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# Asset Allocation Barbells

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*Abstract:* The investment management industry is dominated by three kinds of service providers. Indexers offer to reproduce the performance of a benchmark. This service appeals to the most risk-averse investor, or the investor who believes that financial markets are perfectly efficient. A second category of service providers, hedge funds, is marketed to aggressive investors, and many (though not all) are very volatile. This category is often considered inappropriate by fiduciaries responsible for institutional funds, though making small allocations to “alternative investments” is becoming more accepted. The third category, core products, offers a product with modest tracking risk in exchange for modest outperformance of a benchmark. The distinction between hedge funds and core products is less substantial than is commonly supposed. Most core managers could easily compete in offering hedge funds. A typical hedge fund manager could easily convert his fund into a core product offering. Clients with funds to be managed really need only two kinds of investment management service providers. The first is indexers, who offer benchmark replication services and compete for business based on low fees and low costs. If the industry evolution contemplated in this chapter were to happen, the second would be “alpha providers,” who would manage against a cash bogie and who would offer added return in exchange for added volatility. Alpha providers would mainly compete for business, as their active precursors today do, based on their information ratios. The investment management industry may evolve toward this model, making present-day hedge fund managers and core managers obsolete.

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*Keywords:* index fund, hedge fund, core products, benchmark, active bet, active return, active risk, tracking risk, tracking error, information ratio, alpha, barbell, asset allocation

In our jargon, an asset allocation *barbell* substitutes an allocation to index funds plus a collection of hedge funds for allocations to core managers of many asset categories. To see how an asset allocation barbell can substitute for con-

ventional core management, let us consider a far-fetched analogy.

Imagine a bar with three kinds of clients. They have in common a taste for bourbon. Nevertheless, the first kind

1 is the serious drinker, who takes his whiskey straight—in  
2 a water glass. The second is the reluctant drinker, who  
3 takes water with a wee tad of spirits, just to be sociable.  
4 The third kind, like most of us, is the social drinker who  
5 enjoys a few salutary highballs. What can the bar's owner  
6 do to satisfy these three clienteles?

7 He could open three specialized bars. The sane bar  
8 owner, however, would have a single establishment mak-  
9 ing drinks of whatever strength each customer wanted.  
10 Like the bar owner, fund managers have clients with one  
11 thing in common: all like return and dislike risk. Never-  
12 theless, some are aggressive, willing to take large risks in  
13 hope of earning large rewards. Some are extremely risk  
14 averse. Most, like the highball drinkers, fall somewhere in  
15 the middle.

16 Unlike the sane bar owner, the investment management  
17 business has evolved into three separate establishments.  
18 One, the *hedge fund*, targets the most aggressive clients.  
19 Another, the *index fund*, serves only the most risk-averse  
20 clients. ~~The many~~ clients in the middle take their business  
21 to yet another establishment, run by the core manager,  
22 who takes modest risks in the hope of modestly outper-  
23 forming his bogie.

24 Few investment managers span all these product niches.  
25 Why not? First, the current division of the investment  
26 management industry among hedge funds, *core products*,  
27 and index funds is an inefficient accident of history. As we  
28 will show, a successful hedge fund manager ought easily  
29 to produce a core management product. She would not  
30 need to change her style very much, nor add many, if any,  
31 new employees. Similarly, a core manager should be able  
32 to offer a hedge fund product virtually without effort. If  
33 the core manager is successful, then his hedge fund should  
34 be equally successful. "Success" refers to investment per-  
35 formance, measured by the information ratio, which we  
36 define shortly.

37 Second, the current structure of our business may, like  
38 owning three different bars, not be optimal. We may there-  
39 fore see the investment management industry evolve to-  
40 ward a simpler structure having only two kinds of funds  
41 management providers: indexers and "alpha providers."  
42 Indexers would remain as they are now, competing among  
43 themselves mainly by offering lower fees. *Alpha* providers,  
44 each of whom would manage against a cash bogie, would  
45 mainly compete among themselves by offering superior  
46 information ratios defined in this chapter. Indexers and  
47 alpha providers would not, as we shall see, compete with  
48 each other.

49 The purpose of this chapter is to introduce the asset  
50 allocation barbell strategy, which is the combination of  
51 two investment management services provided by index-  
52 ers and alpha providers. In addition, we illustrate that  
53 the investment management industry may evolve toward  
54 this model, making present-day hedge fund managers and  
55 core managers obsolete.

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## 58 INDEX, CORE, AND HEDGE 59 FUNDS 60

61 To illustrate how arbitrary the current division of the fund  
management industry is, we are going to suppose you

are a skilled equity manager, and show how to transform  
yourself from an equity hedge fund manager to an equity  
core manager, or from an equity core manager to a hedge  
fund manager, at low cost. The demonstration can easily  
be generalized to encompass fixed income managers. We  
will start with some definitions.

### Benchmark

The portfolio against which your performance will be  
measured is your *benchmark*. If you are a U.S. equity man-  
ager, your benchmark might be the S&P 500 index, or it  
might be a growth index or a value index. If you are a U.S.  
equity manager, your benchmark might be the S&P 500  
index or it might be a growth index or a value index. If  
you are a global equity manager, your benchmark is prob-  
ably the Morgan Stanley EAFE (Europe, Australia, and  
the Far East). One common misconception is that abso-  
lute return managers do not have benchmarks. It is better,  
in their case, to think of cash as the benchmark. If you  
are managing a market-neutral, long/short equity hedge  
fund, your benchmark is probably ~~LIBOR~~. If you are run-  
ning a "global macro" hedge fund—one that does not  
remain market neutral—your benchmark is also probably  
~~the London Interbank Offered Rate (LIBOR)~~, or LIBOR  
based.

### Active Bets

An *active bet* is any difference between the portfolio you  
own and the benchmark portfolio. Examples of active bets  
you might take as an equity manager are the following:

- The beta of your portfolio might be different from the  
benchmark, if you had a view on the direction of the  
overall equity market. If you were running a market-  
neutral hedge fund, this is one kind of active bet you  
would be prohibited from making.
- You might overweight consumer durables, and under-  
weight financial companies while keeping the overall  
beta of your portfolio the same as the benchmarks.
- If you were a global manager, you might overweight  
the United Kingdom and underweight Japan. Again,  
you would want to keep the overall beta of your por-  
tfolio here defined as the sensitivity of your portfolio to  
changes in world stock prices, equal to the beta of the  
benchmark portfolio.
- You might overweight General Motors and under-  
weight Ford, compared to the benchmark weightings.

These active bets might be motivated by top-down  
(macroeconomic) views or bottom-up (credit analysis)  
views. They might be based on formal quantitative models  
implemented without human intervention, a combination  
of models and your judgment, or your pure gut instinct.  
In other words, this paper applies to the whole gamut of  
equity management styles: everybody fits. It applies to  
bond management as well.

### Active Return

*Active return* is just the effect of your active bets. *Ex  
ante* it is the expected outperformance of your portfolio,

1 compared to the benchmark's return. *Ex post* it is your  
2 realized outperformance.

### 3 4 5 **Active Risk**

6 *Active risk* is the risk that your portfolio will underper-  
7 form the benchmark. This risk comes from the active bets  
8 you take: No active bets means no active risk. It can be  
9 measured by your tracking risk.

### 10 11 12 **Tracking Risk**

13 *Tracking risk* is the forecasted volatility of your active risk,  
14 that is, your forecast of the annualized standard deviation  
15 of the difference between your portfolio's return and the  
16 benchmark's return. That forecast is based on a model, and  
17 different models will produce different estimates of your  
18 tracking risk. That does not mean that estimating tracking  
19 risk is a waste of time; however, it does mean that you  
20 should remember tracking risk is only an estimate when  
21 you use it.

### 22 23 24 25 **Tracking Error**

26 *Tracking error* is the realized volatility of your active risk,  
27 that is, the realized annualized standard deviation of the  
28 difference between your portfolio return and benchmark  
29 return. This is not an estimate, and it can be measured  
30 exactly.

### 31 32 33 **Information Ratio**

34 Your *information ratio* is your active return divided by your  
35 active risk. It can be forecasted *ex ante* or measured *ex post*.  
36 *Ex post* information ratio is a summary measure of your  
37 success as a portfolio manager. Two managers are equally  
38 successful if they achieve equal information ratios.

## 39 40 41 42 43 **TURNING A HEDGE FUND INTO 44 A CORE PRODUCT**

45 Let's start with a typical core manager's equity portfolio  
46 and partition it into two subportfolios:

- 47 • One subportfolio consists of the benchmark or of a port-  
48 folio designed to mimic the behavior of the benchmark.  
49 This is the passive portfolio.
- 50 • The other subportfolio is an overlay of active bets the  
51 core manager made. This is the active portfolio.

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54 As a result of the way the active portfolio is defined,  
55 given any core manager's portfolio we can trivially de-  
56 compose it into these two subportfolios. The passive port-  
57 folio replicates the benchmark, over which the manager  
58 has no control, because it is chosen by the client and de-  
59 fined by an index. Almost all of an active manager's time  
60 and effort goes into managing the active portfolio: de-  
61 ciding what to overweight and what to underweight, in  
comparison to the benchmark.

The core manager can create the passive portfolio by using partial replication, buying futures, entering into a swap, or by fully replicating the index. From a business perspective, the key to running the passive portfolio is keeping personnel costs and trading costs down. To the extent she has to create a passive portfolio (i.e., something that will closely track the benchmark), an active core manager does need a few resources. A quantitative staff, plus some traders to execute, will do. The core manager needs traders, anyway, to implement his active bets, so that is not an additional expense. He probably already has a quantitative staff to help manage the active portfolio as well.

Let's take a closer look at the active portfolio. Importantly, the composition of the active portfolio—what it is overweight and what it is underweight—is identical for all clients ignoring taxes. That is, if the active portfolio is optimal, so that it gives maximum excess return for its level of tracking risk, it should not be customized to reflect the differing risk appetites of different clients. Only the relative size of the active portfolio, not its composition, should be changed. This is formally proven in Roll (1992) and in the appendix to Thomas (2000).

Recall that the active portfolio will contain positions such as long the United Kingdom, short Japan, long consumer durables, short financial stocks in the United States, long General Motors, short Ford, or even short of beta (respectively, long of beta) if it is not market neutral. In the latter case, you can think of the active portfolio as being short of the overall market, long of cash (respectively, long of the overall market, short of cash). In other words, the active portfolio is just like a hedge fund. It takes long and short positions in markets, sectors, and in particular stocks. The only difference is that many hedge funds these days use a lot of leverage, and for most core managers the components of the active portfolio are small compared to the overall value of the portfolio. Nevertheless, leverage is not intrinsic to the main idea of a hedge fund. The main idea is that you have a great breadth of operation and you can go long or short; leverage is optional.

A typical global equity hedge fund may be leveraged two or three times or even more. How much would our core manager's internal hedge fund—that is, his active portfolio—be leveraged? It depends on how much tracking risk the clients want to take, the intrinsic riskiness of the bets in the active portfolio, and on how diversified the bets are. However, a typical figure would probably be something on the order of 0.05 $\times$ , 0.1 $\times$ , or 0.15 $\times$ . In other words, it would be much unleveraged; nonetheless, in all other ways, it would closely resemble many of the equity hedge funds being marketed today.

Suppose you were running a successful hedge fund and wanted to break into the core management business. Creating a product would be easy: For each \$100 invested by a client, you would deploy something like 80% to 90% to an internally managed index fund, designed to replicate the client's benchmark. Your quantitative team would run that internal fund. You would instruct them to reproduce, not beat, the benchmark's performance. Alternatively, you might use equity futures if a liquid contract existed for the required benchmark, or a total return swap if no convenient futures contract existed.

1 Then you would invest the remainder—let’s call it  
 2 10%—in your existing hedge fund. Obviously, your hedge  
 3 fund would serve as what we call the core manager’s ac-  
 4 tive portfolio. Because this active portfolio would be iden-  
 5 tical to your existing equity hedge fund, the marginal costs  
 6 of creating this new product—a core product—should be  
 7 small.

8 What information ratio would you achieve? Your core  
 9 management product would have the same information  
 10 ratio as your hedge fund because the active portfolio  
 11 would be the only source of active risk and the only  
 12 source of active return in the portfolio. The passive portfo-  
 13 lio would contribute neither incremental risk nor return;  
 14 hence, the portfolio would necessarily have the same in-  
 15 formation ratio as the active portfolio, that is, the hedge  
 16 fund. If you are successful as a hedge fund manager, you  
 17 should be equally successful as a core manager, where  
 18 “success” is measured by your information ratio.

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21 **Would the Transaction Really Be So Easy?**

22 The transaction mentioned in the previous section de-  
 23 pends on two assumptions. First, your hedge fund is scal-  
 24 able and you can increase its size without degrading its  
 25 information ratio. Second, your core product’s client will  
 26 give you sufficiently spacious investment guidelines. In  
 27 practice, both assumptions sometimes do not exactly hold.  
 28 If as a core manager, you were to face binding investment  
 29 restrictions that did not apply to your hedge fund busi-  
 30 ness, then you would have to modify your investment  
 31 strategies to remain in compliance with your guidelines.  
 32 Your hedge fund ought to enjoy a higher information ra-  
 33 tio. This effect should not be too severe. It is true that most  
 34 core investment managers cannot actually sell short; how-  
 35 ever, you usually would not have to. You would only have  
 36 to short relative to your benchmark. Taken together, you  
 37 would only need the authority to underweight particular  
 38 countries, sectors or stocks. Conventional core mandates  
 39 already give you that authority.

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 43 **TURNING A CORE MANAGER**  
 44 **INTO A HEDGE FUND MANAGER**

45 In like manner, a core manager can easily offer a hedge  
 46 fund product. All he must do is to identify his active bets,  
 47 segregate them, and then leverage them to conform to the  
 48 level of volatility his hedge fund clients’ demand.

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52 **Management Fees**

53 One obvious difference among core managers, index man-  
 54 agers, and hedge funds is fees. Hedge fund fee rates are  
 55 generally much larger than core management fee rates.  
 56 However, overall fee levels could be closer than one would  
 57 expect from the rates. A core manager’s fees would apply  
 58 to all the assets under his control; even though, a good  
 59 portion of the assets would probably be deployed to the  
 60 passive subportfolio. The following is an example, using

representative fees for active fixed income portfolio man-  
 agement.

Suppose a core fixed income manager charges 30 ba-  
 sis points (bps) and achieves (on average) 100 bps over  
 his benchmark. We will suppose that an index manager  
 charges 5 bps, and a bond hedge fund manager charges an  
 expected 400 bps (calculated at 200 bps of fixed fees, plus  
 a performance fee of 20% of 10%, where we assume the  
 hedge fund’s targeted outperformance of LIBOR is 10%.)

One *asset allocation* strategy, which is obvious, is to give  
 your funds to a specialist core manager. The equivalent  
 asset allocation barbell strategy is to invest 90% of the as-  
 sets in an index fund and 10% in the hedge fund. Notice  
 that the expected outperformance before fees is 100 bps in  
 both cases. Moreover, if the core manager and hedge fund  
 manager achieve the same information ratio, the core portfo-  
 lio and the barbell portfolio will have the same active  
 risk. Let’s compare the fees of this asset allocation barbell  
 strategy with the fee of core management strategy:

Core Management Strategy	30 bps
<b>Asset Allocation Barbell Strategy:</b>	
90% of assets invested in an index fund (90% of 5 bps)	4.5 bps
10% of assets invested in a hedge fund (10% of 400 bps)	40.0 bps
<b>Total Barbell Fees</b>	<b>44.5 bps</b>

In this example using the barbell asset allocation strat-  
 egy would increase overall fees, from 30 bps to 44.5 bps.  
 The sponsor would have the consolation of paying lower  
 fees if results failed to meet expectations since part of his  
 fees are performance related. Nevertheless, his fees would  
 be higher in years when the composite portfolio outper-  
 formed its benchmark by more than 10%.

Now let’s consider the fees paid by a more risk-averse  
 plan sponsor. Suppose this plan sponsor directs his core  
 manager to try to produce only 50 bps of excess return with  
 a commensurate reduction in active risk. The equivalent  
 barbell strategy is to place 95% of the funds in an indexed  
 product with only 5% invested in the hedge fund. Note  
 that the 5% in the hedge fund is expected to produce 50  
 bps in excess return since the hedge fund’s target is to out-  
 perform LIBOR by 10%. The fee comparison now becomes  
 the following:

Core Management Strategy	30.0 bp
<b>Asset Allocation Barbell Strategy:</b>	
Index fund (95% of 5 bps)	4.75 bp
Hedge fund (5% of 400 bps)	20.0 bp
<b>Total Barbell Fees</b>	<b>24.75 bp</b>

Now the plan sponsor expects to pay lower fees using  
 the barbell strategy. The difference in this example is 5.25  
 bps; although it should be clear that the barbell alloca-  
 tion’s fee advantage increases the more risk averse the  
 plan sponsor is. This leads to a surprising result, which is  
 the more risk averse a plan sponsor is, the more likely it  
 is that he will find it attractive to use a hedge fund, not a  
 conventional core product. Of course, the more risk-averse  
 investor will also use indexed products for the bulk of his

1 funds under management, and this explains the seeming  
2 paradox.

### 6 SUMMARY

7 To accommodate his different clienteles, an investment  
8 manager needs only a passive portfolio and an active port-  
9 folio, mixing them to suit each client, no matter how varied  
10 ~~her~~ clients' appetites for risk may be. A consumer does not  
11 need three different kinds of fund managers; nonetheless,  
12 he only need two. He does not even need the core man-  
13 ager to help him manage his portfolio. As long as there  
14 is a comprehensive range of indexed fund products avail-  
15 able and many purveyors of pure alpha products, he can  
16 combine them to construct a portfolio that (a) reflects his  
17 baseline asset allocation into broad asset classes, but also  
18 (b) contains a diversified portfolio of alpha products that  
19 reflects his forecasts of the information ratios various ac-  
20 tive managers can achieve, their forecasted correlations,  
21 and his own appetite for bearing risk.

Au: Pls.  
check  
for  
sense!



22 This does not prove that the barbell structure—index  
23 replicates plus pure alpha managed against a cash  
24 bogie—is superior; nevertheless, there are reasons to think  
25 it might be. First, all the alpha providers are to be mea-  
26 sured against a cash bogie, the barbell structure is easy to  
27 understand. With the barbell system, it is easy to see which  
28 managers are adding alpha commensurate with their risk  
29 and fees. Clients might prefer the transparency of this  
30 structure to using core managers, each of whom uses a  
31 different bogie. Second, customers' overall fees might rise  
32 or fall. As we have seen, that depends on the fee structures  
33 of core managers, indexers, and alpha providers, and also  
34 on how risk-averse they are. In a competitive world, we  
35 might expect the average client's fees to be about the same  
36 in either case. As the industry continues to evolve, overall  
37 fees ought to fall for two reasons: (1) the barbell structure  
38 promotes more competition; and (2) greater transparency  
39 should cull more incompetent active managers, making  
40 ours a smaller industry, and thus one less costly to oper-  
41 ate. Third, for many clients, the barbell structure would  
42 span a larger space of potential portfolios than the cur-  
43 rent industry structure does. Conventionally, a client first  
44 chooses a collection of benchmarks and weightings—the  
45 asset allocation decision—and then chooses one or more  
46 core managers to manage against separate benchmarks.  
47 If he believes no manager can beat a particular bench-  
48 mark, he will ordinarily choose to use an index manager  
49 for that portion of his portfolio. Effectively, the collection  
50 of active managers available to a client depends on which  
51 benchmarks he has chosen.

52 What if there is an active manager who can generate an  
53 attractive information ratio but does not manage against  
54 any one of the client's chosen benchmarks? Under the cur-  
55 rent system, the client is out of luck: The client does not  
56 have access to this manager's skills. If all active managers  
57 offered a pure alpha product, managed against LIBOR,  
58 a client could combine any collection of active managers  
59 with any collection of benchmarks. Effectively, the uni-

verse of active managers actually available to the client  
would actually have been expanded. Benchmark selec-  
tion would no longer govern which active managers' skills  
could be utilized by the client. Benchmark selection and  
active manager selection would have become completely  
separable. Alpha production would have been freed from  
the restrictions ordinarily imposed by asset allocation de-  
cisions. Alpha and beta would be independent.

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