

Guaranteed Alpha: Using Risk Budgeting to Reduce Investment Fees and Expenses

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Webinar

February 2015

A Lot to Talk About Today

- It's pretty clear that the average institutional asset owner pays a lot in manager fees.
 - Including hedge funds and illiquid assets, we believe it averages about 50 basis points annually for a typical \$10 Billion AUM entity.
- We assert that a lot of that money can be saved without any reduction in performance
 - Better allocation between active and passive management
 - Smarter capital allocation to active managers
 - Using factor methods to get exposure to illiquid assets at lower costs, <http://www.northinfo.com/Documents/543.pdf>.
- We will also revisit Centralized Portfolio Management, a technique we pioneered in 1992
 - CPM can improve performance as well as reduce costs

Key Reference

- Modern Portfolio Theory

by Andrew Rudd and Henry Clasing (1982)

Read Chapter 6

If you have read Chapter 6, read it again

Two Approaches that We Know Don't Work

- There is a long literature on how **not** to run a large multi-manager fund
 - Hire so many active managers that the aggregate portfolio is an index fund with active fees. See “Shaking Things Up at General Motors”, *Institutional Investor*, February 1980
- Hire a bunch of external managers and fail to recognize the economic interconnections across asset classes, giving you expensive exposures you don't even want.
 - A past Northfield client questioned our analysis that their portfolio was heavily exposed to the US tech sector, as their US equity portfolio was actually neutral to their benchmark
 - However, their large private equity portfolio was almost all US tech firms, and their five largest real estate holdings were shopping malls located in Silicon Valley. **Expensive way to get exposure you don't want**
 - <http://www.northinfo.com/Documents/543.pdf>

Misunderstanding Multiple Managers

- *The purpose of using multiple active managers is to add return, not to provide diversification.*
 - If an investor wishes to simply reduce the risk of under-performing a particular benchmark index, it may be accomplished inexpensively by owning an index fund, which have both low fees and low trading costs.
 - It must therefore be true that the value added by active management arises from the manager's efforts to create forecasts that are meaningfully predictive of future index-relative security returns (that is, alpha)
 - There may be some logic in multiple active managers in an effort to prudently protect the fund against embezzlement or other illegal actions on the part of investment agents, but this protection could be met equally well with multiple passive managers

Stating the Obvious, but Profound Conflict

- Whether asset owners get diversification cheaply (passive management) or expensively (lots of active managers) they **can get it**, so they can afford to have each active manager they hire be aggressive.
- Active managers **cannot diversify their risk of underperforming peers** so greatly that they get fired.
 - Asset managers can only add a fraction of their theoretical economic value without risking failure
 - Scherer (2012) on Huberman puzzle, <http://www.northinfo.com/documents/618.pdf>
 - Long only bounds reduce opportunities as well.
 - Even if the manager and the asset owner agree on the covenant information ratio, the difference in risk tolerance creates *large agency problems*.

Optimizing Manager Aggressiveness

- Use risk budgeting to fine tune allocations
 - Allocations between active and passive management
 - Capital allocation across active managers
 - Find optimal aggressiveness levels for managers and negotiate fees to encourage managers to operate accordingly
- The problem can be framed as a Markowitz optimization where active manager performance expectations (net of fees) are rescaled to a tracking error of one, and benchmark indices can be shorted (as futures).
 - If managers are good enough, you will “lever up” active managers by borrowing on margin, and shorting the benchmarks. The gearing ratio is the optimal tracking error for that manager. See <http://www.northinfo.com/documents/19.pdf>.

The Best Wine We Ever Served

- Centenary Solera Madera, 1845 was served at our 1992 client conference at Bretton Woods, NH.
 - This was the first time I spoke about Centralized Portfolio Management at a Northfield event. **It didn't go well.**
 - Brokers thought it would reduce trading (and their incomes)
 - Asset managers thought it would cause reductions in management fees (and hence their incomes)
 - Plan sponsors thought I was calling them stupid for not having done it already
 - Everyone agreed it was probably analytically correct but were very unhappy with me. As usual, I sought help from the bartender. The Madera was hastily added to the dinner menu.
- Everyone, including me, agreed that no one would ever do it in the real world. *Everyone was wrong.*

The Multi-Manager Problem

- In the typical multiple manager portfolio, a single manager has influence over each dollar of the total fund.
 - This methodology rests on two beliefs: that each manager is expected to produce superior performance on average and that the certainty of any particular manager producing superior performance is low.
 - Hence, there is a need to diversify with multiple managers so as to decrease the uncertainty associated with each manager's forecasts of future alphas.
 - By allowing multiple managers to operate within the same universe of securities with similar constraints, the aggregate position of the total fund with respect to any particular security is reflective of the consensus alpha forecast of the managers. In this fashion, the fund benefits from the improvement in the aggregate quality of the return forecasts.

Multi-Manager Correlation

- Unfortunately, there exists the possibility that manager alphas will be correlated.
 - For example, if a fund had ten managers, but all ten simultaneously adopted a similar strategy (e.g., mid-cap, low P/E), little improvement in the quality of the alpha forecasts would result.
 - Even worse, the overall fund would be subject to large residual risk. The presumed diversification benefit of multiple managers would vanish if each manager held a similar portfolio
 - To prevent such situations, it is common practice for plan investors to hire multiple active managers, but with distinct mandates. For example, the investor would hire separate managers for large-capitalization and small capitalization stocks (or growth/value, etc.).
 - Once we have separated the manager mandates into mutually exclusive habitats, we now have only the predictive skills of a single manager applying to each security. *The improvement in aggregate forecast quality has been lost.*

The Crossing Cost Problem

- One way to preserve to benefits of multiple managers without using distinct habitats would be to allow all managers the same mandate, but select managers that will be uncorrelated in their future alpha forecasts.
 - This unfortunately leads to the problem of internal crossing.
- Let's assume that the price of stock XYZ has just run up in reaction to the announcement of better than expected earnings. Value manager "A" believes that stock is now overpriced and sells it. Growth manager "B" believes that the stock has good future prospects and buys it.
 - The investor has just incurred two transaction costs, *possibly a capital gain tax, a possible wash sales violation*, and continues to pay two active management fees while nothing has happened to the total portfolio.
 - When we expand this example to industries and sectors, multiple active managers will inevitably spend most of their time in a meaningless but expensive tug-of-war.

Risk Budgeting for Multi-manager Portfolios

- Allocating capital across multiple active/passive managers is a complex issue
 - Managers can be of varying levels of aggressiveness
 - Active managers generally are judged on *pre-tax* benchmark relative performance, while investors receive after tax returns
 - Investors have varying degrees of concern about both benchmark relative and absolute risk
 - The correlation of active returns across managers can be very unstable as market conditions change.
- Shifting money between managers to rebalance capital allocations is expensive
 - *May involve capital gain taxes as well as transaction costs*
 - Managers are hesitant to accept “legacy” positions from other managers that could reduce their performance record so transition process are required.

The Rosenberg Solution

- Rosenberg (1977) introduced the “centralized” multiple-adviser fund as an alternative
 - Outside managers are hired to advise the investor
 - They inform the investor of their market, security return, and possibly risk forecasts on a continuous basis
 - The investor (or an agent) computes a statistical consensus of the forecasts and manages a single large portfolio in a fashion consistent with the consensus forecasts of the hired advisers.
 - A proof is presented that a multiple manager fund can at best equal the efficiency of the centralized multiple-adviser fund. Many of the aforementioned drawbacks to the current approach are resolved in the multiple-adviser scheme.
 - The problem is that with scheme is that it requires managers to deliver explicit numerical forecasts to the sponsor both for market returns and for the relative returns of each security. Many successful investment firms are very qualitative in their approach and use a great deal of subjective judgment that is not easily converted to a certainty adjusted return forecast

“Side Funds” Can Patch Portfolios

- Tierney (1980) introduced the “completeness fund”
 - Deals with the possibility that a multiple manager fund had segmented mandates that left gaps relative to the overall benchmark investor
 - A completeness fund is simply a passive fund structured to fill in the gaps left by the aggregate of the manager mandates relative to the overall benchmark.
- Ferguson (1978) describes the “inventory fund” to address unnecessary crossing costs.
 - An inventory fund is a passively managed account that could (but is not obligated) act as the other side of trades initiated by a given investor’s active managers.
 - Consider our earlier example of an internal cross: Managers “A” and “B” transact with the “inventory account”. The trades are now only book entries, with no fees and no tax implications
 - Wagner and Zipkin (1978) estimate the potential cost savings from the use of inventory funds

Key Insight

- Almost all asset managers use risk models from an outside vendor for portfolio analysis and construction
 - Suggests that managers think the risk models work pretty well
 - Managers see their “value added” in superior return forecasting
- If everyone roughly agrees on the covariance among securities, then we can infer manager “alpha” forecasts from the portfolio they choose to hold
 - Active managers must think their portfolio is optimal or they would hold a different portfolio, expected returns must offset marginal risks at optimal weights, Sharpe (1974), Fisher (1975)
- If we know the aggressiveness level of a manager, we can obtain the alphas directly
 - If not we can estimate risk tolerance from observed risk values
 - Alternatively, we can use the implied rank values and then map into the expected cross-section of returns

Centralized Portfolio Management

- Combine “implied alpha” methods with Rosenberg’s “centralized adviser” structure
- Each external manager runs a paper portfolio, as is done with managers that provide model portfolios for “wrap” programs, reporting trades to the investor’s agent
 - Use statistical methods to combine the implied alphas across all managers, and apply to running one portfolio
 - The consensus alpha is used on the entire value of the portfolio, so you *get the return benefit of “two heads are better than one”*. *We get the sum of the manager’s knowledge, not the average.*
 - See Johnson (1972), Rudd and Clasing (1982)
 - Risk control is internally consistent as the alphas are implied using the same model used for portfolio construction of the central account

Other Benefits of CPM

- Almost all the “crossing costs” disappear
- Taxes are a lot easier to manage. No more wash sales
- Rebalancing costs disappear as shifting managers is just changing weights in the formation of consensus alphas
- Manager aggressiveness and turnover levels no longer impact the aggressiveness of the whole. They are just part of the weighting of the alpha consensus
- Investors have direct control over commission spending
- You can give negative weight in the consensus to consistently bad managers.
What to pay them?
- Managers that are capacity constrained can participate
- No more myopic risk controls at the individual manager level filter through to the central portfolio

The “Long Only” Problem

- If the external active managers are “long” only, the implied alphas will be biased
 - Will exclude the large negative values that would be implied by short positions
 - Positive skew in the distribution of implied alpha values
 - The distribution of the implied alphas should be symmetric about its mean and the alpha of the market portfolio should be around zero
- For positions that hit the zero weight bound, adjust the implied alpha
 - Subtract some constant X times the asset specific risk of that stock, making the implied alphas more negative
 - Select X such that the market portfolio alpha is close to zero and the distribution of implied alpha has insignificant skew
 - diBartolomeo (*Journal of Performance Measurement*, 2008)

Other Possible Pitfalls

- The implied alphas can be biased through estimation errors in the risk model
 - You're no worse off than in conventional management that is using the same risk model (i.e. just about everybody)
- External managers could concentrate on illiquid positions to boost returns on their paper portfolio
 - Use an agreed upon market impact model to estimate "trading costs" of the external paper portfolios and judge performance after costs
- Managers could "front run" the central portfolio if they know their weight in the consensus is high

Conclusions

- Most asset owners do a poor job of making allocations across the spectrum of asset/passive management, among active managers (particularly imposition of the long/short bound)
- The biggest obstacle is the agency problem arising from the fact that asset owners can diversify across managers but managers cannot diversify the risk of their own poor management. The resulting differences in risk aversion lead to inefficient allocations and larger than necessary fees.
- If manager aggressiveness levels can be optimized to client risk aversion, many clients could rationally pay higher fees for traditional managers in lieu of hedge funds.
- Use of proper risk budgeting can save substantial amounts of fees, while more advanced processes like CPM can raise returns as well as save fees, trading costs and taxes (if applicable)

Somebody Did It

- Centralized Portfolio Management was successfully implemented by Vanguard Australia
 - Even large pension funds in Australia are subject to some capital gain taxes, so taxes are a big deal
 - The Australian market is small so hot managers hit capacity constraints quickly
 - Assets under management are growing quickly with a couple of major Australian state funds participating
 - August 7, 2007 press release quotes Scott Lawrence of Vanguard: “Results to date are a 60 basis point improvement in returns with a 50 to 70 percent reduction in turnover”
- Vanguard eventually killed the product for internal reasons, but other Australian managers have established CPM services.