests of their trading and investment strategies.

The challenge

The fund manager was looking for a highly performative and quantitatively capable analytics library to support the needs of systematic credit strategies, a fixed income specific variation on quantitative trading strategies that has be widely adopted by hedge funds in recent times.

Key to the fund's alpha generation strategy is the ability to run high frequency backtests of their trading and investment ideas, so they can try them out under various scenarios before putting "real money" to work. The backtest environment needed to be easy to use and able to support prototyping development in Python (their preferred programming language).

To achieve a powerful solution that works at scale and is highly performative, the fund sought an easy-to-implement software development kit (SDK) to integrate with various Python data packages and tools.

A priority was that model validation be carried out against live market data before performing any downstream evaluation. To evaluate trading strategies, their solution needed robust approaches to pricing, and to meet strict performance requirements.

The client considered and rejected using an open source library. The main reason was that for this mission-critical functionality they required a tried and tested solution capable of running at high speeds. Moreover, to ensure swift and low cost on-boarding they needed support from a team of market-savvy quants and thorough documentation.

The solution

Following a thorough vendor evaluation process, the fund selected FINCAD Analytics Suite's function-based library of derivatives and bond pricers combined with its user-friendly SDK for Python. FINCAD Analytics Suite from Numerix was selected for extensive analytics capabilities derivatives and bond pricing combined with its user-friendly SDK for Python.

- Extensive modeling capability and coverage of all the fund's fixed income credit instruments and associated derivatives

- Powerful and easy to implement Python SDK with solution samples and integration tools

- Availability of an Excel prototyping environment for efficient initial testing of models and trades

- Ease of scalability, both vertically and horizontally, in either an on-premises or cloud environment

- Extensive documentation, including example workbooks and relevant finance academic papers

- Expert support from a deep bench of financial engineers and quantitative developers

Pre-Sales and Post-Sales support teams facilitated an efficient trial and testing period, followed by a quick and low cost on-boarding and implementation of the software. The solution is currently being used by a range of quantitative analysts, traders, portfolio managers, and risk professionals.

The Key Differentiator: Scale.
Ease of use for FINCAD SDK (Python)

Pricing the types of cash and derivatives instruments traded by the client was a straightforward exercise. Their real needs – in addition to support and documentation – were seamless integration and functional reliability at scale. The latter was especially important, in particular when it came to coding their trading strategies against FINCAD Analytics Suite's library of pricers. It was also easy to fit into their existing Python-based workflows. This included incorporating existing datasets and Python packages. Finally, the functional nature of our library aided them by making the connections between their test routines and our pricers an effortless exercise.

The Results: Increased Alpha Generation

With FINCAD Analytics Suite's library installed and the traders familiarized with it via documentation and exchanges with the support team, the client quickly got up and running. They first prototyped their strategies in our Excel-based environment, which enabled them to identify winning ideas rapidly and efficiently. For those strategies that showed promise, they then used FINCAD Analytics Suite SDK (Python) to scale up the backtest framework and to incorporate their proprietary trading software and extensive data sets. They have been able to increase alpha generation, while at the same time redeploying their resources to high value-added activities.

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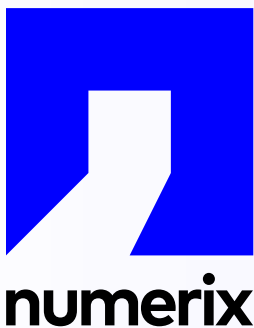
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