

Operational Efficiency and Portfolio Performance: How Improved Operating Quality Helps Spur Portfolio Growth

Is there a link between operational effectiveness and portfolio performance? This article shifts the focus from the tactical operating level to the more strategic one of how operational efficiency contributes directly to portfolio performance. With analytics to help clarify how a firm can leverage operations to better manage investments, we gauge the importance of a state-of-the-art technology environment.



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Does the quality of investment operations impact portfolio performance? And if so, how? These are obvious but perhaps seldom asked questions by a firm's executive management. On-going research across a spectrum of industries increasingly demonstrates that

- controlling the vast, ever-growing store of enterprise data, and
- extracting competitive advantage through analytics

can yield productivity and profit gains that are 5-6% higher than other companies in a given peer group.¹ In the investment management industry, that edge translates into anywhere between

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51-242 basis points (bps) of inherent alpha retained by minimizing implementation shortfalls arising from suboptimal investment operations.²

ESTABLISHING THE EMPIRICAL EVIDENCE

Intuitively, the efficacy of investment operations (i.e. the activities conducted by or on behalf of an asset manager to translate an investment thesis into a working portfolio) must have a significant bearing on how efficiently the alpha from any given strategy can express itself in a portfolio's returns.

For example, high rates of growth in assets under management (AuM) reflect periods where a firm's investment operations typically become stressed and less efficient. New cash needs to be put to work quickly, requiring forays into new markets and new securities, with perhaps new counterparties in other geographies. There will also be demands to comply with additional regulations, plus more effort expended on client management and reporting requirements. As a result, many studies show that portfolio performance sags or lags its peers during these periods.^{3 4}

LINKING INVESTMENT OPERATIONS AND PORTFOLIO PERFORMANCE

Tracing the linkage between the quality of investment operations and hitting target excess returns from portfolio strategies needs a methodical framework for identifying and measuring firm-specific

operational factors that contribute to portfolio implementation shortfalls.⁵

The approach we developed at *forward look, inc.* evaluates all the facets of a firm's investment operations. We go beyond the prevailing notion fostered by transaction cost analysis (TCA) that trading (and the effect of commissions and market impact) is the dominant driver of suboptimal portfolio performance. Our more inclusive perspective encompasses an array of firm-specific activities and industry-wide interactions such as:

- compiling quality research information and reference data
- order management workflows
- compliance (both pre- and post-trade)
- securities locates (for borrowing and lending)
- cash and collateral management
- order execution
- trade management
- (prime) broker communication
- custodian messaging
- portfolio and fund accounting entries
- reconciliation (across cash, holdings and transactions)
- settlement

RESEARCH METHODOLOGY ADOPTED

Our research yielded 61 sample portfolios from 14 investment management firms drawn from a population of 158 portfolios across 21 asset managers. The samples date from October 1999 to August 2009 and span a range of bull

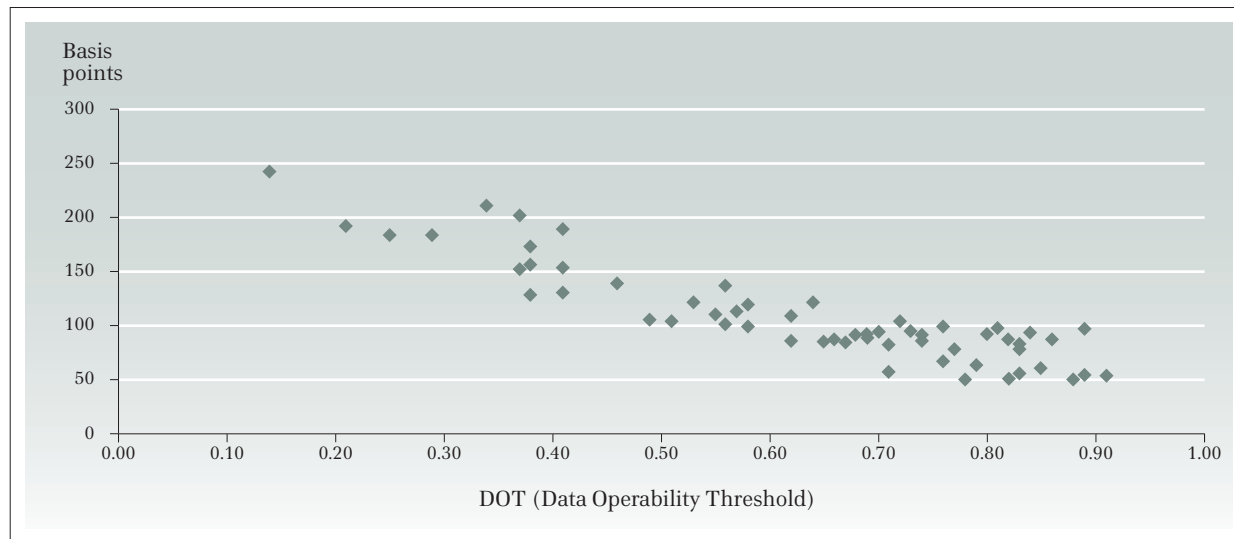


Figure 1. Performance improvements (in bps relative to applicable benchmarks – gross of fees) versus concurrent DOT values. The lower the DOT value, the higher the gains in portfolio performance ($r^2 = -0.89$).

and bear markets across varying volatility regimes. We analyzed more than 122 million electronic records across the sampled portfolios. The samples reflect a wide spectrum of strategies, asset classes, fund structures, geographies, currencies, and portfolio market values ranging from US\$83 million to US\$1.2 billion in AuM.

We systematically sampled transactions, database records, and other electronic entries that flow within the firm and with its counterparties. Examples included reference data inputs (e.g. securities attributes), trade lists, compliance rules, transaction histories (e.g. orders, cancels and fills from FIX message logs), trade summaries (e.g. reconciliation records per SWIFT messages) and various settlement records (e.g. corporate action notices).

From these samples, we then measured the data operability threshold (DOT) metric. As information flows from the front to the back office, to the firm's counterparties and industry utilities, then back to the firm, DOT quantifies the effort needed to accurately move information so that systems (as well as people) can act on that information in good time.

DOT conveys a detailed picture of portfolio activity that clarifies where alpha is being lost in the investment operations workflow. Our 2011 study demonstrated that adjusting investment operation workflows to minimize DOT (i.e. reduce information latency firm-wide) generates material gains in portfolio performance ranging from 51-242 bps as shown in Figure 1.

GLOBAL FUND CASE STUDY

In 2012, we tested the knowledge gleaned from our research on an international asset manager's portfolio. It was a

global multi-strategy fund running over US\$800 million, spanning all asset classes (listed and OTC), and measured against a blended benchmark (an HFRI index and a Treasury bill spread).

Historically, the portfolio's performance profile was inconsistent—having bounced repeatedly across the second and third quartiles versus its peers. Despite strategies with clear-cut and defensible sources of alpha and a well-respected back office, there was no 'smoking gun' that could explain why the portfolio was just an average product.

We analyzed the firm's investment operations, with particular attention to the information flows for that problem portfolio. We examined several million records from the firm's logs including FIX and SWIFT messages, file transfers, and database entries in order to establish the DOT metric associated with the portfolio. Our objective was to better understand where in the firm's workflows the implementation shortfalls would be most evident.

Insights

Our results showed that these implementation shortfalls arose primarily from suboptimal management of cash (and cash equivalents). These inefficiencies resulted in asset purchases and disposals that were suboptimally timed (leading to periodic spikes in opportunity costs manifested in an analysis of their TCA reports).

In effect, inopportune information for the portfolio managers relating to cash availability was a major constraint on how well the alpha embedded in their strategies could be retained through subsequent portfolio maintenance ac-

tivities, such as implementing hedges, positioning collateral, rebalancing, client withdrawals, re-investment flows, etc.

Outcomes

Remediation options were evaluated by applying analytical techniques (notably classical max-flow analysis from the operations research field) to a graph data model that represented the firm's cash management workflows. We simulated the volume and rate of information flows that could optimally support cash management activities within the firm and with its counterparties (e.g. variation margin reporting, prime broker interactions). As a result, the firm implemented specific changes to cash management processes that enabled more alpha to be retained over the lifespan of the portfolio's strategies – yielding a 53 bps gain at the end of the project.

Figure 2 shows a 'before' and 'after' snapshot of performance improvements (in bps) versus concurrent improvements in DOT. There were no other changes imposed other than the cash management revisions. All other observable investment and operational factors (e.g. strategies, styles, exposures, concentration, asset classes, geographies, attribution methodology, benchmarks, portfolio managers, brokers, administrators, custodians, systems, or other workflows) remained constant – except the one operational change associated with cash management.

ANALYTICS IN INVESTMENT OPERATIONS

For the study, analytics were applied to identify the source(s) of portfolio performance degradation and pathways for resolution. To benefit fully from the potential of analytics, the firm needed to ensure that it had a state-of-the-art tech-

- 1 McAfee, Andrew and Brynjolfsson, Erik: 'Big Data: The Management Revolution', *Harvard Business Review*, October 2012, Vol. 90, No. 10, pp. 60-68.
- 2 Jovellanos, Chito: 'The Impact of Investment Operations on Portfolio Performance', *The Journal of Investing*, Fall 2011, Vol. 20, No. 3, pp. 40-52.
- 3 Christopherson, Jon A., Ding, Zhuanxin and Greenwood, Paul: 'The Perils of Success', *The Journal of Portfolio Management*, Winter 2002, Vol. 28, No. 2, pp. 41-53.
- 4 Xiong, James, Idzorek, Thomas M., Chen, Peng and Ibbotson, Roger G.: 'Impact of Size and Flows on Performance for Funds of Hedge Funds', *The Journal of Portfolio Management*, Winter 2009, Vol. 35, No. 2, pp. 118-130.
- 5 Perold, André F.: 'The Implementation Shortfall: Paper versus Reality', *The Journal of Portfolio Management*, Spring 1988, Vol. 14, No. 3, pp. 4-9.

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nology environment. Only with a robust platform and organization in place could firm-wide information be leveraged to support improved portfolio performance.

State-of-the-art does not equate to the latest and the greatest, nor to large capital expenditures. State-of-the-art reflects an integrated operational environment that can efficiently manage and exploit data already (or nearly) at hand. In over half the cases we worked with, creating a state-of-the-art environment meant decommissioning ad-hoc workflows and the associated technologies. In doing so, the firms eliminated needless complexity that had been accreting over the years.

In this case study, a key precursor was enabling a unified view of the firm’s data. The analysis and implementation would have completed faster (with benefits accruing in weeks rather than months) if our client firm had had a centralized system rather than a constellation of satellite platforms (e.g. foreign trades separate from domestic transactions, and distinct systems for fixed income versus OTC derivatives).

This unified view does not necessarily imply a single physical repository (though that would be a step in the right

direction). Rather, it refers to logical views into the firm’s data, as exemplified in the concept of the investment book of record (IBOR) – a consolidated data management framework that satisfies concurrent front- and back-office information needs.⁶

At a more granular level, a state-of-the-art platform facilitates modeling approaches reminiscent of those described by Challenger Limited in the January 2013 edition of this Journal.⁷ In our case study, we found it productive to abstract and represent the features of the securities the firm transacted purely as a set of cash flows.

If this capability had been readily implementable within the framework of our client firm’s investment systems (e.g. by having a security master that captures all the key structures and attributes of tradable instruments), the analysis and its outcomes would have also completed much faster – with benefits accruing sooner.

READY ACCESS AND RIGHT SKILLS

As we have seen in the case study, one of the key capabilities of a state-of-the-art environment must include facilities for

ready access to and ‘experimentation’ with the underlying data in the system in order to:

- continually identify and remedy inefficiencies in investment operations (e.g. when coping with episodic spikes in rapid AuM growth from major new clients);
- prioritize potential performance gains contingent on ROI (e.g. as a way to more rationally sequence implementations relative to the availability of people and funding).

The case study, backed up by the research we undertook earlier, clearly showed there is a direct link between operational efficiency and portfolio performance. A state-of-the-art technology environment helps to ensure the firm leverages its operations to improve its investment management capabilities.

Lastly, the most important element of an analytics-aware investment operation is to have the right skill sets in place. A firm needs people who know, not just how to generate these analytics, but more importantly, how to apply the outcomes to meet the strategic goal of durable portfolio performance.

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forward look, inc.

forward look, inc. is a Boston and San Francisco based advisory firm that enables investment managers to systematically improve portfolio performance by minimizing implementation shortfalls stemming from suboptimal investment operations. It works exclusively with asset managers and plan sponsors with AuM ranging from US\$5 billion to over US\$500 billion.

⁶ Schröter, Marc: ‘The investment book of record: one version of truth from front to back office’, *Journal of Applied IT and Investment Management*, January 2013, pp. 16-18.

⁷ Mackaway, David: ‘Case Study, ‘Challenger Limited: award-winning growth management’, *Journal of Applied IT and Investment Management*, January 2013, pp. 27-29.

Figure 2. Example of observed performance improvements gauged in bps (relative to applicable benchmarks – gross of fees) and alignment with DOT changes. Main contributor to alpha retention was from operational improvements related to cash management. Dark blue lines indicate pre-remediation DOT state. Light blue lines show post-remediation improvements in DOT. Shorter lines are better.

