

The Missing Link: Operations Improvements Enhance Portfolio Performance

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The coming decade will be a difficult one for institutional asset management. A vastly more crowded market for investment and trading ideas, more constraints on leverage, demands for greater transparency, changing compliance rules and more risk-averse investors will ensure that the heady days of relatively easy alpha and benchmark-beating strategies will be much harder to sustain.

Will this be the “new normal”? The emerging consensus is best expressed by Blackstone Group cofounder Pete Peterson (in a December 2009 McKinsey interview), who sees “the center of gravity of the business shifting from financial engineering to operational improvements.”

Citi Investor Services has been at the nexus of investment operations for several decades. In our ongoing dialogues with investment managers, firms have consistently expressed the need to better understand how operational efficiency contributes directly to portfolio performance. Although they have seen how outsourcing has reduced costs and engendered workflow effectiveness at their firms, the direct link between operations quality and portfolio performance has so far been elusive.

This definitive analysis demonstrates how improved investment operations contribute anywhere from 50 to 250 basis points (bps) in realized portfolio performance. Moreover, we show the relative contributions of each of a number of components of investment operations to overall performance alpha, and discuss how investment managers can best improve their operational capabilities in support of alpha enhancement, regardless of the company’s operating model – be they traditional 40 Act complexes, retail SMA managers, institutional managers or alternative investment firms. We conclude with insights drawn from Citi’s deep experience in the delivery of Business Processing Outsourcing (BPO) services to investment managers.

A 360° View of Operational Quality

Andre Perold’s seminal work related to implementation shortfalls (“The Implementation Shortfall: Paper Versus Reality,” *Journal of Portfolio Management*, 14(1): 4-9, 1988), coupled with more recent work by Ananth Madhavan while at Barclays Global Investors (“The Value of Transaction Cost Forecasts: Another Source of Alpha,” Working Presentation – Guttman Center for Portfolio Management, University of Vienna, 31 pages, 2006) had clarified a piece of the puzzle as relates to best execution and the impact of opportunity cost on alpha.

Investment operations is, however, a vastly broader arena. “Operations” spans the gamut from

order management, settlement, reconciliation, accounts servicing, securities lending and compliance to trade execution, custodian and prime broker communications and fund accounting. These different yet complementary elements make up the complex web that defines the totality of an investment operation. Intuitively, the quality of all these facets of an operation at an investment manager's firm must support and enable the desired outcome – namely portfolio outperformance of its benchmark.

Rigorous Research – Real-World Results

Alpha stems from a manager's skill, which is expressed through a target portfolio representing their view of assets that will outperform a benchmark. This ideal portfolio, however, needs to be translated into reality, and reality is fraught with implementation issues, such as:

- Incorrect identifier for a security (e.g., an OSI Option symbol)
- Movement of execution price away from the model's parameters
- Exiting from a position in time

- Failure of the Fund Accountant to provide timely instructions to custodians to move investment proceeds into a margin account to enable today's short sales
- Step-out settlement fail causing a position break preventing trading at a critical market opportunity
- Incorrect Corporate Action captured resulting in a large trade error

In seeking to answer the question of how much operational efficiency can contribute to realized investment performance, *forward look, inc.* revisited data from its client engagements spanning Q4 1999 to Q2 2006. As with most client projects, the mandates were expressed in tactical terms (e.g., "we want to streamline our emerging markets operation"), but surprisingly yielded strategic benefit in terms of improvement to the underlying portfolio's performance.

Projects were selected in which only one very specific process was modified (e.g., voluntary corporate actions management) or only one highly focused technology was implemented or retooled (e.g., a reconciliation system). Just as

important, all other elements surrounding these investment manager operations had to have remained constant. This approach provided a form of a *posteriori* control where only the effects from one imputed variable were examined. The data screen resulted in 52 samples (from a population of 138 investment portfolios across 19 asset managers) where all known factors (e.g., style, exposure, concentration, manager[s]) were constant throughout the observation period, except the one operational change that was introduced by the project. Performance attribution data was provided by the investment manager clients (consisting of both holdings- and transactions-based techniques reported at weekly or monthly intervals).

The firms in the study ranged from \$5 - \$100+ billion in AUM, with individual portfolios typically running between \$250 million to \$1.1 billion of managed money. Asset classes included equities [~65%], fixed income [~15%] and listed derivatives. Geographies covered were global (developed [~80%], emerging), and all

sectors were represented, including alternatives. Strategies spanned long-only, long/short and equitization. The minimum sampling period was three contiguous calendar months, with the bulk of the data collection spanning a six- to nine-month window.

Empirical Evidence: 50- to 250-BP Improvement

The investment managers experienced a 50- to 250-basis-point improvement in risk-adjusted performance (annualized, gross of fees) for the underlying portfolios that were affected by the investment manager’s operations initiatives. Effects were

visible generally within six to nine months of project initiation.

Figure 1 provides an overview of the 52 sample portfolios and the measurable improvements in performance after the implementation of a given operational initiative. The cluster center indicates an “average” 119- basis-point improvement within seven months of a project’s initiation. Note that these returns were tracked across extremes of market cycles – both bear (2000 - 2002) and bull (1999 - 2000; 2003 - 2006), and performance improvements were measured relative to the portfolio’s benchmark (not absolute return).

What was the cause of these observed improvements in performance? *forward look’s* hypothesis was that weak information flows (within a firm and with its counterparties) arise from a firm’s operational inefficiencies, and are the precursors to a broad class of implementation shortfalls. Subsequent factor analysis indicated that these shortfalls in the portfolio implementation framework stem from “Information Latency,” i.e., the inability of people and systems to deliver and act on data in a timely manner.

Measured Performance Improvement Across All Operational Initiatives

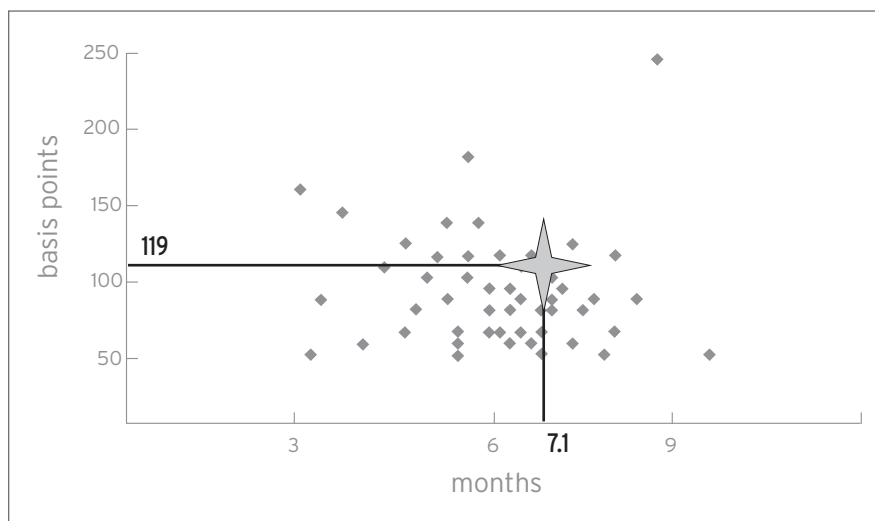


FIGURE 1: Operational improvements yield, on average, a performance improvement of 119 basis-points within 7 months

Measured Performance Improvement Within Operational Categories



FIGURE 2:
Categorizes the various projects into functional initiatives and highlights the range of improvement for each category.

A more detailed breakout of the observed performance upside within the categories in Figure 2 follows:

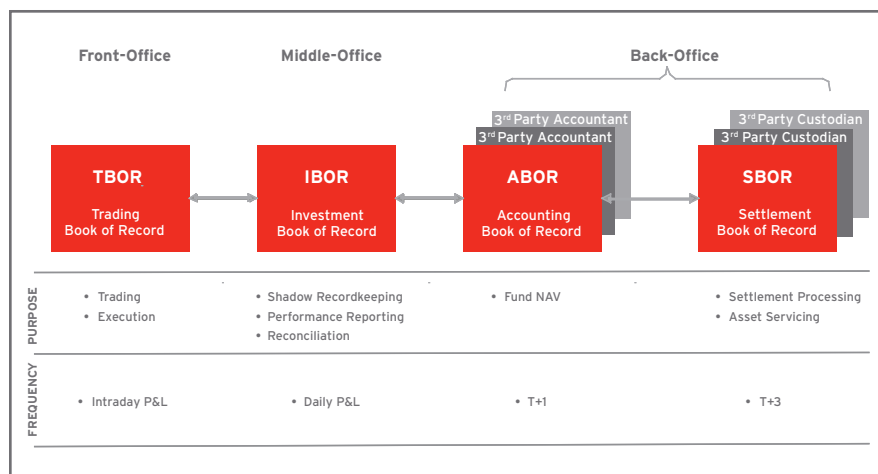
FACTOR CATEGORIES	OUTCOMES	FACTOR CATEGORIES	OUTCOMES
Analytics		Trading	
market data quality	51 - 242	securities located; for shorting	76 - 189
economic macro data quality	64 - 88	trade execution	85 - 173
reference data quality:			
securities counterparties printing	55 - 122	Settlement	
risk modeling framework	55 - 94	automated reconciliation	52 - 106
portfolio trade list optimization	62 - 153	automated FX	50 - 58
Compliance			
client guideline quality	92 - 119		
pretrade restriction checks	83 - 211		
post-trade restriction checks	100 - 202		

When portfolio managers review their investment operations, they routinely discover inefficiencies that create operational friction, which in turn reduces portfolio returns. Size per se is not necessarily the primary drag on performance. Other contributors include inefficient or ill-defined processes, disparities in data and generally poor data quality, mispricing, latency, reconciliation lags, the wide diversity of asset classes managed, disconnected geographies – in a word: complexity.

“Book-of-Record” Framework

Working with the leading asset managers globally, Citi Investor Services has developed a proprietary method that delivers investment operations performance improvements to buy-side firms. This method is based on precise information delivery to the right book of record and the respective interconnected activities throughout the entire trade life cycle.

Citi’s ongoing success is built on being a leading service provider with



best-in-class platforms and “best practices.” Blending our experience with *forward look*’s research highlights a number of operational areas that could readily deliver increased performance opportunities:

Reconciliation and Portfolio Accounting

Portfolio managers who don’t keep their own portfolio accounting records (or shadow record keeping) are missing opportunities to reduce operational friction. Using custodial, plan sponsor or fund accounting data is often highly labor intensive and fraught with opportunities for error. Without their own record keeping, managers lose visibility into the daily activity of their investor clients. Portfolio accounting

enables managers to anticipate their clients’ and custodians’ actions, thereby taking alpha enhancing opportunities as they arise.

At Citi, our view is that the tightly integrated trade capture, portfolio accounting and reconciliation processes support performance by ensuring all cash flows, trades and corporate actions are properly reported and investable cash balances are available to the investment management process. Portfolio accounting enables managers to track their own activities in real time and manage their intraday investment activities based on accurate data, which reflects all the current trading activities, deposits and withdrawals. The shadow accounting is key

to operationally derived returns because managers then get their own view of cash, and positions are not beholden to the limited capabilities of sponsors regarding corporate actions, for instance.

Restriction Management and Portfolio Compliance

Effective restriction management requires the automated application of complex rules from multiple sources, among them investors, custodians, brokers and managers. In addition, restrictions management requires the consolidation of disparate supporting data and industry conventions relating to assets, counterparties, industries and geographies. Overlaying investment manager concerns are compliance provisos around risk budgets and regulatory requirements.

Currently, most managers have a hodge-podge of manual oversight coupled with some unintegrated pretrade and some posttrade engines.

At Citi, effective compliance monitoring and restrictions management centers on total

automated best-in-class, pre- and posttrade restriction applications integrated into accurate books and records controlled by the manager. This is coupled with integrated, leading market data sources for securities classification. This automated capability helps portfolio managers avoid inappropriate trades for an account which then need to be unwound. Our capabilities help avoid the costs of having held the wrong position or, perhaps worse, not being in the right position to optimize exposure to favorable market factors.

Collateral Management

Collateral management has become an indispensable part of the financial world's answer to the practical mitigation of credit risk. It has increasingly replaced the monolithic default risk of the counterparty with the more complex, yet more diversified and more readily managed combination of counterparty default risk, collateral issuer default risk and legal and operational risks. At the same time, collateral management programs are increasingly affecting more trading

products (e.g., OTC derivatives) and workflows (e.g., securities lending).

Collateralization creates its own set of legal, market and operational risks that must be managed in order for it to successfully mitigate counterparty credit risk. These include the structure of collateral agreements made between counterparties, exposure monitoring control, the changing market value of collateral, the settlement of collateral transactions, and concentration and correlation risks within a collateral portfolio.

Although trading strategies have become more sophisticated, the infrastructure to manage operational risk in the back office has not kept pace. Many of the operations linked to collateral management are still conducted on a manual basis and, therefore, result in increased risks.

At Citi, we have developed Open CollateralSM, a value added service that delivers both operational solutions to help mitigate risk and improve return on assets.

Reference Data Management

The optimum reference data management system aggregates, reconciles and monitors the agreed aspects of a portfolio manager's reference data at an individual data field level. The overriding objective is to ensure that the systems are producing the right data so that the manager is working with good information when making investment decisions. At the same time, a complementary goal is to make certain that, further downstream, trading and settlement counterparties have the proper details to effect timely clearance and settlement.

Unfortunately, most reference data systems are incomplete and rely on a single source of data from one vendor or one custodian. Incomplete data often results in numerous problems such as:

- processing holds for missing or stale pricing files
- unresolved reconciliation breaks from conflicting prices or security identifiers

- trading errors from incorrect or delayed application of corporate actions

At Citi, the Global Securities Master scrubs and ranks multiple sources of security issuer and industry data to create complete information prioritized for a manager's needs. This virtually eliminates delays and errors in procuring accurate security pricing and identification information. This, coupled with Citi's golden source of Corporate Action information and automated processes around the maintenance of this capability, helps portfolio managers minimize reference data-driven errors and delays to timely trading of portfolios.

Trade Order Management, Execution and Settlement

There is general agreement that electronic trading improves execution timeliness and provides data to support Best Execution analysis. What is less well-understood are the processes deployed across a manager's entire book of business to deliver fully electronic execution and

the utilization of execution tools such as algorithmic strategies, automated market making, direct market access engines, dark pools, etc. Operational inefficiencies exist in coordinating and optimizing block trades across retail, institutional, fund and alternatives products that may be trading the same securities on behalf of different investors through different venues.

At Citi, the CitiConnect® trade hub offers a unified trade routing tool with robust rule sets, which allows a manager the flexibility to define Best Execution. CitiConnect allows a manager to combine and deliver trades electronically to any destination in any manner necessary to tap the above-mentioned execution tools and capture the results for Best Execution measurement and other compliance needs. The system automates settlement processing required with Step-Outs and Trade-Aways, assuring minimal trade breaks and limiting the negative impact of opportunities costs and market slippage on portfolio performance.

What's Next: Asset Managers and the "New Normal"

What are new things asset managers have to think about in terms of investment operations; e.g., better risk management, greater transparency from regulatory or client perspectives, cost of servicing? What does new normal mean in terms of investment operations: more flexibility, automation, risk management, transparency?

Positive Prospects: Top- and Bottom-Line Benefits

The insights correlating improved operations quality with improved portfolio performance clearly resonate with a number of constituencies. For investment managers, they naturally see it as a prescriptive tool to:

- improve strategy and product performance; and
- better capture and retain clients.

More interestingly, institutional investors also envision these techniques as a predictive tool to:

- improve fiduciary oversight (by benchmarking the quality of the manager's operations);
- identify, engage and retain the better managers (based on both skill plus operational competency); and
- maintain ongoing due diligence (utilizing an unbiased and repeatable technique for evaluating their manager's operational soundness).

So what options does a manager have to beat their benchmarks? Perhaps looking inward at the quality of their investment operations is a long-overdue alternative. It can potentially yield anywhere from 50 - 250 basis points in risk-adjusted performance. Moreover, looking deeper into operational quality at a firm can help clarify the ROI for remediation choices, and point to the optimal initiatives that will address the broader spectrum of implementation shortfalls.

Through its Securities and Fund Services business, Citi's industry-focused experts provide investors worldwide with tailored solutions delivered through proven global platforms that feature modular, open architecture. With over \$12 trillion of assets under custody and the industry's largest proprietary network, clients can leverage Citi's local market expertise and global reach to extract value across the entire investment value chain.

forward look, inc. enables investment managers to grow their revenue streams by improving portfolio performance and minimizing implementation shortfalls associated with complex product initiatives. For more information, visit our websites at www.forwardlook.com and www.riskforecast.com

