Trading Series Part 3:

Choosing an Implementation Strategy — When and How to Outsource Trading

Key Ideas

UNCORRELATED ANSWERS®

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Implementation costs are a critical, and often overlooked, component of an investment process. If not properly managed, implementation drag from market impact, commissions, taxes and fees, and clearing and settlement costs can reduce or altogether eliminate excess returns from even the most effective investment process. Consequently, careful consideration on how to best minimize these costs is paramount to providing value for clients.

Every equity manager must decide, from an operational perspective, exactly how it is going to implement the trading of client portfolios. The options for equity trading are:

- outsource trading to a third-party brokerage firm;
- establish an in-house trading function, or
- adopt a combination of both.

Today's equity markets are fast paced and constantly evolving, and therefore require access to a complex trading infrastructure to achieve best execution. This paper will explore the opportunities and challenges of each of the approaches above, and the factors that determine which approach is best for a particular manager.

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Implementation must fit the investment process

No approach to implementation is ideal for all managers. Each must undergo a thorough evaluation of its own investment process to consider how its specific characteristics may affect trading costs in various ways.

Managers should consider the impact of the following characteristics of their investment process:

1) **Portfolio concentration:** Highly concentrated portfolios, or portfolios that hold fewer stocks, tend to result in above-average participation in a stock's average daily volume (ADV), particularly for portfolios holding relatively illiquid mid- and small-capitalization stocks. Even with relatively modest assets and turnover, a manager risks higher implementation costs both from simple demand price pressure as well as information leakage to other market participants. At the other end of the spectrum are portfolios that strictly track major cap-weighted indexes such as the S&P 500 or Russell 1000. These portfolios typically experience much lower transaction costs due to the highly liquid nature of the large-cap stocks that make up those indexes, and the relatively low turnover required to track the benchmark index.

2) **Turnover:** Turnover acts as a direct multiplier on the real costs of implementation in a given investment strategy. All things being equal, higher turnover increases the total drag on investment returns from trading. Investment processes that necessitate higher turnover must be even more mindful of market impact, since it is more likely to make up a greater portion of their overall trading costs.

3) **Market capitalization (size) and regional exposure:** The market capitalization, or size, and geographical location of the securities being traded can have a meaningful impact on the level of transaction costs in a portfolio. The liquidity, transparency, complexity and regulatory characteristics of the stocks and market will all impact the degree to which it makes sense to trade in-house versus outsourcing. For example, trade execution in emerging markets possesses inherent challenges, such as rapidly changing regulations, prohibitive restrictions on foreign investors, larger ticket and custody fees, and other market idiosyncrasies. Acquiring direct market access to these venues may be operationally difficult and costly.

4) **Assets under management (AUM):** The total AUM of an investment manager will have a significant impact on the decision of whether to trade in-house. A smaller manager, with less operational resources, will have a more difficult time justifying a build out of in-house trading capabilities than will its larger counterparts. In addition, an investment process that is not readily scalable may suffer disproportionately higher trading costs as AUM increases. Because trading costs tend to increase with order size (as a percentage of ADV), managers that aren't able to effectively mitigate this as they gain assets are at risk for prohibitive implementation drag that limits their ability to grow. Effectively using all of the market's liquidity can help reduce capacity constraints.

5) **Price sensitivity and order urgency:** A manager must decide the relative importance of time and price impact in its investment process. For example, momentum-driven investors rely on a relatively small delay between their decision to make a trade and execution and have less sensitivity to short-term price impact. Conversely, deep-value managers may care much more about price level than time of order execution.

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In-house trading: Overcoming obstacles

The primary goals in taking the trading function in-house are: decrease client commission costs, increase control over execution and reduce information leakage. However, establishing an effective in-house trading team is a challenging and timely undertaking in today's complex and rapidly evolving market structure. The U.S. equity markets have changed dramatically over the last 20 years as a result of regulatory changes and technological advances. As discussed in Part One of our Trading Paper Series, equities are now traded much faster, and at much lower spreads, than they were even ten years ago. An additional consequence of these changes is that the markets are also much more fragmented than at any point in history. In the late 1990s, the New York Stock Exchange and NASDAQ controlled the overwhelming majority of U.S. equity trading volume. Today, that number is close to 40%. Dark pools and other off-exchange venues make up an additional 40%, with the remainder occurring on newer, electronical exchanges such as BATS. The net result for the investment manager is that the market is continually changing, and stock liquidity must be intelligently sourced from dozens of venues. Keeping pace with market changes from this perspective alone presents a significant undertaking.

Foreign markets, both developed, and, in particular, emerging, are evolving at an even quicker pace. For example, the Securities and Exchange Board of India only recently lifted restrictions on direct market access in 2012, and other emerging-market countries are even further behind. Most large brokerage firms have regional offices around the world that access the various global exchanges or contract trading out to local firms who execute orders on their behalf.

Beyond the cost of obtaining access to all of these venues, firms that prefer to trade in-house need to consider the resources involved in building out an in-house trading desk. These include hiring and retaining all the relevant talent – analysts, developers, researchers and traders – as well as maintaining the systems and technology required to transact in those venues.

The last key consideration in considering in-house trading are the risks associated with taking on the trading function. Trading errors present significant financial and business risk to the firm. With the legal and regulatory environment changing so rapidly, constantly staying up to date involves significant investment in people, systems and technology. By trading in-house, a manager must assume all risks associated with trading errors. Conversely, firms that outsource trade execution also outsource at least some portion of these risks.

Outsourcing trading; Evaluating efficacy

An investment manager that decides against trading in-house must establish a comprehensive and effective process by which to select brokerage partners, measure those brokers' performance and allocate order flow.

In determining the ideal number of brokerage relationships, it is important to find a balance between having too many and too few. With too many, order flow can be unprofitable or immaterial to any individual firm, resulting in poorer execution quality, operational and settlement issues, and difficulty in managing relationships. With too few, the manager risks having insufficient coverage and diversification in execution.

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Also crucial is the selection of a performance benchmark by which to measure the brokers' execution that is appropriate for the investment process. Volume-weighted average price (VWAP), implementation shortfall or some other metric should be selected to align the specific goals of the process with how brokers are evaluated. Performance can be measured in-house, but a manager may find it beneficial to also hire a third-party trading-cost consultant to verify results and help put its costs in perspective as measured against its peers of similar size and investment style.

Brokers should also be continually monitored to ensure they are making the proper investments to keep pace with the evolution of market structure from a trading, settlement and regulatory perspective.

Once broker performance has been effectively quantified, a manager should institute a system of trade allocation that aligns the interests of all parties: client, manager and broker. Orders should be distributed in such a way as to control information leakage both to the broker and to the marketplace at large. In addition, order flow should be allocated in such a way as to incentivize best execution: directing more trades to the brokers with the best performance according to the chosen metric.

A hybrid approach: Best of both worlds?

It is possible to utilize a combination of in-house as well as outsourced trading. For example, a manager could choose to execute its more liquid transactions, such as smaller orders of well-known large-cap stocks, through its own direct market access, but outsource larger or more difficult orders to brokerage firms that have the expertise and systems already in place to effectively execute these trades.

There are two important items to consider when evaluating this approach. First, a hybrid approach could adversely affect trading costs primarily in two ways:

- the potential introduction of competition on trades of the same stock or related stocks through internal execution; and
- the withholding of information and flexibility by not releasing an entire group of trades as a single order. For example, less-liquid names that are more difficult to execute individually can be balanced with more liquid trades to potentially reduce the overall cost of trading.

Any institution utilizing a combination of internal and external execution needs to be acutely sensitive to the manner in which those trades are allocated so as to minimize overlap in activity.

Second, taking some portion of the trading function in-house can result in less material business to the brokerage relationships, which may have a detrimental impact on execution quality and operational efficiency.

A manager's primary consideration, when deciding how best to trade its client portfolios, should be realizing best execution to meet client objectives.

Our implementation strategy

Our investment process begins by taking a given benchmark index as an investment universe. Using estimates of stock-return volatility and correlation, portfolio weights are mathematically optimized within a given set of objectives and risk controls, seeking to construct a more efficient (higher return – less risk) portfolio. The process generally seeks to overweight more volatile, less correlated stocks, to create rebalancing opportunities for excess return while maintaining a desired level of absolute or relative risk. As the individual stocks within the portfolio exhibit natural price movements, the positions are systematically and efficiently traded back to the optimal target weights. This process captures a rebalancing premium, or "trading profit," from buying low and selling high. Because the nature of the process relies on periodic trading to generate alpha, we consider managing implementation costs to be a high priority. Our rebalancing tends to be inherently low cost, which is critical to our ability to deliver value for our clients, due to two primary factors:

- the portfolios are constructed from a diversified universe of large, highly liquid stocks; and
- the optimal target portfolio weights move relatively slowly throughout time, resulting in generally small, incremental moves in any individual stock in a single rebalancing trade.

Our average order size represented only 3% of the stock's average daily volume on global developed market trades in 2017, compared with a peer group median of 16%. Although Intech® traded more than 81% of its peer group in 2017, our average order size as a percent of the ADV ranked smaller than 95% of those peers.*

Rebalancing orders typically contain a large number of individual stocks and an equal dollar value of orders to buy and sell, creating trade baskets that are largely shielded from intraday market movement (e.g., a rising market would tend to increase the cost of all buy orders but also the value recovered from all sell orders). Although no individual order in a typical Intech rebalancing trade is particularly difficult to execute, an entire day's worth of orders may contain several hundred stocks, requiring complex tools to manage and complete the entirety of the trading activity throughout the day.

* Source: ITG. Results based on one year ending December 31, 2017. Most recent results based on analysis versus an all developed markets peer group of 149 investment management firms, encompassing a total trade value of USD 2,026 billion. Number of managers and trade values for other periods are available upon request. Additional information about ITG can be obtained from its website at www.itg.com. Data reflects past performance, which is no guarantee of future results.

After considering how all of the factors discussed herein relate to both our investment process and the firm, Intech made the decision to outsource trading to allow us to focus our efforts on executing the investment process and maximizing client returns. Intech has recognized that the resources required to build the teams, systems and processes for in-house trading are more effectively allocated toward serving our core function as investment managers.

Because execution is outsourced, Intech has put in place a transparent and objective system to measure broker performance and allocate orders. Intech measures market impact as the difference between the decision and execution price of the order, in the base currency of the account. We utilize this metric because our model is focused on executing transactions near a recorded real-time price, and market impact accurately assesses how close we are to achieving that target price. Intech does not participate in soft dollar or directed commission arrangements, nor do we consume or utilize any external investment research. All brokerage commissions paid are strictly for execution-only services. We are able to record the "all-in" cost of execution as market impact plus commission, or implementation shortfall, and use this metric as the sole determinant when allocating future order flow. This process is designed to reward the best-performing brokers with more order flow using objective, quantifiable metrics. Our implementation philosophy is to align the interests of all parties involved – Intech, its clients and its brokers – to focus on the best result for its clients.

Trading externally does not excuse a firm from having to keep up with market-structure evolution, although it does afford the manager access to valuable research and commentary on the subject from leading experts. Using external brokerage firms, Intech executes transactions through teams of dedicated equity portfolio traders with decades of trading experience across diverse market and regulatory conditions. We work closely with our executing brokerage firms to collect feedback on market conditions and utilize this information to improve our proprietary implementation management platform.

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Conclusion

A manager's primary consideration, when deciding how best to trade client portfolios, should be realizing best execution to meet client objectives. A host of factors should be taken into consideration, including the characteristics of the investment process, the size of the investment manager, and the capacity of a manager to acquire and retain both the talent and systems required to take on the trading function in-house. Our decision to outsource trading has been supported by its experience: establishing, monitoring, and properly incentivizing external brokerage relationships continues to enable us to provide the most value to our clients.

Intech is a global quantitative asset manager investing on behalf of pension funds, governments, endowments, foundations, and other institutional investors worldwide. Having pioneered the application of Stochastic Portfolio Theory in 1987, Intech continues to seek distinctive alpha sources for clients in five continents. Today, Intech provides investment solutions encompassing ESG, absolute return, defensive equity, and traditional long-only strategies.

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