

C A M B R I D G E   A S S O C I A T E S   L L C

# PORTABLE ALPHA: A CLOSER INSPECTION

2005

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**ABSTRACT**

1. Portable alpha focuses on funding alpha sources wherever they exist and separating alpha from beta through the use of index derivatives. Of course, the trick has never been in *separating* the two sources of return, nor in mobilizing them, but in identifying consistent alpha, holding onto it, and hoping it does not morph into beta when diversification is needed most. That remains the investor's challenge. Indeed, most discussions of the subject tend to skim over the difficulties and risks incurred by investors implementing portable alpha, which are numerous, including misidentification of alpha, increased use of leverage, and impaired liquidity. Deduct the transaction costs and management fees incurred, and net alpha could very well end up negative.
2. A serious mismeasurement occurs when investors mistakenly assume that managers' betas are static and equal to that of the market/benchmark (1.0). Therefore, all excess return over the benchmark is often wrongly called "alpha," when alpha should really be measured relative to the *manager's* beta. For example, estimating manager alpha by simply subtracting the market return from a manager's return would result in an underestimation of alpha in cases in which beta is below 1.0 and an overestimation of alpha in cases in which beta is above 1.0. This presents two main challenges to successfully implementing portable alpha. First, misspecification of beta (or the assumption that beta is static) could result in a failure to achieve desired market exposures. Second, if some portion of what is believed to be alpha is actually beta, correlations between the assets invested in alpha-generating strategies and the overlaid beta exposure may be relatively high, which could result in greater-than-expected losses in down markets.
3. With the rapid proliferation of hedge funds, many managers are engaging in beta trades under the disguise and fee structure of alpha. One simple example is the ever popular carry trade: managers borrow at short-term rates and invest in long-term bonds, capturing the spread in interest rates. The gains are increased by the multiple of leverage applied to the trade. However, this is completely driven by market factors (slope of the yield curve) and it essentially involves abstracting and leveraging the *market risk* differential between long- and short-term rates. In other words, it is leveraged beta. Other forms of beta often disguised as alpha include style bets (value versus growth), cap bets (small versus large), and credit spreads.
4. Assuming investors have cleared the hurdle of identifying a consistent source of alpha, the next consideration is whether the use of portable alpha improves or worsens diversification. If investors seek to reduce market risk, a strategy that calls for adding alpha and retaining the very beta exposure the investor sought to diversify away will provide less optimal diversification than adding alpha and *removing* the beta exposure.
5. The use of an overlay strategy that results in a greater than 1:1 ratio between assets and return exposures is leverage. The most common forms of derivatives (futures, options, and swaps), which portable alpha strategies use to attain beta exposure, require a very small margin deposit (e.g., 5%). However, the risk

increases as the remaining collateral is invested in assets moving up the risk spectrum further away from cash. For example, if the underlying assets are invested in an active equity manager, the collateral has a much higher expected volatility and investors are taking on the risk that their derivatives go south at the same time that the active manager produces negative alpha (e.g., funding margin calls from a depreciating asset base).

6. There are several issues that arise when using portable alpha with non-marketable and marketable alternatives. With private investments, isolating the alpha can be very difficult given that marketable equivalents can be very imprecise proxies. There is also a fundamental valuation mismatch between private assets, which are occasionally marked-to-market, and marketable derivatives, which are valued continuously. This is further amplified by private funds with lumpy or no annual cash yield (e.g., many energy partnerships). When investors use portable alpha to fund an allocation to absolute return or hedge funds, they are likely to be piling leverage on top of leverage.
7. There are two liquidity considerations for portable alpha strategies. The first relates to the type of derivatives used, with swaps being of longer duration (typically one year) and generally less liquid than options and futures. If futures are used, cash will have to be added to fund the daily margin calls when the underlying strategy is losing money. The second liquidity consideration relates to the underlying active investment strategy. Many of the best hedge funds either require investors to agree to multiyear lock-ups or offer a fee discount for those that agree to a lock-up.
8. Portable alpha strategies incur a range of costs, including the costs of the derivative exposure (both transactional and brokerage), separate management fees charged to implement a portable alpha strategy, and the underlying manager and/or fund-of-funds costs. Indeed, those with significant experience in the derivatives markets will have significant advantages when implementing portable alpha, including risk control, expertise at building multifaceted trades, and the lower implementation costs that often come from long-term trading-desk relationships.
9. Porting alpha may help investors solve an asset allocation problem, but only if they have found the alpha. While there are a few sophisticated institutions that have successfully implemented portable-alpha-*type* strategies for years, they utilize a rare combination of highly talented investment management and expert portfolio oversight. Those attempting to follow the leader, but not in possession of the same skills, could experience drastically different results. For most investors, diversification, comprehensive manager due diligence, and risk control remain the keys to success.

## **SUMMARY**

## Introduction

Investors have slowly come to grips with the tough math facing prospective U.S. equity and bond returns. Higher-than-average equity valuations, lower-than-average dividend yields, and 40-year lows in interest rates, suggest that investors will be lucky to earn returns in the mid-single digits over the next decade. This presents a daunting challenge for institutions that seek to grow assets in real terms *and* spend 5% per annum. As a result, we continue to recommend carefully diversifying portfolios by function and including various alternative investments to create the mix of assets most likely to pay the bills, most often. Some members of the money management industry, on the other hand, have been designing financial products to “solve the investor’s problem.” Portable alpha is one such approach, focusing on funding alpha sources wherever they exist and separating alpha from beta through the use of index derivatives. Of course, the trick has never been in *separating* the two sources of return, nor in mobilizing them, but in identifying consistent alpha, holding onto it, and hoping it does not morph into beta when diversification is needed most. That remains the investor’s challenge.

A few large and sophisticated institutional investors have sought to optimize the combination of alpha and beta for many years: to access the most attractive sources of alpha, pay very little for beta, and control risk. However, their success is predicated on their underlying skill sets (alpha) and their many years of experience with derivatives. The most important *overlay* that these investors apply is dynamic risk control, which cannot be easily repackaged and resold. Indeed, most of the material on portable alpha to date is entirely promotional and often concludes with the tag line, “Harvard has invested this way for years.” Well...sort of, and with *envious success*, but not simply because portable alpha-type strategies were implemented. Rather, Harvard’s success has come from employing a high degree of investment skill and resources that only a handful of institutions are fortunate enough to retain. In other words, it is more about the people than the mechanism. Even then, it comes down to which route one wants to go with investing the endowment—spend significant resources building long-term relationships with managers in areas that offer the most potential bang per active management fee buck; or go the portable alpha route, which includes some of the former, but requires a significant component of internal management and highly experienced oversight to be effective. And of course there is always the in-between—some may use portable alpha to exploit opportunities with a single manager or asset class without straying from policy. In any event, the portable alpha approach is by no means a simple solution to the problem of low prospective equity and bond returns. Indeed, most discussions of the subject tend to skim over the difficulties and risks incurred by investors implementing portable alpha; consequently, that is the primary focus of this paper.

## Portable Alpha Defined

Portable alpha can generally be applied in one of two ways: overlaying traditional investments with a derivative-based tactical asset allocation<sup>1</sup> or investing the physical portfolio assets with a manager that can generate alpha and using index derivatives to acquire the desired beta exposures.<sup>2</sup> The latter is the focus of this discussion. The selling point is that you can move the portfolio assets to wherever the alpha exists, regardless of the asset class, and maintain policy beta exposures through derivatives. In addition, derivatives can be used to isolate the manager's alpha.

Portable alpha is not an investment vehicle in and of itself, but a way to repackage alpha and beta in an attempt to have the best of both worlds—beta at a low cost and alpha wherever it lurks. While those marketing portable alpha as an all-in-one solution stress the portability and the ability to separate sources of alpha and beta, finding and retaining alpha remains the critical challenge. In other words, the first hurdle for vendors of portable alpha products is proving that they can in fact produce consistent alpha. The second, and equally critical obstacle, is proving that they have the experience and risk controls to effectively implement overlays in *all* investment environments.

## Ways to Implement

### Funding and Isolating Manager Alpha

One often cited and overly simplified example involves a portfolio that is at policy target to large-cap U.S. equities (an index allocation), but also has a small-cap manager believed to offer significant alpha potential. The investor would like to give this manager more capital, but also stay true to policy. So the investor takes 5% of the portfolio's assets from the Russell 1000® Index fund and invests it with the small-cap manager. To retain policy weight to large cap, the investor enters into a swap where it pays Libor + a spread and receives the total return on the Russell 1000®. In an *attempt* to isolate the small-cap manager's alpha, the investor then enters into a swap on the Russell 2000® in which it agrees to pay the Russell 2000® Index return to a counterparty in return for Libor + a spread (Exhibit 1).

This appears rather simple and very appealing at first glance, but there are many underlying risks that should be understood before pursuing this strategy. For instance, some skepticism should be directed at the investor's high confidence in the manager's ability to produce alpha—we know that alpha is hard to measure, lumpy, and generally ephemeral. In addition, portable alpha introduces leverage into the portfolio—return exposure that is greater than 100% of the underlying assets. Finally, the investor is covering its contractual agreement to pay out the market return for small-cap stocks with the return of an active small-cap manager

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<sup>1</sup> This involves 100% derivative-based strategies and has been around for decades under the guise of tactical asset allocation, “equitizing the cash,” and most recently global tactical asset allocation. Please see our 2005 paper on this separate topic, *Revisiting Tactical Asset Allocation*.

<sup>2</sup> This is a simplified distinction; a more complex portfolio may use portable alpha in both ways—derivative overlays that seek to exploit and leverage small-market inefficiencies and overlays that only serve to acquire beta exposure.

targeted for its high degree of alpha, not beta. This could raise significant short-term liquidity and funding risks if the manager has significantly different short-term return patterns than the market itself. Indeed, many annual swaps have quarterly resets (i.e., the cash flows are exchanged based on performance over the last quarter).

### **Hedge Fund Overlay**

This example involves the use of an absolute return/long-short equity hedge fund-of-funds (FOF), but can be implemented with direct hedge fund investments as well. The investor wants to increase the allocation to the FOF, but does not want to stray from the equity target in the policy portfolio. So, the physical assets are invested in the FOF and the beta exposure is gained by investing in equity index derivatives that bring the portfolio back to policy weights. The leverage is relatively greater in this example than for the single small-cap manager since it will likely be applied at the manager level and possibly again at the FOF level, which amplifies the total leverage of the portfolio and the downside risk should various sources of alphas prove more beta-like. In addition, by overlaying an expected source of alpha (i.e., non-market risk) with various forms of beta (market risk), the portfolio's total risk and market exposure will be higher than that of a strategy in which assets are moved from beta strategies to the FOF, without adding back the overlay.

### **Opportunistically**

A third, rare, but perhaps successful use of portable alpha, will come from highly skilled investment managers (be they hedge funds, absolute return, or long-only) that use portable alpha techniques opportunistically, or simply as another tool—like highly skilled long-only stock pickers that use shorting opportunistically. In this case, managers would use portable alpha only when there is a compelling opportunity on a risk-adjusted basis. Just as the ability to successfully take short positions has given highly skilled managers more tools, so might the use of portable alpha. However, there are many examples of successful long-only managers that have found it far more difficult to short effectively—because they do not have the technical resources so critical to shorting, because it is inherently more difficult to short given the asymmetric risk profile, or because being short often requires Job's patience. Investors considering managers that will employ portable alpha should evaluate their potential to determine whether they have *all* the skills and resources necessary given the additional risk involved in portable alpha.

To implement portable alpha, one should have significant derivatives implementation experience in good and bad (e.g., third quarter 1998) investment environments. This is likely to bring long-term trading/derivative desk relationships and, in turn, significantly lower implementation costs.<sup>3</sup> Skilled traders also create multifaceted trades and constantly look for new ways to lower costs and better hedge downside risks. Finally, good risk control includes frequent adjustments to the beta positions relative to the underlying investments. In other words, one must have working knowledge of the beta exposures of their hedge fund

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<sup>3</sup> An investor with long-term trading relationships will likely receive far better execution and pricing than one that cold calls the trading desk at a major investment bank asking who they should talk to about swaps.



managers in order to adjust the beta overlays and control the concentration of risk; or for all-in-one products, be confident that the manager is performing this function consistently.

## Got Alpha?

### Identifying Alpha

Many products become increasingly portable as they become ubiquitous—usually in a last ditch attempt to squeeze out remaining profits. A few popular examples include radio, television, telephones, and computers. But alpha? When alpha is available to all in significant quantities and at reasonable prices, it is surely beta. In fact, two conditions necessary for generating alpha are market inefficiencies and a manager with the skill to exploit them. *Consistent* alpha is inherent in managers' skill sets, rather than in the current trades or strategies. This makes for a somewhat daunting task—like scouting the next Ted Williams, whose ability to adjust to any pitch made him arguably the most consistent and successful hitter of all time. The same criteria should be applied in identifying investment skill, especially if the manager's alpha is to be isolated and/or leveraged into the portfolio. The special skill may derive from a manager's ability to successfully uncover and invest in a wide range of opportunistic investments; or to invest in arbitrage strategies that require a strategic advantage or expertise to succeed. In any regard, identifying managers with proven alpha is a prerequisite.

### Measuring Alpha

From a statistical standpoint, alpha is defined as the portion of a return from specific/non-market risk. Total returns are made up of some combination of alpha and beta (i.e., market and non-market risk). However, a serious mismeasurement occurs when investors mistakenly assume that managers' betas are static and equal to that of the market/benchmark (1.0). Therefore, all "excess return" over the benchmark is often wrongly called "alpha," when alpha should really be measured relative to the *manager's* beta. For example, of the 423 U.S. ex small-cap equity managers in our database over the period 1995-2004, betas ranged between 1.4 and 0.6 for the middle 90% of the universe (Exhibit 2). For the 169 small-cap products in our database over this period, the results are similar across the middle 90% of funds, and betas ranged from 1.5 to 0.7 (Exhibit 3). Returning to the small-cap manager example above, suppose this manager's outperformance was actually due to higher-than-average market risk (e.g., beta of 1.3). By isolating the return beyond the benchmark through a portable alpha strategy, the investor is in fact isolating the excess beta. This in turn will increase the overall volatility of the portfolio—higher highs when small cap does well and lower lows when small cap underperforms.

On the other hand, investors often fall prey to the notion that hedge funds have little to no beta. Hedge funds as a whole actually have an expected equity beta of 0.65, mostly explained by their long bias. A select few managers seek to minimize this market exposure, and market-neutral funds are *theoretically* the least exposed, but most strategies incur some equity risk and many other market-related risks. These include exposure to external macro factors like interest rates or credit spreads, which do not show up in regressions

to the equity markets but surface when liquidity dries up and risk aversion soars. For instance, during the market turmoil and flight to quality in the third quarter of 1998, hedge funds and absolute return funds performed very similarly to equities and low-quality bonds: returns ranged from -2.6% for market-neutral funds to -18.0% for global long/short hedge funds (Exhibit 4).<sup>4</sup> For portable alpha investors without the proper risk controls in place, such negative outliers could deliver a nasty one-two punch.

All this means that investors must perform rigorous and rolling regression analysis of a manager's returns over a long period and in different market environments before they can have any degree of confidence in the manager's expected alpha. For example, the information ratio, or degree of confidence that the manager's excess return (not necessarily alpha) is a result of skill and not luck, ranged between 51% and 65% for the middle 90% of managers in the U.S. ex small-cap universe noted above; for the small-cap universe the results were similarly unimpressive, with confidence levels ranging from 51% to 70% for the middle 90% (Exhibits 5 and 6).

### **Is it Sophisticated Beta?**

With the rapid proliferation of hedge funds, many managers are engaging in beta trades under the guise and fee structure of alpha. One simple example is the ever popular carry trade: managers borrow at short-term rates and invest in long-term bonds, capturing the spread in interest rates. The gains are increased by the multiple of leverage applied to the trade. However, this is completely driven by market factors (slope of the yield curve) and essentially involves abstracting and leveraging the *market risk* differential between long- and short-term rates. In other words, it is leveraged beta. Other forms of beta often disguised as alpha include style bets (value versus growth), cap bets (small versus large), and credit spreads. This is not to judge whether it is right or wrong to invest with managers that profit from various forms of "sophisticated beta," but investors should identify which returns are market related, relatively easy to replicate, and pay for them accordingly.<sup>5</sup> More important, however, is that investors planning to overlay hedge fund strategies with beta exposure may be taking on significantly more market risk than they assume.

By definition, unlevered alpha is a zero sum game: every trade has a winner and an offsetting loser. In fact, a Bridgewater Associates study of seven hedge fund strategies found that only one category of funds (managed futures) delivered alpha in 2003. The CSFB/Tremont hedge fund returns across seven categories were compared to a passive bogey that Bridgewater created for each broad strategy.<sup>6</sup> For example, a strategy of naively arbitraging the ten largest merger and acquisition deals of the year (long the target and short the acquirer) outperformed the merger arbitrage index by 110 basis points (bps). In addition, Bridgewater found the average correlations of excess returns (over cash) among funds within each of the strategies to be moderately strong, ranging from a low of 0.42 for market-neutral funds to a high of 0.66 for event driven.

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<sup>4</sup> While forced selling by many funds to meet redemptions may have amplified the losses, the point is that "uncorrelated sources of alpha" can prove more beta-like when diversification is needed most.

<sup>5</sup> Perhaps some premium should be paid for timing beta trades, but it should be far below the typical hedge fund fee structure.

<sup>6</sup> The multitude of problems with hedge fund databases and benchmarks makes the general trend/conclusions more important than the specific results.

## Diversification or “Di-worse-ification”?

Assuming investors have cleared the alpha hurdle, the next consideration is whether the use of portable alpha improves or worsens diversification. If investors seek to reduce market risk, a strategy which calls for adding alpha and retaining the very beta exposure the investor sought to diversify away will provide less optimal diversification than adding alpha and *removing* the beta exposure.

**Alternative Portfolio Mixes: Hypothetical Effects of Portfolio Alpha**

Asset Class	No Portable Alpha		Portable Alpha
	Portfolio A	Portfolio B	Portfolio C
U.S. Equity	50%	20%	40%
Global ex U.S. Equity	20%	5%	15%
Emerging Markets Equity	---	5%	5%
Long/Short Hedge Funds	---	15%	15%
Absolute Return	---	15%	15%
Non-Venture Private Equity	---	5%	5%
Venture Capital	---	5%	5%
Oil and Gas	---	3%	3%
Timberland	---	2%	2%
Private Real Estate	---	5%	5%
Bonds	30%	20%	20%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>130%</b>
Arithmetic Real Return	5.8%	6.0%	9.0%
Compound Real Return	5.1%	5.6%	8.1%
Standard Deviation	12.3%	9.7%	14.4%
Beta	0.69	0.52	0.80
Sharpe Ratio	0.39	<b>0.52</b>	<b>0.56</b>

Source: Based on Cambridge Associates mean-variance model and underlying asset class assumptions.

Portfolio A has an expected arithmetic real return of 5.8% with a standard deviation of 12.3%, while Portfolio B has an expected real return of 6.0% but a significantly lower standard deviation of 9.7%. Neither uses portable alpha. However, suppose that rather than fund the marketable alternatives portion the traditional way, the manager of Portfolio B decides to use portable alpha and to overlay the allocation with 20% S&P 500 and 10% EAFE swaps. As displayed in the table above, the result is 130% exposure (Portfolio C). Relative to Portfolio B, the expected return of Portfolio C is significantly higher; however, so is the risk—the standard deviation jumps to 14.4%, from 9.7%, and the total beta rises to 0.8 from 0.5.

The higher return but much higher risk of Portfolio C results in having a Sharpe ratio of 0.56 that is more or less equivalent to that of Portfolio B (0.52); however, Portfolio C has significantly more market exposure. Also, it is important to consider that the greatest risk to “hedged” strategies is not the standard

deviation under a normal distribution of returns; indeed hedge funds can be quite risk reducing in normal times. Rather, it is the fat tails, accentuated by leverage when unexpected and abnormal events occur. As noted above, some hedge funds did about as poorly as equities and low-quality bonds in the third quarter of 1998, which suggests that investors adding additional market exposure and leverage through portable alpha would have suffered the proverbial double whammy. In short, portable alpha may dilute the diversification of a well-diversified portfolio and we would caution against buying into portable alpha as a way to juice returns by accepting a “modest” increase in risk. In this relatively conservative example, the standard deviation increased nearly 50%.

Of course, if investors overlay a traditional portfolio with assets that have low to negative *expected* correlations with equities, the expected risk/return profile is significantly enhanced. For example, instead of overlaying Portfolio B with S&P 500 and EAFE exposure, one could overlay it with say 15% in commodity derivatives and 15% in fixed income derivatives. This results in a portfolio that has an expected arithmetic real return of 8.1%, a standard deviation of 10.2%, and consequently a much better Sharpe ratio of 0.70. Of course, most of the diversification benefits are provided by the addition of commodities, which have slightly lower expected returns than, but negative correlations with, equities. However, that does not mean the asset classes always maintain an inverse relationship (e.g., in 2001 the S&P 500 returned -11.9% and the GSCI, -31.9%) and therefore the risk of investing in commodity futures/swaps increases significantly as the underlying collateral is invested in riskier assets beyond cash. In other words, in periods like 2001, those collateralizing their commodities with equities would have found themselves in a much worse position (i.e., funding margin calls from a depreciating asset base) than those that kept the collateral in cash.

## **Leverage**

The use of an overlay strategy that results in a greater than 1:1 ratio between assets and return exposures is leverage. This is not explicit leverage in the sense that monies are externally borrowed to fund a purchase. Rather, the leverage stems from adding another set of return exposure above the small margin required to secure it. The most common forms of derivatives (futures, options, and swaps), which portable alpha strategies use to attain beta exposure, require a very small margin deposit (e.g., 5%). Even if the derivatives are fully collateralized by underlying assets, 95% of assets can be invested in securities other than cash. Indeed, that is the strategic advantage of portable alpha: one set of assets, two sets of returns.

However, the risk increases as the collateral is invested in assets moving up the risk spectrum. For example, a derivative overlay in which the underlying assets remain 100% invested in cash equivalents is only exposed to principal loss from the derivatives. However, as noted above, if the underlying assets are invested in an active equity manager, the collateral has a much higher expected volatility and investors are taking on the risk that their derivatives go south at the same time that the active manager produces negative alpha (i.e., losses on both sources of return).

## How Much?

If an institution is willing to assume the risk, the entire portfolio could theoretically be invested in a portable alpha strategy, with a plain vanilla policy mix of say 50% S&P 500/20% EAFE/30% Treasuries overlaid on active strategies. Assuming no leverage in the underlying strategies, a fully overlaid portfolio would have leverage or “return exposure” between 1.9:1 and 2.0:1 to some combination of alpha and beta. However, in reality there are several issues that arise when using portable alpha with non-marketable and marketable alternatives.

With private investments, isolating the alpha can be very difficult given that marketable equivalents can be very imprecise proxies. Examples include, shorting REITs to isolate the alpha in private real estate funds, or serving as the counterparty that pays a REIT index return in return for a cash equivalent return. Both entail significant risks. Private funds in which the portfolio is made up of a handful of relatively large investments/properties (e.g., real estate, energy, and timberland) may have a very low correlation with the public proxies. There is also a fundamental valuation mismatch between private assets, which are occasionally marked-to-market, and marketable derivatives, which are valued continuously. This is further amplified by private funds with lumpy or no annual cash yield (e.g., many energy partnerships).

When investors use portable alpha to fund an allocation to absolute return or hedge funds, they are likely to be piling leverage on top of leverage. That is akin to taking out a home equity loan to fund the minimum down payment on another property. In addition, investors have very little control over the specific amount of leverage employed by the managers. Even very disciplined managers are likely to operate within a *range* of leverage (e.g., 1.5:1 to 2.5:1) based on the opportunities. Lastly, if a FOF is used, some managers will apply modest leverage at the overall fund level (e.g., 1.5:1 to 2.0:1). The result is that there could be three layers of leverage, over which the investor has very little control.

## Liquidity

There are two liquidity considerations for portable alpha strategies. The first relates to type of derivatives used, with swaps being of longer duration (typically one year) and generally less liquid than options and futures. Because there is no central exchange for swaps, investors seeking to exit early must either create an offsetting swap (reverse swap) or pay a pro-rata fee to terminate the agreement. If futures are used, cash will have to be added to fund the daily margin calls when the underlying strategy is losing money. The second liquidity consideration relates to the underlying active investment strategy. Many of the best hedge funds either require investors to agree to multiyear lock-ups or offer a fee discount for those that agree to a lock-up. Therefore, the extreme example of investing all the assets in marketable alternatives and acquiring all of the beta exposure through swaps could significantly reduce the overall liquidity of the portfolio.

Swaps provide the cleanest exposure to a market index and the least amount of work for the investor.<sup>7</sup> An investor receiving an index return through a one-year swap will receive 100% of the return, net of the transaction costs. With options and futures, investors are subject to market forces, which may impair the ability to earn the index return. For example, investors could end up buying index futures at a premium to fair value and be forced to sell them at a discount. For very liquid markets, like U.S. large-cap equities (e.g., S&P 500 futures), the derivatives trade fairly tight to the underlying market and the potential for slippage is relatively minor. However, as one moves out into less liquid markets like small-cap and international stocks, the premium and discounts widen accordingly.

## The Fee Tree

Beyond the liquidity driven costs of gaining beta exposure, other marginal costs include the transactional and brokerage costs of derivatives and any management fees charged for implementing portable alpha.<sup>8</sup> For swaps, the basic fee structure calls for paying the counterparty a cash equivalent (T-bills or Libor) + a spread. Given that the counterparty must acquire the exposure it is contracted to deliver, the liquidity of the underlying market will impact the swap spread. So while swaps protect investors from the transaction risk in futures and options, investors do have to pay some premium for exposure to less liquid markets. For example, typical costs<sup>9</sup> might be Libor + 5 bps for S&P 500, Libor + 20 bps for EAFE swaps, and Libor + 50 bps for Russell 2000® exposure, with Libor yields averaging approximately 20 bps more than 91-day T-bills yields over the last several years.

The cash cost in the swap spread can be offset by investing the collateral in cash and is therefore not a marginal cost to consider. However, it becomes an *opportunity* cost when investing the collateral in any strategy beyond cash, suggesting that the underlying manager's *gross* alpha is its return less the return on cash. Add in manager fees, FOF fees, and an additional charge for implementing portable alpha, and it is easy to see how net alpha could be significantly reduced or disappear depending on the strategy. In terms of paying a FOF manager to implement portable alpha, we would encourage investors to consider what they are actually getting and pay accordingly. The derivatives overlays can be provided by any major brokerage firm/investment bank for very small commissions.

## Conclusion

Porting alpha may help investors solve an asset allocation problem, but only if they have found the alpha. When the investment environment is relatively benign, or on those rare occasions that asset classes are behaving *normally*, the use of portable alpha may juice results. However, the underlying risks are numerous,

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<sup>7</sup> There is counterparty risk with swaps, but this can be minimized by using a high-quality counterparty.

<sup>8</sup> The cost of active management of underlying alpha strategies is a separate issue and should not impact the decision to use portable alpha.

<sup>9</sup> For investors very active in the derivatives markets and/or with impeccable credit ratings, costs are likely to be materially lower.

including misidentification of alpha, increased use of leverage, and impaired liquidity. Deduct the transaction costs and management fees incurred, and net alpha could very well end up negative. In other words, investors have to clear several hurdles before justifying the use of portable alpha.

We acknowledge that a few sophisticated institutions have successfully implemented portable-alpha-*type* strategies for years. Indeed, no marketing pitch is complete until this fact is aired. However, just as Michael Jordan's dominance of basketball had nothing to do with his shoes, these institutions' success is not predicated on the portable alpha lever. Rather, they have a rare combination of highly talented investment management and expert portfolio oversight. Those attempting to follow the leader, but not in possession of the same skills, could experience drastically different results. For most investors, diversification, comprehensive manager due diligence, and risk control remain the keys to success.

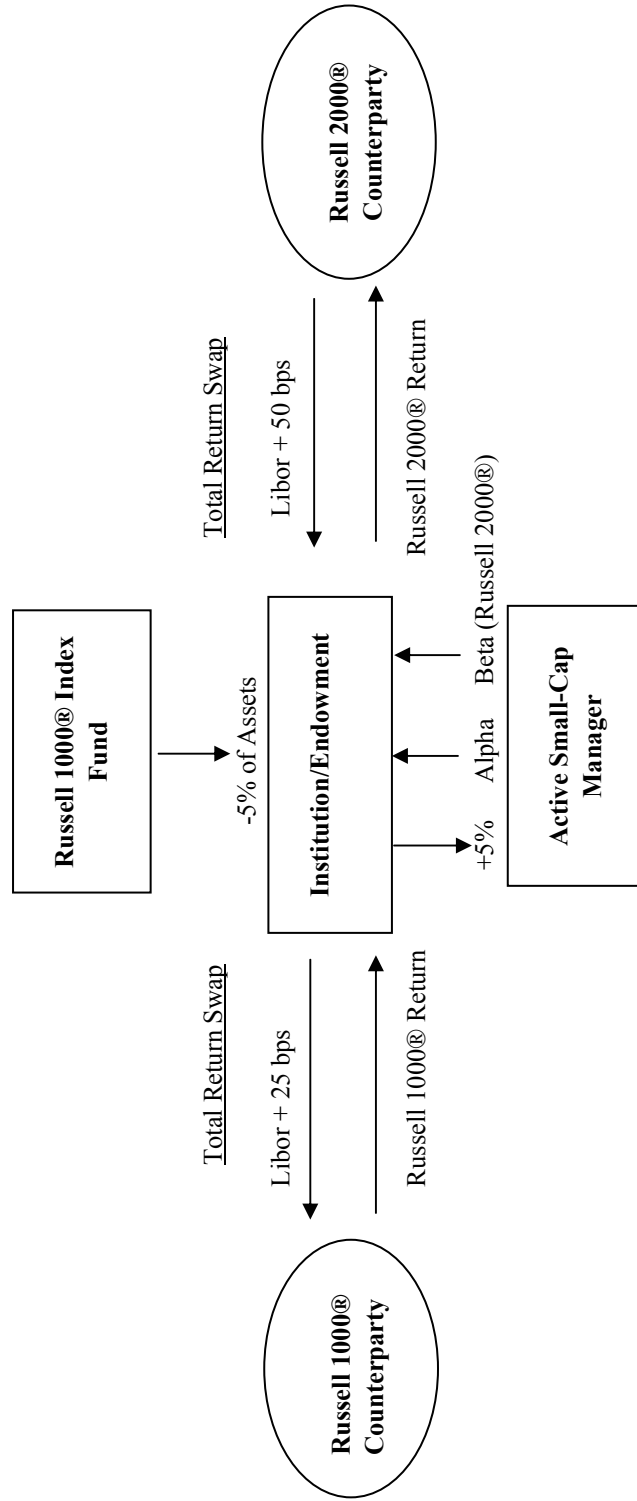
## **EXHIBITS**



Exhibit 1

USING PORTABLE ALPHA TO FUND A SINGLE MANAGER

Hypothetical Example: Isolating the Small-Cap Manager

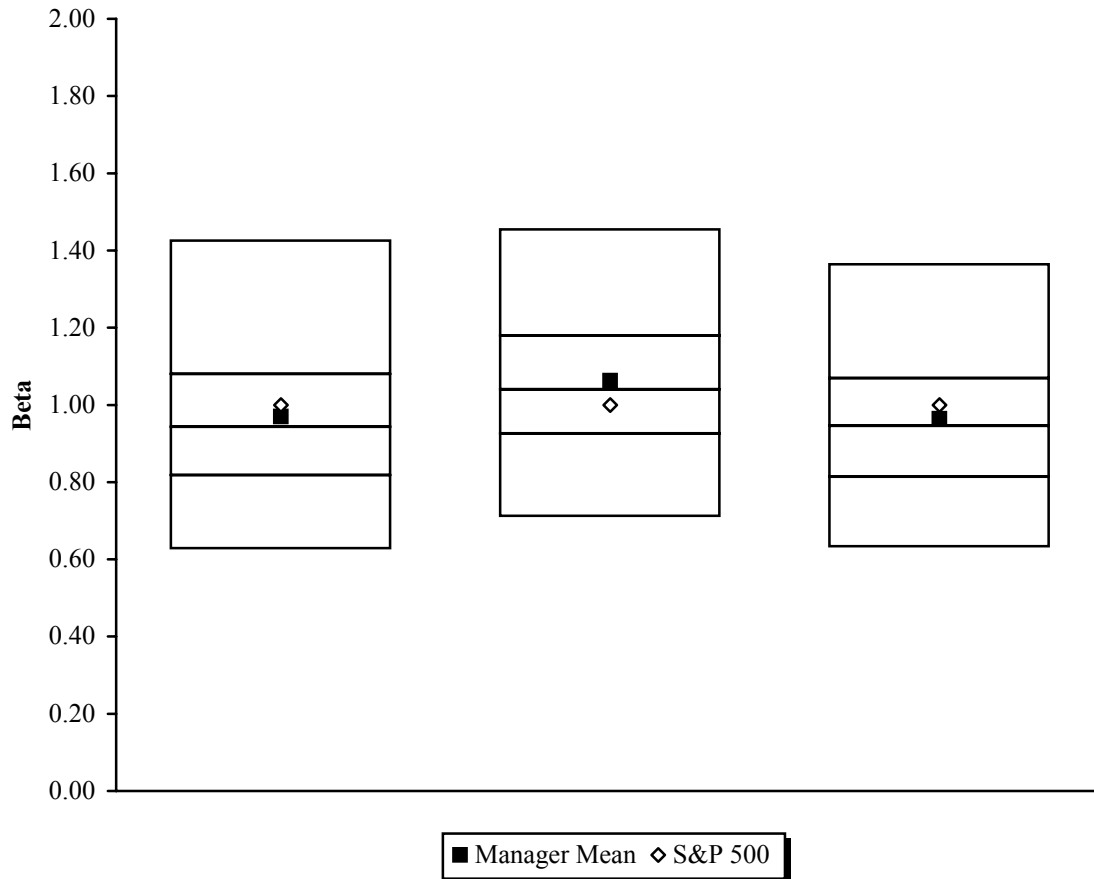


Steps Involved:

1. 5% of assets are taken from the Russell 1000® Index fund and given to the small-cap manager.
2. The Russell 1000® Index exposure is re-acquired through a total return swap.
3. The small-cap manager's alpha is isolated by paying out the beta (Russell 2000® Index) in another total return swap and receiving Libor + 50 bps in return.
4. The swap spread received on paying out Russell 2000® exposure pays for the cost of Russell 1000® swap and some of the active management fees for the small-cap manager.

## Exhibit 2

### MANAGER BETA TOTAL U.S. EQUITY EX SMALL-CAP UNIVERSE

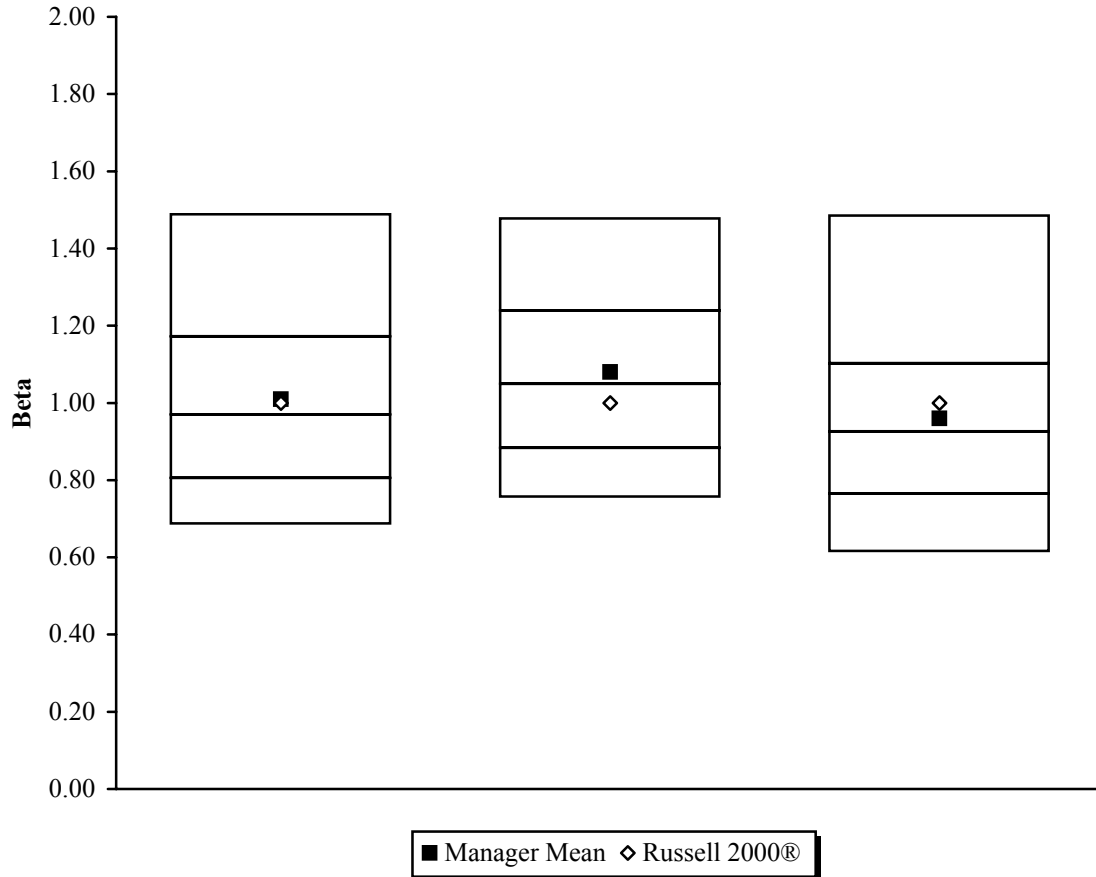


	<u>1995-2004</u>	<u>1995-99</u>	<u>2000-04</u>
High	2.42	2.42	2.50
5th Percentile	1.43	1.45	1.36
25th Percentile	1.08	1.18	1.07
Median	0.94	1.04	0.95
75th Percentile	0.82	0.93	0.81
95th Percentile	0.63	0.71	0.63
Low	0.08	0.08	0.01
Mean	0.97	1.06	0.96

Notes: Lines on bars represent the 5th, 25th, 50th, 75th, and 95th percentiles from top to bottom, respectively. High and low represent the 0 and 100th percentile values in the distribution, respectively. Universe statistics exclude managers that exclude cash from the reported total returns, and for calculations including any years from 1998 to the present, those managers with less than \$50 million in product assets.

### Exhibit 3

#### MANAGER BETA TOTAL U.S. EQUITY SMALL-CAP UNIVERSE



	<u>1995-2004</u>	<u>1995-99</u>	<u>2000-04</u>
High	1.72	1.70	1.70
5th Percentile	1.49	1.48	1.49
25th Percentile	1.17	1.24	1.10
Median	0.97	1.05	0.93
75th Percentile	0.81	0.88	0.77
95th Percentile	0.69	0.76	0.62
Low	0.55	0.52	0.49
Mean	1.01	1.08	0.96

Notes: Lines on bars represent the 5th, 25th, 50th, 75th, and 95th percentiles from top to bottom, respectively. High and low represent the 0 and 100th percentile values in the distribution, respectively. Universe statistics exclude managers that exclude cash from the reported total returns, and for calculations including any years from 1998 to the present, those managers with less than \$50 million in product assets.

## Exhibit 4

### 1998 FINANCIAL CRISIS: PERFORMANCE ACROSS ASSETS

#### A Sea of Red

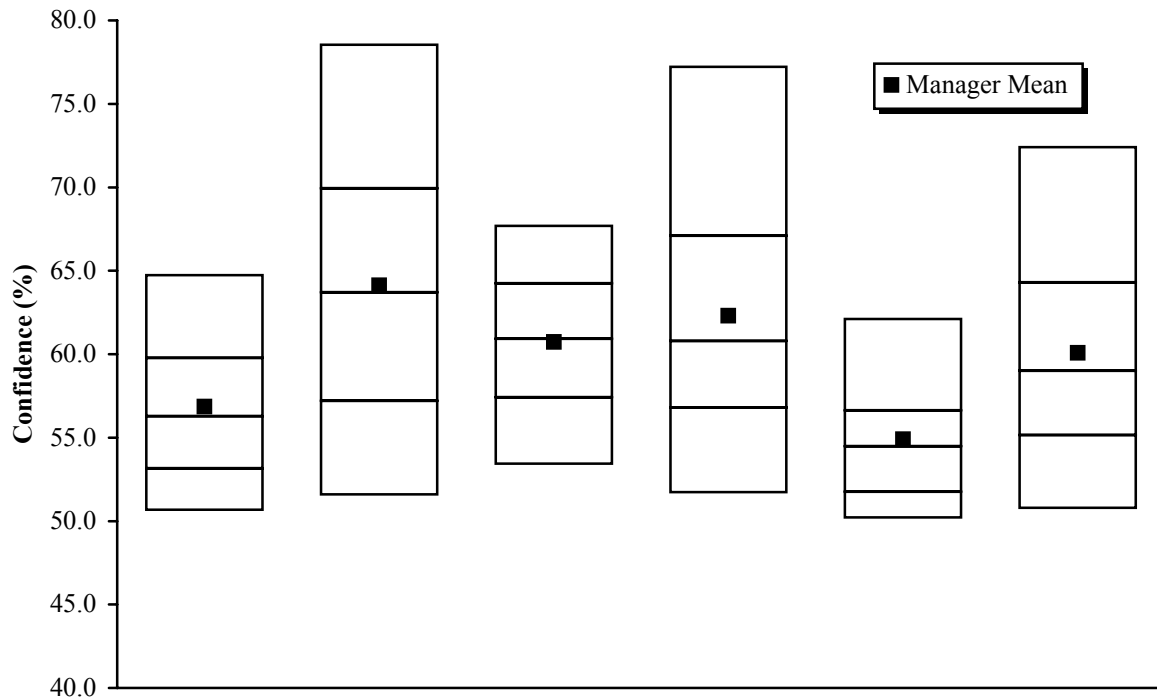
	<u>3Q 1998 (%)</u>	<u>Number of Managers</u>
<b><u>Equities and Low-Quality Bonds</u></b>		
MSCI Emerging Markets	-22.0	
JP Morgan EM Bond Global	-20.6	
Russell 2000®	-20.1	
MSCI World ex U.S.	-14.7	
MSCI EAFE	-14.2	
S&P 500	-9.9	
LB U.S. High-Yield Bonds	-4.6	
<b><u>Marketable Alternatives*</u></b>		
Global ex U.S. Hedge Funds	-18.0	23
Distressed	-13.8	27
Fixed Income Arbitrage	-12.8	13
U.S. L/S Hedge Funds	-12.3	113
Event Arbitrage	-7.9	26
General Arbitrage	-6.9	42
Diversified Arbitrage	-4.2	22
Market-Neutral	-2.6	22
<b><u>Distribution of S&amp;P 500</u></b>		
# of Stocks Declining	366	
Average Decline %	-21.5	
# of Stocks Increasing	121	
Average Increase %	9.7	
<b><u>High-Quality Bonds</u></b>		
LB Global Treasury Bond Index	8.6	
LB L-T Treasury Bond Index	7.9	
LB I-T Treasury Bond Index	4.8	
LB L-T Credit Index	3.0	

Sources: J.P. Morgan Securities, Inc., Frank Russell Company, Lehman Brothers, Inc., Morgan Stanley Capital International, Standard & Poor's, Standard & Poor's Compustat, and Thomson Datastream. MSCI data provided "as is" without any express or implied warranties.

\* Based on mean returns; median returns illustrate similar results.

**Exhibit 5**

**CONFIDENCE LEVEL THAT VALUE ADDED  
IS THE RESULT OF SKILL, NOT LUCK  
TOTAL U.S. EQUITY EX SMALL-CAP UNIVERSE**

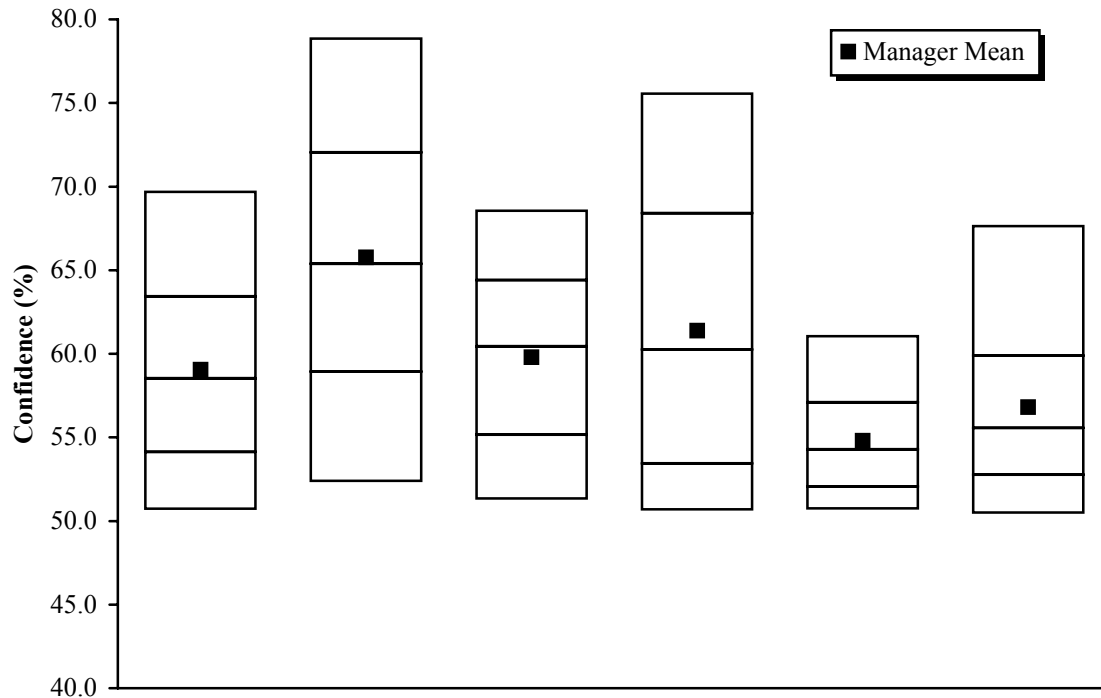


	Total Equity ex Small-Cap		Total Equity ex Small-Cap Growth		Total Equity ex Small-Cap Value	
	<u>1995-2004</u>	<u>2000-04</u>	<u>1995-2004</u>	<u>2000-04</u>	<u>1995-2004</u>	<u>2000-04</u>
High	74.9	87.0	74.6	84.1	71.4	86.0
5th Percentile	64.7	78.5	67.7	77.2	62.1	72.4
25th Percentile	59.8	69.9	64.2	67.1	56.6	64.3
Median	56.3	63.7	60.9	60.8	54.5	59.0
75th Percentile	53.2	57.2	57.4	56.8	51.7	55.2
95th Percentile	50.7	51.6	53.4	51.7	50.2	50.8
Low	50.0	50.1	50.3	50.4	50.0	50.0
Mean	56.9	64.1	60.7	62.3	54.9	60.1

Notes: Lines on bars represent the 5th, 25th, 50th, 75th, and 95th percentiles from top to bottom, respectively. High and low represent the 0 and 100th percentile values in the distribution, respectively. Universe statistics exclude managers that exclude cash from the reported total returns, and for calculations including any years from 1998 to the present, those managers with less than \$50 million in product assets.

**Exhibit 6**

**CONFIDENCE LEVEL THAT VALUE ADDED  
IS THE RESULT OF SKILL, NOT LUCK  
TOTAL U.S. EQUITY SMALL-CAP UNIVERSE**



	Total Equity Small-Cap		Total Equity Small-Cap Growth		Total Equity Small-Cap Value	
	<u>1995-2004</u>	<u>2000-04</u>	<u>1995-2004</u>	<u>2000-04</u>	<u>1995-2004</u>	<u>2000-04</u>
High	73.1	86.2	74.5	84.0	63.4	72.4
5th Percentile	69.7	78.9	68.6	75.6	61.0	67.6
25th Percentile	63.4	72.0	64.4	68.4	57.1	59.9
Median	58.5	65.4	60.4	60.3	54.3	55.6
75th Percentile	54.1	58.9	55.1	53.4	52.1	52.8
95th Percentile	50.7	52.4	51.3	50.7	50.7	50.5
Low	50.0	50.1	50.5	50.1	50.3	50.2
Mean	59.0	65.8	59.8	61.4	54.8	56.8

Notes: Lines on bars represent the 5th, 25th, 50th, 75th, and 95th percentiles from top to bottom, respectively. High and low represent the 0 and 100th percentile values in the distribution, respectively. Universe statistics exclude managers that exclude cash from the reported total returns, and for calculations including any years from 1998 to the present, those managers with less than \$50 million in product assets.