

**The 12th Annual
QUANTEC Investment Seminar**

**The Structure of
Active Management**

Jason MacQueen

We Begin at the Beginning . . .

- Consider the classic investment product :
 - active equity fund managed relative to some equity market index as benchmark
 - based on a combination of a stock selection model and the manager's judgements
 - **expected alpha of 2%** (based on backtests of the model and paper portfolio simulations)
 - no other sources of outperformance offered by the product, and hence no other bets in the portfolio
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Oh yes, the Fees

- Assume we have a £100 million account
- Fees are likely to be around 35 basis points
- That's £350,000 per annum to the manager
- **No matter what the *ex post* performance might be**
- However, if the manager can achieve an *ex post* alpha of 2%, the client will gain alpha wealth of £1,650,000

Awkward Fact Number One

- **‘Implementation Shortfall’** is the distressing tendency of actual portfolios to underperform paper portfolios (or, indeed, backtest simulations)
- The difference is largely due to the transaction costs incurred in managing and rebalancing the portfolio

Transaction Costs the Culprit

- Transaction costs get larger as the trades get larger
- Moreover, they get larger faster for active managers with a decent alpha, as the brokers seek to protect themselves against superior information or analysis
- However, they get larger more slowly for the ‘informationless’ trades made by index fund managers
- **There is an increasing ‘alpha penalty’ in transaction costs as the size of active trades increases**

More on Transaction Costs . . .

- Transaction costs are larger for trades in smaller stocks, and smaller for trades in larger stocks, and in between for trades in medium-sized stocks
- Transaction costs also increase for trades that are a larger percentage of a stock's average daily volume
- See A. F. Perold & E. R. Siri,
The Cost of International Equity Trading
Harvard Business School Working Paper 97-012
November 1994

. . . and Lost Opportunity Costs

- The above results all refer to the cost of the trades that are actually executed
- But another - and often the major - contributor to the Implementation Shortfall is the opportunity cost of the trades that are not done, either partly or totally
- Needless to say, as the assets under management get larger, it becomes ever harder to get the required trades executed
- **Opportunity costs can seriously damage your alpha !**

Awkward Fact Number Two

- So . . . as the size of the assets under management increases, ‘alpha’ becomes ever more elusive
- There are serious diseconomies of scale in the realizable performance of any given investment strategy

What is the Optimal Size of Assets ?

- Maximising the rate of return leads to the unhelpful conclusion that the optimal amount of assets is zero
- Maximising the total wealth created by the investment process gives, if not necessarily a more valid answer, at least one that is more palatable to fund managers
- See A. F. Perold & R. S. Salomon Jr.,
The Right Amount of Assets Under Management
Financial Analysts Journal
May/June 1991

So Far, So Good

- There is therefore a de/finite limit to the optimal amount of assets that can be managed with any particular investment strategy
- Fund management firms can, of course, offer more than one investment product/strategy
- Provided the assets managed with each strategy do not exceed their optimal amounts (and the strategies are not simply clones of each other) there is no problem

Awkward Fact Number Three

- Fund managers get paid fees calculated as a declining percentage of the assets under management
- This means that the manager's incentive is to grow the assets under management to be as large as possible
- The client's incentive, however, is to get the best return on their funds - to maximise their wealth
- **As soon as the assets under management exceed the optimal amount, the manager's and client's interests are in direct conflict**

What Return does the Client get ?

- Suppose we have :
 - a risk-free rate of 7%
 - an expected market risk premium of 6%
 - giving an expected market return of 13%
 - plus an expected alpha of 2%
 - then expected portfolio return = 15% (before fees)
- This gives a net expected wealth created for the client of £14,650,000 after fees

How is the Return achieved ?

- The manager, Totally Typical Asset Management Ltd, probably holds benchmark-only stocks in the portfolio
- Some holdings are overweight relative to the benchmark, some underweight and some are zero
- The alpha comes from these overweight and underweight positions
- The overweight positions usually amount to about +40% of TTAM's portfolio, and so the underweight positions will be around -40%

What is the Client paying for ?

- The total expected portfolio return before fees is 15%
- However, 13% of this arises simply from being exposed to the equity market (the benchmark)
- The manager is really only adding the 2% alpha
- It might be helpful to separate out the long/overweight and short/underweight positions from the benchmark, and the alpha from the expected benchmark return

Defining Deadweight

- We can think of the portfolio as follows :
 - 100% long in the benchmark
 - 40% long in overweight stocks
 - -40% short in underweight stocks
- For each stock, deadweight is defined as the lesser of the benchmark weight or the portfolio weight
- Portfolio deadweight is then the sum of the individual stock deadweights - in this case 60% of the portfolio

Active Fees for Deadweight ?

- The client wouldn't pay active fees at all if the manager was simply holding the benchmark index
- Index fund fees for a £100,000,000 account would typically be around 5 basis points, or £50,000 p.a.
- So why would the client want to pay active fees on any part of the portfolio that is just the benchmark ?
- **In other words, why pay active fees on the portfolio deadweight ?**

Too Scary to Think About

- Notice that we are confining our attention in this talk to a single active fund
- But if the client has several active managers, chances are the deadweight in the combination exceeds the sum of the deadweight carried by each active manager
- We won't pursue this point any further, since it's too scary to contemplate, but remember that it gets worse

Restructuring the Fund

- Separate the £100,000,000 into a £60,000,000 index fund and a £40,000,000 market neutral fund
- Fees on the index fund will be £30,000
- We could therefore pay up to £320,000 in fees on the market neutral fund and be no worse off
- **Note that on a fixed fee basis this would correspond to a fee of 80 basis points**
- { N.B. pay peanuts, get monkeys ? }

Structure of the Market Neutral Fund

- £40,000,000 of capital
- We keep a 10% cash buffer, then
 - invest £36,000,000 in the overweight positions
 - sell £36,000,000 short of the underweight positions
 - collect the short rebate on cash from the short sales
- Buy £40,000,000 worth of index futures out of the cash buffer to get our overall exposure to the index benchmark back up to £100,000,000

Fees on the Market Neutral Fund

- Typical fees for a Market Neutral fund would be :-
 - fixed fee of 25 basis points per annum
 - variable fee of 20% of assets above the floor
 - floor = (market return + fixed fee) * account size
 - so variable fees = 20% *(alpha wealth - fixed fees)
 - variable fees subject to a high-water mark
- In this case, the fixed fee would amount to £100,000 so the total fixed fees due have been just £130,000

Returns on the Market Neutral Fund

- The long-short positions get us 90% of the alpha
- In wealth terms, this would be £1,800,000 **if the achievable *ex post* alpha really is 2%**
- The index futures get us the market return on the active £40,000,000 part of the overall fund, and the index fund gets us the market return on the rest
- The performance fees will be £340,000

Summarizing the Result

- Total fees at this point have been £470,000 which is £120,000 more than TTAM's standard fees
- Net alpha wealth created for Client is £1,330,000 which is £320,000 less than in the normal case
- This is the net result from a gross alpha of 2%
- So . . . fees are higher, alpha wealth is lower
 - **How can this be a good deal for the client ??**

Break-Even Fees

- Note that the performance fees are only paid if the manager actually achieves the alpha
- We can calculate the performance for break-even fees
 - £130,000 of fixed fees
 - £220,000 of performance fees
 - implies wealth created of £1,200,000
 - so net alpha wealth to Client of £850,000
 - corresponding to a gross alpha of 1.33%

Break-even Client Wealth

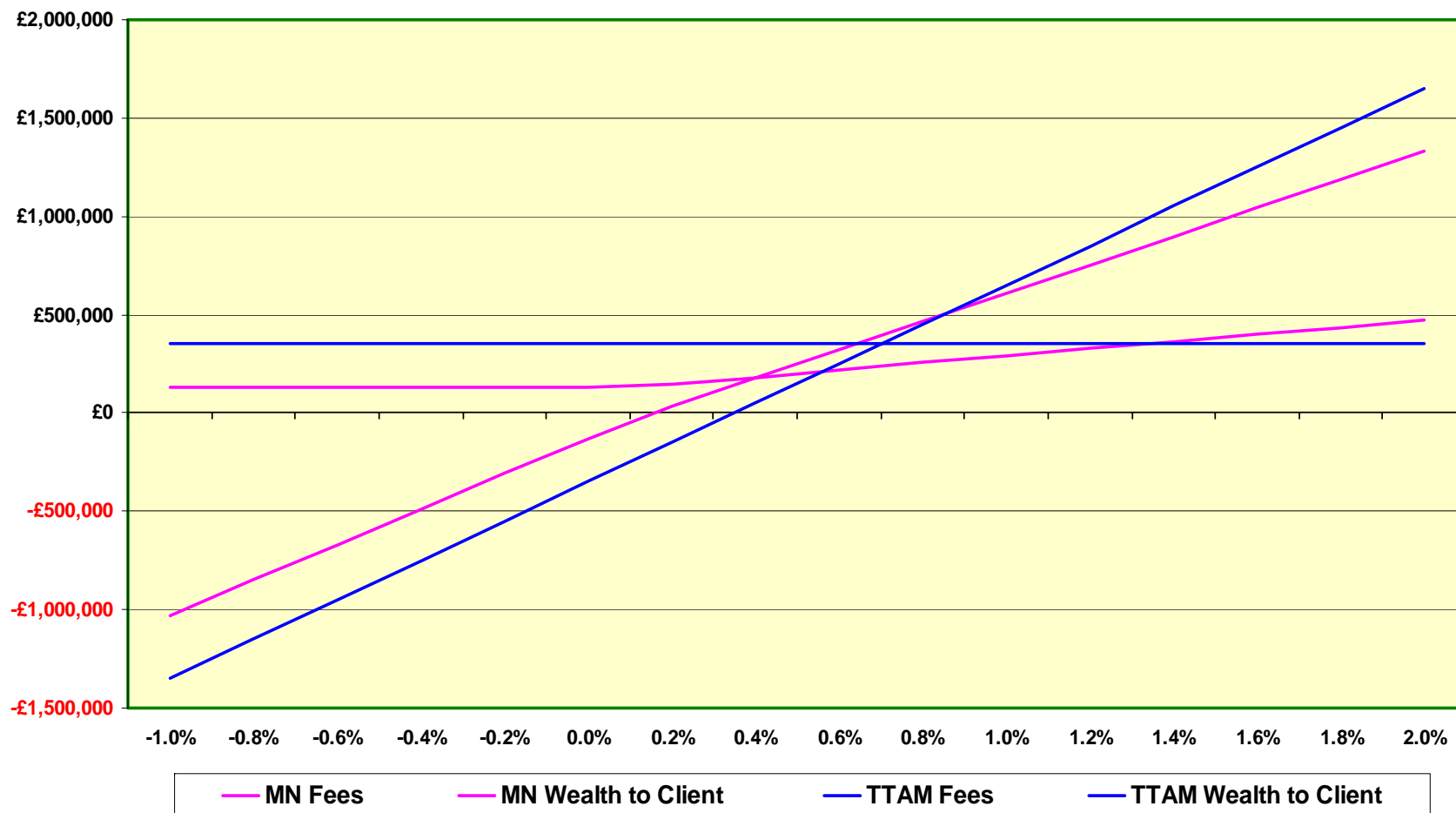
- However, a more relevant calculation would be to find the level of gross alpha at which the Client will break-even on net alpha wealth created
- This turns out to be at a gross alpha of 0.857%
 - otherwise known as $(6/7)\%$
- These, and some other interesting results, are summarized in the following Table and Graph

Some Rather Interesting Numbers

Gross <u>Alpha</u>	M. N. <u>Client Wealth</u>	M.N. <u>Fees</u>	TTAM <u>Client Wealth</u>	TTAM <u>Fees</u>
2.00%	£1,330,000	£470,000	£1,650,000	£350,000
1.33%	£850,000	£350,000	£983,333	£350,000
1.00%	£610,000	£290,000	£650,000	£350,000
0.86%	£507,143	£264,286	£507,143	£350,000
0.50%	£250,000	£200,000	£150,000	£350,000
0.00%	-£130,000	£130,000	-£350,000	£350,000
-0.50%	-£630,000	£130,000	-£850,000	£350,000
-1.00%	-£1,130,000	£130,000	-£1,350,000	£350,000

Alpha Strategies Ltd.

Manager Fees & Client Wealth



Alpha Strategies Ltd.

Who wins and Who loses ?

Gross Alpha	TTAM Manager	TTAM Client	MN Manager	MN Client
< 0.86%	Better off	Worse off	Worse off	Better off
= 0.86%	Better off	Neutral	Worse off	Neutral
< 1.33%	Better off	Better off	Worse off	Worse off
= 1.33%	Neutral	Better off	Neutral	Worse off
> 1.33%	Worse off	Better off	Better off	Worse off
= 2.00%	Worse off	Better off	Better off	Worse off

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Two More Comments

- **The active risk for the MN structure will be lower**, since the MN fund only has 90% of the active bets
- If the Client was happy with the original level of risk, the manager could take bigger bets and get more alpha
- **The average size of trades** will also be lower for the Restructured fund , and therefore cheaper
- So the net alpha after transaction costs will be higher

Double Alpha ?

- The MN structure described above simply preserves the alpha the TTAM manager would have achieved
- Most traditional managers focus primarily on being overweight in their favourite stocks
- Underweight (i.e. deadweight) holdings in such funds are often just large constituents of the benchmark held to reduce both Client and Manager risk!
- Zero holdings usually add nothing to the alpha

Conclusions

- Restructuring the fund will :
 - focus attention on the active bets being made
 - reduce the alpha penalty in transaction costs
 - reduce the active risk or leverage alpha
- But much more importantly, it goes a long way towards aligning the interests of Manager and Client
- The benefit for the Client is obvious, so the question reduces simply to this :
- *Does the Manager really believe his own marketing ?*