

The Advantages of Opturo's Performance and Attribution System

Performance

The daily and linked return of a total portfolio is calculated correctly by many performance systems.

The daily return of a component of a portfolio in the presence of trades is much more difficult:

What is the return of the technology sector (or of a single stock, or of all domestic equities) within a portfolio if, within the day, the sales from other sectors (or issues, or all foreign bonds) funded its purchases?

If they calculate daily component return, most other financial software providers use versions of IRR, which does not roll up properly, or versions of modified Dietz, many of which fail if a component is sold out for a large profit, to obtain component-level results. All these approaches always lead to blatant absurdities for some cases of large cash flows and, due to the necessary continuity of such models, these failures invalidate the results for all cases of cash flows, even when the deleterious effects are too small for intuitive detection.

Opturo's advanced Follow-The-Money performance model calculates the daily weights and returns of components of a portfolio by following the flow of value through all the infinite number of paths that it can take between the instruments of a portfolio during the day. It then sums up their equivalence classes to the issue level, or to the intermediate (e.g. Sector or Region) or portfolio level. Rolling up the corresponding weights and returns for each component of the portfolio creates the first correct performance model for actively traded portfolio constituents. It follows that Opturo's Follow-The-Money approach is uniquely able to correctly calculate the component-level weights and returns required by attribution and to calculate the returns for GIPS Carve-outs that trade intra day with other components of the portfolio.

Performance Attribution

Traditional financial models address attribution as a formal exercise. They decompose active return into formally defined elements that are only vaguely related to economic questions and then assign these terms suggestive names like Sector Allocation, Currency Allocation or Stock Selection.

Opturo, instead, clearly formulates the precise economic questions which decision evaluation intends to address, for example, the effect of Allocation or Selection, and then rigorously calculates their answers.

Other performance systems employ plausible definitions for single period sector allocation and issue selection based upon an arithmetic or geometric version of a Brinson model for evaluating portfolio construction decisions. Some then find they need to include a single-period interaction effect that does not correspond to any investment decision. In addition, many models try to accumulate the arithmetic results for isolated days but then confront residues that they then distribute among their daily results, vitiating any meaning these results previously contained. Others geometrically link attributes in ways that restrict the levels at which attributes can be analyzed and define their attributes in skewed ways in order to fulfill the necessary requirement that they properly accumulate. This causes these geometric models to again lose any connection to the original economic intent of attribution. For example, geometric attribution cannot coherently evaluate, for a number of periods, the issue selection within a single industry whose weight has previously been determined by industry allocation.

Many attribution models also address currency decisions. Some correctly take to heart the insight of Karnosky and Singer who, in 1994, were the first to make the point that any valid investment decision must actually be able to be instantiated in a portfolio investment strategy. This requires incorporating local risk free rates in any country/currency decision set. Since Karnosky and Singer only provided a solution for a single-period attribution analysis and only to first order in returns, few have been able to properly generalize their results.

Opturo's attribution system addresses the fullest range of investment decisions, including all those discussed above. However, none of the mentioned or other common cogency problems arises in Opturo's approach to either arithmetic or geometric attribution since Opturo always deliberately constructs each and every attribution value as the exact answer to a well-formed economic question.

Decision Trees

It is often stated that the attribution model employed should be appropriate to the portfolio construction process it addresses. When they address more than one asset class, most other attribution systems provide different attribution models for simple decision processes applied to individual assets, such as bonds, cash and equities. The rest also allow some few rigidly formulated multi-asset class models.

Opturo, on the other hand, offers a unified model applicable to a portfolio containing any set of asset classes. Opturo then goes further and allows the structure of the decision tree that constructs the portfolio to be specified on the fly. Thus, Opturo can address balanced portfolios constructed by any coherent investment process, including equity-like decisions such as stock and capitalization selection to fixed-income duration, convexity and spread decisions. The Opturo system is not restricted to the analysis of portfolios consisting of only certain assets or to those constructed in predetermined ways.

Risk Attribution

Risk characteristics at the portfolio level are offered by most performance and attribution software.

Opturo goes considerably further by providing the contribution of each decision in the bespoke decision tree toward the creation of each risk characteristic. Thus, not only will one have the information ratio or volatility for a portfolio, but along with the degree to which each decision contributed to the active return of your portfolio, you will see the amount that same decision contributed to the creation of the information ratio or active volatility of your portfolio. For the first time you will be able to do a risk/reward analysis for each decision in the investment process that constructed your portfolio. (Did each particular (type of) actually employed investment decision implemented by the portfolio manager contribute adequate return to justify the corresponding risk it individually created over any given period?) While the few other systems that even attempt risk attribution carry out performance and risk attribution by completely different calculation methodologies, leading to results that are not consistently related. Opturo addresses both the returns and the risk measures in exactly the same economically meaningful manner, making Opturo's risk/reward decision analysis uniquely internally consistent and, thus, a truly reliable and robust decision evaluation.

Implementation

Opturo has developed a unique platform (**VIA**) to offer rapid deployment capability in all its products. The implementation of its systems takes weeks instead of the months or years needed for alternative solutions. This provides a client with quick ROI. Below is a brief overview of how the Opturo solution differentiates itself in terms of options for quick and seamless implementation:

- ❖ The systems can run in two different modes:
 - Transaction Mode, where daily opening positions are calculated from trades,
 - Holdings-based (trade-inclusive) Mode, where daily opening positions are imported.
- ❖ Open system design:
 - Flexible and Customizable,
 - Rapid Deployment,
 - Integrates seamlessly into an existing platform.
- ❖ Two alternative platforms offering Performance and Attribution:
 - **ODIN**: Best-of-breed, comprehensive, low latency state-of-the-art web-based solution with industry-first implementation of time-series visualization in a performance and attribution system with in-depth analysis. Provides the fullest valid and visually accessible investment information.
 - **VIA**: Industry-first Plug and Play Performance and Attribution Solution. Using this solution, the system can be quickly configured to obtain data from multiple data sources for analysis. For instance, holdings or transaction data can reside in text or Excel and the market data, benchmark holdings and corporate actions can reside in a separate relational database. The system will import, scrub, transform and analyze (performance and attribution) on the fly without creating additional databases. Provides reliable results with the quickest implementation.