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Portable alpha

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Portable alpha is a mechanism by which investors are able to combine an independent source of manager skill ("alpha") with an underlying asset class investment ("beta"). By combining two uncorrelated return streams and utilizing a wider opportunity set for alpha generation, portable alpha represents an efficient approach to adding excess return. Practically speaking, investors may also view it as a way to add leverage to their portfolio whereby the manager, through a turnkey approach, handles all of the complexities that are inherent with leverage. Moreover, as expected returns have fallen, portable alpha may potentially allow investors to better meet their return expectations, albeit with caveats. These challenges include increased risk, costs and complexity, identifying and then maintaining "alpha," the potential misuse of leverage, and understanding the nature of the strategy.

What is portable alpha?

The return produced by any manager (or portfolio) can essentially be separated into two pieces: *beta* and *alpha*. Beta is the portion of a manager's return that is attributable to the risk inherent in investing in a particular market. That is, beta is the part of a manager's return that has nothing to do with skill (or luck) and everything to do with the performance of the asset class. Beta is cheap and easy to acquire (e.g., through derivatives, ETF's, or index funds). Alpha, on the other hand, is the portion of a manager's return that is attributable to the manager's skill. By taking active risks (i.e., being different than the market), managers hope to produce a return that exceeds that of their benchmark. However, positive and durable alpha is often expensive, difficult to acquire, and challenging to identify.

Portable alpha strategies seek to make alpha "portable" by combining any independent source of manager skill (alpha) with *any* market exposure (beta). This allows investors to take advantage of manager alpha anywhere in the investment universe, regardless of that manager's specialty. This mechanism is made possible due to financial instruments (e.g., derivatives) that allow for partially funded (i.e., leveraged) exposures.

Implementing the modern form of portable alpha usually involves layering alpha exposure, often via one or more strategies, on top of another portfolio (i.e., the beta exposure). The alpha exposure should be designed to have little or no sensitivity

to broader markets. Said another way, the "alpha" should simply take the form of returns that are expected to be unrelated to market performance. A well-executed portable alpha strategy seeks to surpass the return of a market index, without adding a considerable amount of risk. If the alpha and beta sources are truly uncorrelated, then the combined volatility will not be substantially different from the volatility of a beta-only/passive portfolio.

For example, a portable alpha strategy may combine a "market neutral" hedge fund's (alpha) return on top of the S&P 500 (beta) return, acquired through index futures (see Table 1). US stocks reflect a common beta source for portable alpha, as do investment grade bonds and inflation linked bonds.

Strategy	Exposure	Return
1. Buy S&P 500 Index Futures (the "beta")	+ Equity Market	+8%
2. Invest Collateral in Hedge Funds (the "alpha")	+ Hedge Funds	+5%
3. Pay (implied) Borrowing Cost	- Financing Cost	-2%
Portable Alpha Total Return =		**11%**

TABLE 1
Implementation of a Portable Alpha Strategy

Benefits

There are several theoretical benefits to portable alpha strategies. First, portable alpha provides the investor tremendous flexibility in manager selection: there is virtually no limit to the type of manager or strategy that can be used as the alpha source. Managers can invest in any public market asset class, including those considered to be less efficiently priced.

Second, by adding portable alpha to a fully invested portfolio, an investor may generate a higher return for that portfolio. This is because the alpha source (e.g., the hedge fund portion) only needs to earn a higher net-of-fees return than the implied borrowing rate for the portable alpha approach to outperform the market. Lower interest rates (i.e., borrowing costs) make this an easier hurdle to overcome.

Issues and concerns

Portable alpha is not without its drawbacks, including variable or undefined betas, the difficulty of finding alpha, inherent leverage, complexity, and cost.

Variable betas and common exposures

Portfolios/strategies designed to generate alpha are rarely void of any beta exposure. This variable beta exposure may result from explicit exposure to the underlying market or through other forms of commonality (e.g., even in a market-neutral strategy, performance can move similarly to a traditional beta market). Moreover, if the beta

portion of the alpha source varies through time, measuring it appropriately will be a constant challenge. This is particularly important during periods when correlations tend to increase, such as during bear markets that would likely accompany a period of perceived systemic risk.

Investors should view portable alpha as a mechanism to increase the capital efficiency of a portfolio while also increasing flexibility.

It is entirely possible that both the alpha and beta sources will suffer a simultaneous loss, even if they are uncorrelated on average. This was indeed the experience in 2008, where supposedly conservative hedge fund-of-funds[1] lost 19% on average, while the broader equity market lost 37%. Much of this stemmed from the fact that conservative and market-neutral strategies are often exposed to some form of risk premia (e.g., value) that can co-vary with traditional beta markets at times.

The difficulty of finding alpha

By definition, alpha is a "zero sum" game: one manager's gain comes at the expense of some other manager's loss. For this reason, finding positive and durable alpha requires that an investor find a manager who is able to *consistently* outperform its assigned benchmark more than half the time, net of fees. Consistently identifying positive and durable alpha (ex ante) is an extraordinary challenge. Portable alpha constructs can potentially improve the probability of finding alpha by widening the potential opportunity set (or market) from which the alpha is sourced. Ultimately, the goal is to identify a return stream that is expected, with a high degree of confidence, to be uncorrelated with the beta portion (or rest of the portfolio) and will consistently outperform the borrowing cost.

[1] As proxied by the HFRI Conservative Fund of Funds index.

Leverage

Portable alpha strategies employ leverage – they are not possible without it. While the type of leverage utilized is different from traditional "borrowing," it is effectively the same (i.e., an investor has more exposure than underlying cash/collateral). Moreover, the alpha source may also use leverage independent of the portable alpha construct. Depending on how a portable alpha strategy is implemented, up to two times the amount committed may be effectively invested.[2] *In the direst of market circumstances, the investor could lose more than their committed amount.* However, vehicles that package the alpha and beta components together can be structured as limited liability entities, thus limiting the investor's loss to 100% of invested capital.[3] More practically, an investor will have to address material drawdowns well ahead of losing anything approaching this level.

[2] 90% invested in the alpha source is the practical maximum. We believe that it is more common for investors to choose a lower utilization rate, such as 50%.

[3] This is not necessarily true for custom portable alpha strategies that investors create and implement themselves.

Liquidity

While the beta exposure usually offers daily liquidity, it is not unusual for the alpha source to be less liquid, particularly during periods of market stress. For example, hedge funds have been known to impose lock-ups or redemption gates during periods of crises. Hence, investors may temporarily have little to no access to what was otherwise considered to be a highly liquid segment of their overall portfolio. However, many hedge funds and "liquid alternatives" strategies that investors commonly use as sources of alpha offer less stringent liquidity provisions. Regardless, liquidity parameters and potential mismatches are a critical element when constructing a portable alpha program.

Complexity

Portable alpha strategies are inherently complex. They require familiarity with trading derivatives, advanced risk monitoring, and identifying consistent sources of uncorrelated alpha (as noted above). Furthermore, there are several elements in managing a portable alpha portfolio that require careful supervision by experienced professionals, such as managing collateral requirements, negotiating swap agreements, and rebalancing alpha managers.

Cost

The implicit and explicit cost of portable alpha strategies can be high. First, setting up the derivatives-based beta portion of the program has a modest cost, and it can be time-consuming, likely ranging anywhere between 4 to 8 weeks. There are also the legal complexities that come with this, as well.

Second, true skill based alpha is typically expensive. Moreover, if the fees paid to the alpha manager are too high or not structured properly, they will overwhelm the alpha portion's added value.

Implementation

The first step in implementing a portable alpha program is to identify the beta portion on which the alpha will be overlaid. Portable alpha can be implemented within any asset class with an established derivatives market, such as fixed income or public equities. The next step is to determine the alpha source and, possibly, a risk amount.[4] The final step is to deploy capital to achieve the desired market exposure. This may require regular rebalancing and establishing an appropriate beta hedge.

The operational aspect of managing the market exposure (beta) is complex. The process of "rolling" futures contracts or executing a swap requires sophisticated investment and legal review. For this reason, only larger investors with in-house staff typically obtain the beta exposure themselves. Smaller investors with portable

[4] Investors who use a risk budgeting approach must determine how much active risk to assume and, therefore, how much capital to allocate to these alpha managers.

alpha strategies often rely upon a portable alpha manager to provide both the alpha and beta pieces (i.e., a "turnkey" solution).[5] Alternatively, larger investors may take a more direct path, employing the services of a third party, often a custodian bank or derivatives specialist to manage beta.

[5] Note that a manager who provides a turnkey solution may charge an additional administrative fee.

Beta selection

Portable alpha is most appealing as a replacement for traditional active management in efficient sectors such as large cap stocks and high quality bonds. These reflect appropriate areas to seek passive exposure, given the small margin by which even the best bond managers can hope to beat their benchmarks, after fees.

For investors who opt for the turnkey route, choices of beta exposure are limited to what turnkey providers offer. These typically include the largest and most liquid institutional benchmarks. For example, a portable alpha program based on the S&P 500 index is by far the most common option.

However, the futures market for the most common investment grade bond benchmark, the Bloomberg Barclays US Aggregate index, is neither large nor liquid. As a result, an investor would most likely enter into a swap to gain exposure to the index. This type of arrangement may be relatively expensive[6]; alternatively, Treasuries (including TIPS) are one of the least expensive beta sources, as the futures market is large and liquid.

[6] As of this writing, the cost of obtain S&P 500 or Treasury exposure via a swap was approximately 40 bp, while the cost of obtaining BBG Aggregate exposure was more than 100 bp higher.

Achieving beta

The beta portion of the portable alpha strategy is most commonly achieved using either swaps or futures. Regardless of method, the cost of obtaining the beta exposure is typically LIBOR[7] plus 0 to 100 basis points, but varies by contract and in accordance with supply and demand.

[7] LIBOR is likely to be replaced by SOFR by the end of 2021.

Swaps generally require no upfront capital and can be customized. There is no tracking error to the benchmark, and rebalancing is primarily done quarterly. By using swaps, up to 100% of the swap value, theoretically, can be committed to the alpha manager[8]. However, the initial work to enter into a swap agreement is onerous, as the investor must go through the process of setting up an ISDA[9] account, establishing credit lines, and maintaining a cash account to meet mark-to-market payments. Furthermore, swaps are less liquid than futures and include counterparty risk.

[8] We believe that it is more common, and prudent, for investors to choose a lower utilization rate, such as 50%.

[9] ISDA refers to the International Swaps and Derivatives Association, an entity that sets the standard language for futures and swaps contracts.

Unlike swaps, futures require posting an initial margin and setting aside assets in a cash account to maintain variation margin. Therefore, less than 100% of the futures value can be committed to the alpha manager or managers. In addition, there may not be a (appropriate) futures contract available for the market that an investor seeks, leading to tracking error. Moreover, futures can be cheap/expensive at various

times, which can likewise lead to tracking error and additional under/outperformance. Futures contracts are also typically "rolled" every quarter to maintain exposure to the index, thus incurring additional transaction costs. However, because they are generally more liquid than swaps, futures contracts allow investors to adjust market exposure relatively quickly and easily. Because they are exchange-traded, they offer low counterparty risk, can be traded intraday, require little up-front administrative work, and carry transaction costs that are often lower than owning a portfolio of stocks and bonds.

Alpha selection

After a beta source has been selected, the investor must select an alpha source that they believe will: 1) produce consistently positive returns greater than borrowing costs, implementation costs, and management fees over a full market cycle and 2) be uncorrelated with the investor's selected beta source.

The first requirement is straightforward: investors, along with their advisors, should conduct extensive due diligence to hire the best managers (at an appropriate cost) for their alpha source. The second requirement is less straightforward: if the alpha portion is positively correlated with the beta portion, then the investor has effectively assumed a leveraged exposure to the beta source.[10] The less correlated the alpha portion is, the more it can be considered a separate portion of the portfolio—alpha may contribute return, but not affect the overall market exposure of the portfolio. In fact, the ideal alpha source should be uncorrelated with *all* of an investor's market exposures, as adding one beta on top of another beta—even if it is in another area of the investor's portfolio—represents taking additional risk in that market.

[10] If the alpha portion is negatively correlated with the beta portion, then the investor may experience a reduced (or negative) exposure to beta.

After selecting an alpha source, the investor needs to determine if they want to hedge any beta out of the alpha manager's portfolio. Failing to identify any inherent beta exposure in the alpha source will cause the plan to experience basis risk or additional market risk. As in the beta portion, the investor can hedge an alpha source's beta through futures or swaps. Investors should further note that such beta hedging will incur an additional cost.

Detailed mechanics

To illustrate the detailed mechanics of implementation and the components of a portable alpha strategy's return, two examples may be helpful (see Figure 2 and Figure 3). In the first example, an investor wants to "port" the return of a market neutral strategy (i.e., the alpha source) onto the market return of an equity index (i.e., beta) using futures. In the second, swaps are used to execute the same strategy. Neither involves netting out an alpha source's potential beta exposure(s). As highlighted above, if such beta exposure exists, the entire portable alpha program will likely produce sub-optimal results and/or fail completely.

Futures Example

To gain exposure to its beta source, the investor must purchase equity index futures in an amount equivalent to an investment in its alpha source. Because of the variation margin requirements of futures, not all of the desired allocation is available for investment in the alpha source. Five percent is kept in margin to meet the daily mark-to-market of the futures contracts, and an additional five percent is set aside as collateral.[11]

[11] The amount of collateral is dependent upon the volatility of the market to which the investor is gaining exposure (e.g., less collateral would be needed for bonds than for stocks).

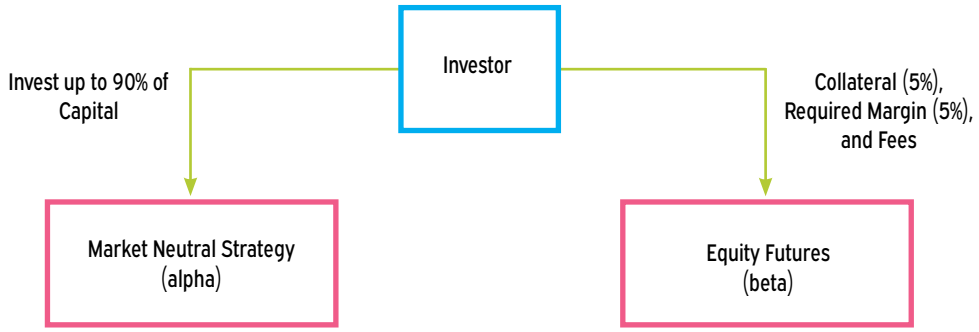

FIGURE 1
A Portable Alpha Strategy that Uses Futures

The investor's total return will be the sum of the following components:

1. + Gain (loss) on futures
2. + Gain (loss) on the market-neutral strategy
3. + Interest gain on the collateral set aside to cover margin
4. — The financing rate
5. — Fees paid to market-neutral strategy

Swap Example

To gain exposure to its beta source, the investor enters into a total return swap agreement with a counterparty wherein the investor receives the return on an equity index and makes a quarterly interest rate payment.[12] Because swap payments are netted out and paid less frequently, cash transfers are easier to estimate.

[12] As of October 2020, the financing rate for an S&P 500 total return swap was approximately 40 basis points.

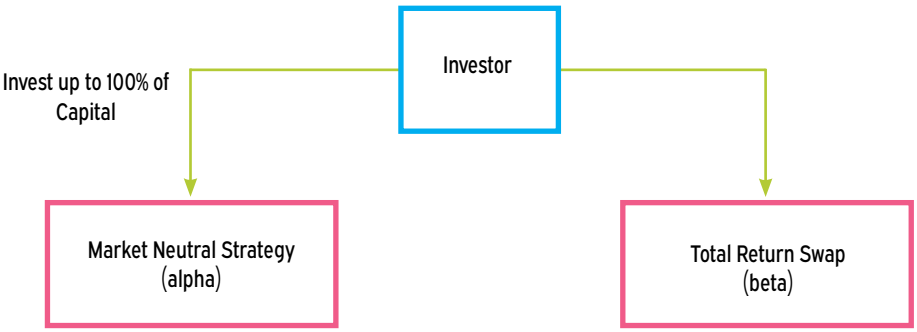

FIGURE 2
A Portable Alpha Strategy that Uses a Swap

In this example, the investor's total return will be the sum of the following:

1. + Net gain (net loss) on total return swap (i.e., the return experienced by index less the coupon paid to the counterparty)
2. + Gain (loss) on the market-neutral strategy
3. — Fees paid to market-neutral strategy
4. — Rate paid to swap counterparty

Marketable alternatives as an alpha source

Marketable alternatives such as hedge fund of funds, separate accounts, and individual hedge funds are all potential alpha sources. Moreover, a variety of "liquid alternative" systematic strategies that provide hedge fund-like exposures are also popular as a component in portable alpha constructs. Lastly, the return stream for a *portfolio* of alpha managers typically exhibits relatively low volatility compared with a portfolio of long-only equity managers.

However, investors should beware of potential pitfalls. Few alpha-oriented strategies are truly market neutral. Some observers believe that hedge fund betas represent risk premiums that require a slightly more complex strategy than a long-only strategy can employ. These risk factors are common and can be captured through quantitative techniques at a relatively low cost, resembling strategies employed by long-only managers. Exotic premia, or newly defined premia, tend to be more complex and thus a specialized active manager is preferred. Thus, part of the return produced by hedge funds represents compensation for accepting a unique risk. These strategies can be thought of as "alternative" betas, or hedge fund betas. These alternative betas can be just as attractive in portable alpha constructs, but their costs should be lower and investors need to be cognizant of similar exposures across other elements of their portfolio (e.g., market-neutral exposure to value when an investor already has a value bias within equity portfolios).

Hedge fund costs are considerable. The fees can range between a flat fee in the neighborhood of 0.5% all the way up to a traditional "2 and 20" fee schedule.[13] For fund-of-funds, there is an additional layer of fees above that paid to the underlying managers, perhaps nearing 1%. The choice of structure often depends on fees and whether the investor requires a turnkey approach.

[13] Refers to a management fee of 2.0% and a performance based fee of 20% of profits.

Conclusion

The structure and use of portable alpha programs has evolved since its early days. Today, many investors look at it as an opportunity to combine two uncorrelated return streams, with the potential added benefit of manager alpha. Practically speaking, investors should view it as a mechanism to increase the capital efficiency (i.e., leverage) of a portfolio while also increasing flexibility.

Portable alpha is usually implemented by layering one or more alpha strategies on top of a fully invested portfolio. These alpha sources should be designed to have little or no correlation to broader markets. Thus, the "alpha" they produce will simply take the form of returns that are unrelated to the broad performance of traditional markets. If implemented via a turnkey approach, the manager handles all of the complexities that are inherent with the construct.

Portable alpha is not without drawbacks: unknown and variable beta exposures, leverage, potential illiquidity, and complexity all present significant hurdles to implementation. However, a well-constructed portable alpha program has the potential to produce higher net returns with *de minimis* impact to portfolio volatility.

Appendix A

Glossary of Terms

Alpha an estimate of the value added by a manager due to skill (or luck).

Basis risk the risk that the return instrument used will not match the return of the desired benchmark.

Beta a measure of the systematic, non-diversifiable risk of an investment. Specifically, beta measures the exposure of an investment (e.g., a manager's portfolio) relative to the market, which is defined as the manager's benchmark.

Correlation a measure that determines the degree to which two variable's movements are associated.

Futures a financial contract obligating the buyer to purchase an asset (or the seller to sell an asset), such as a financial index, at a predetermined future date and price. Futures contracts detail the quality and quantity of the underlying asset; they are standardized to facilitate trading on a futures exchange.

Leverage the use of borrowed money to gain additional exposure to an investment without increasing the principal.

Lock-up an interval during which an investment may not be liquidated.

Long-only a strategy that will only purchase, or own, securities.

Rolling the process of closing an expiring futures contract and opening a position in the same class of contract at a future maturity.

Short selling the process of selling shares of a security without owning them, with the hope of buying them back at a lower price in the future.

Swap the exchange of one return stream for another.

Tracking error the average amount by which the performance of the manager typically differs from that of the benchmark. Tracking error is calculated as the standard deviation of the difference in returns between the manager and the benchmark.

Variation margin additional margin required to bring an account up to the required level due to market fluctuations.

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