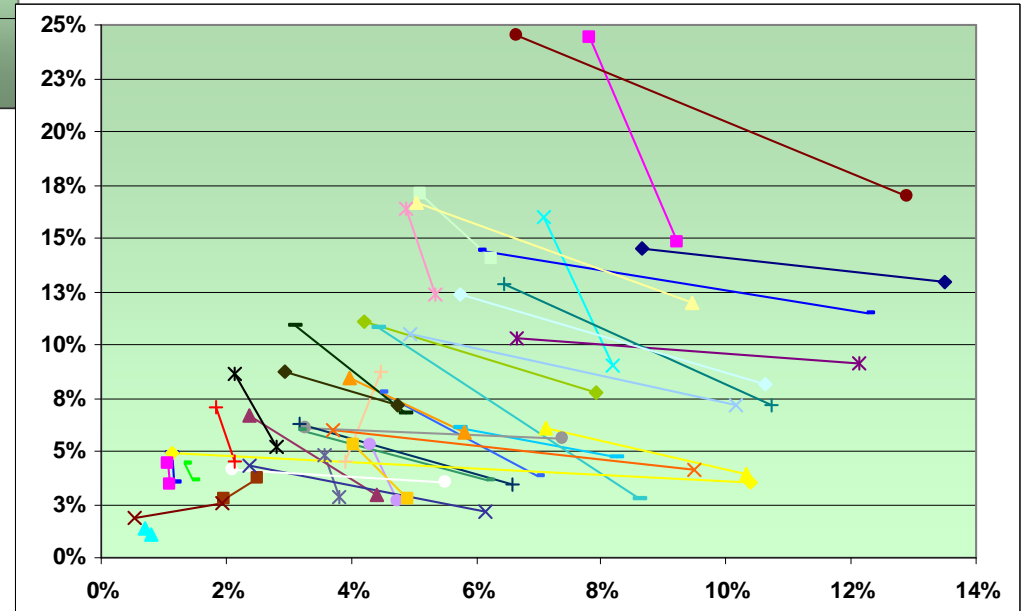
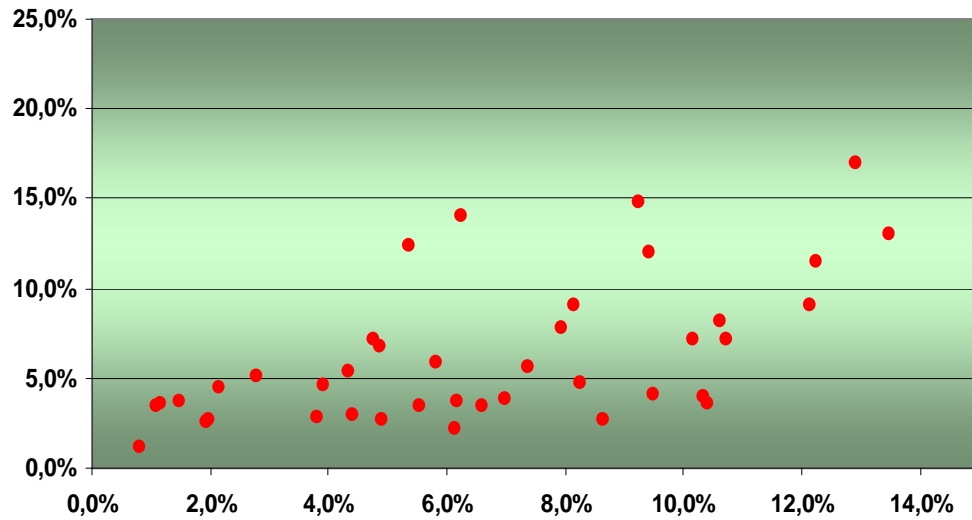

ECONOMIA DEGLI INTERMEDIARI FINANZIARI AVANZATA
MODULO ASSET MANAGEMENT

LECTURE 5

FLEXIBLE PRODUCT IN ITALY

Risk control on low volatility profile?

- Broad range of volatility
- Volatility shift over time



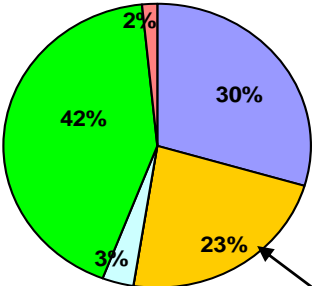
MANAGEMENT STYLE

Benchmark related product aversion

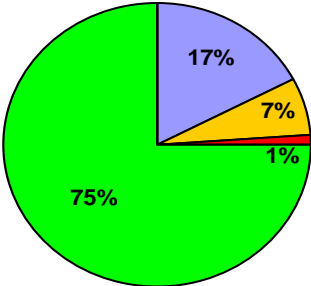
- Implicit benchmark on all product defined by approximation of risk return profile

- Euro Cash
- Euro Bond
- Emerging Mkt Bond
- Equity World
- Equity Emu
- Equity Pacific x J

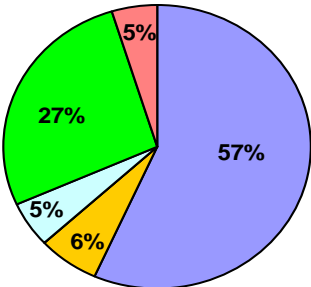
Alarico Re



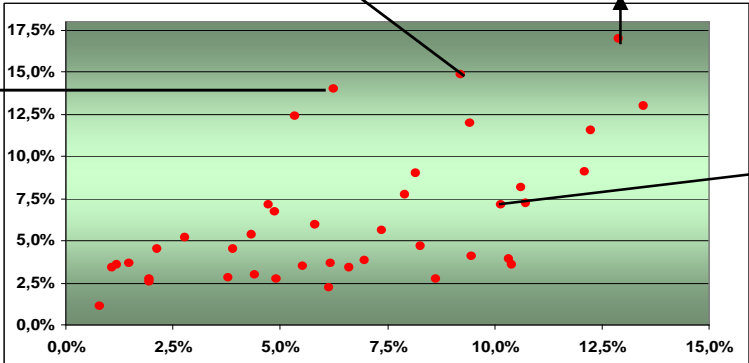
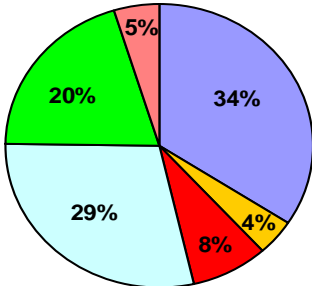
Azimut Trend Italia



Kairos Partners Fund



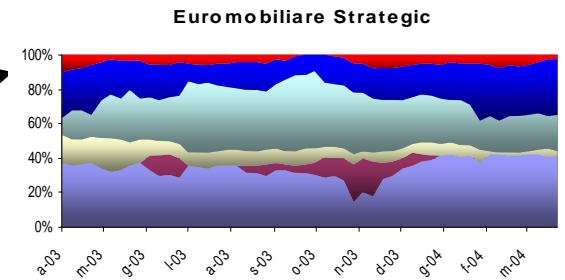
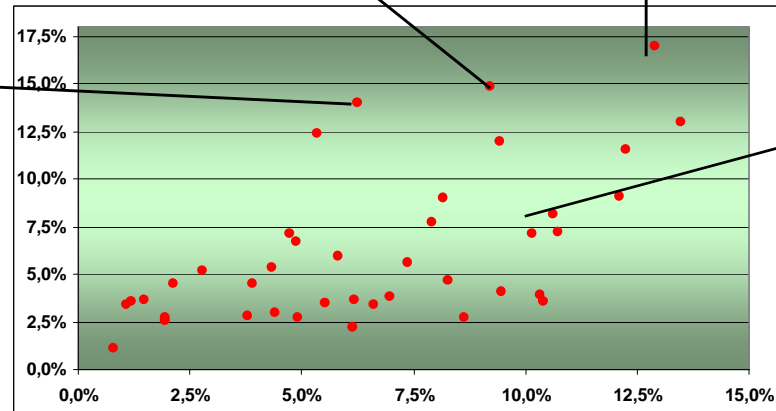
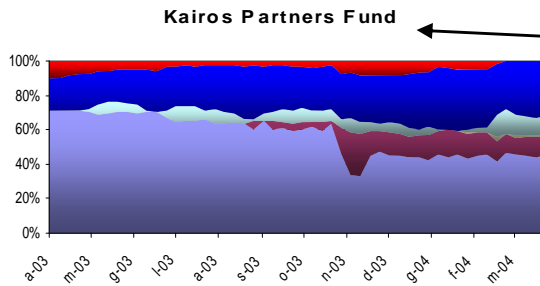
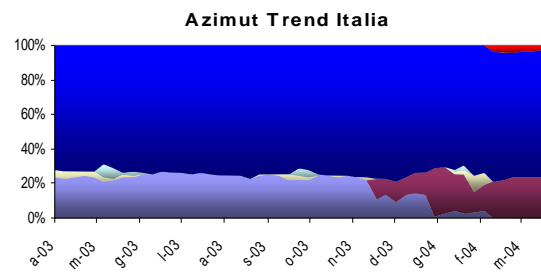
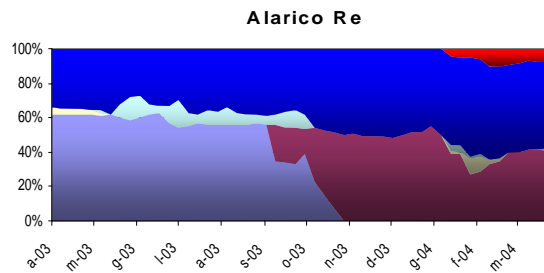
Euromobiliare Strategic



STYLE ANALISYS

Different Degrees of Active Management

- Style analysys based show different management approach over the various financial profiles.`



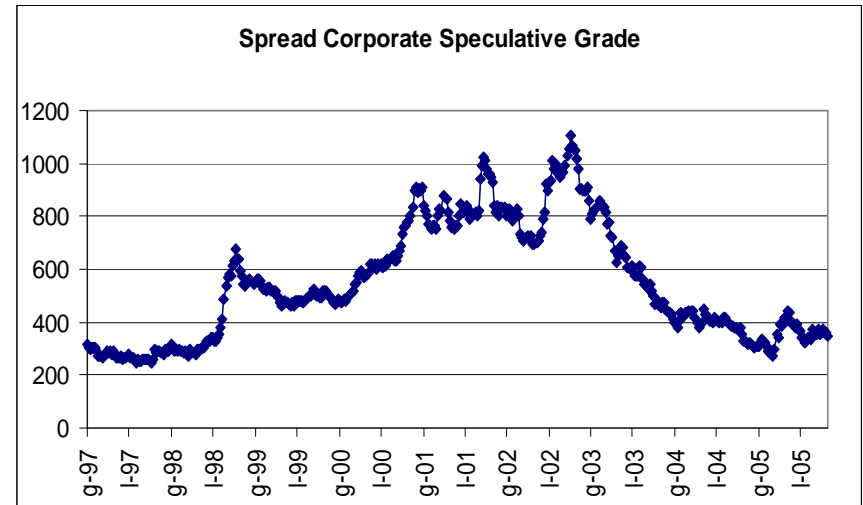
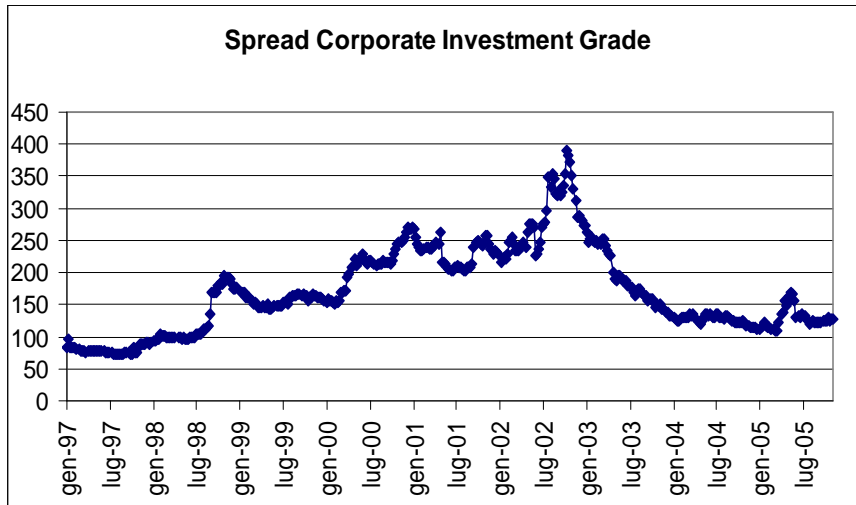
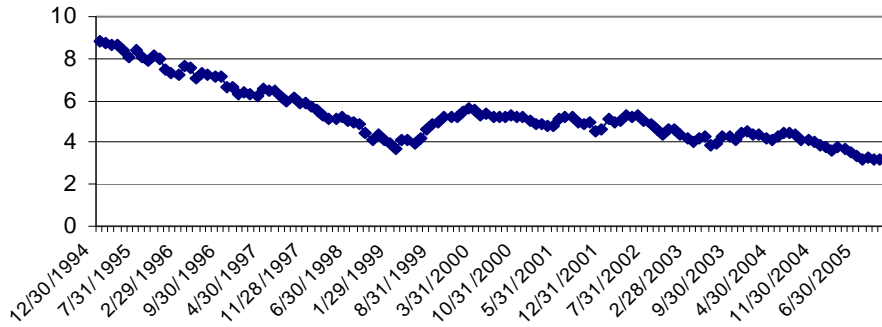
FLEXIBLE FUND AND MANAGEMENT TARGET

Average historical
return

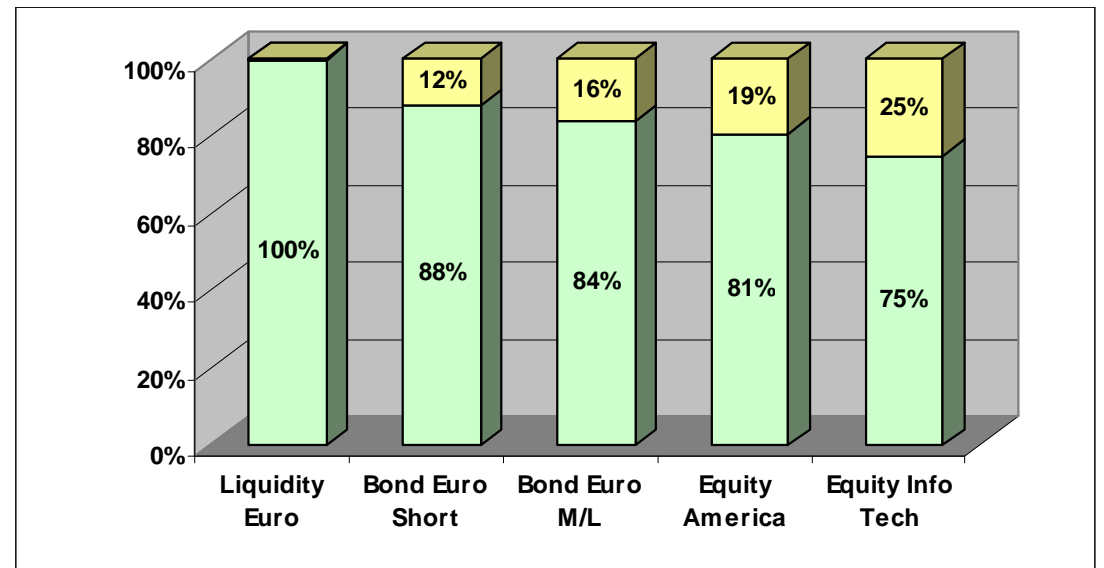
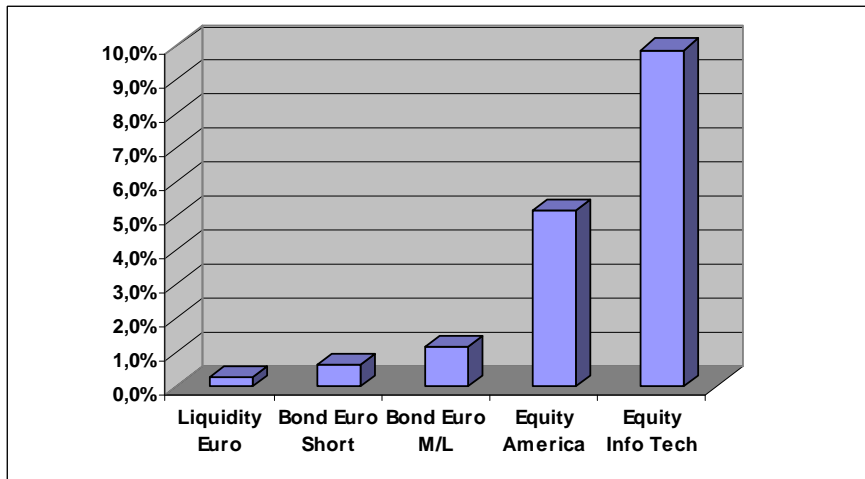
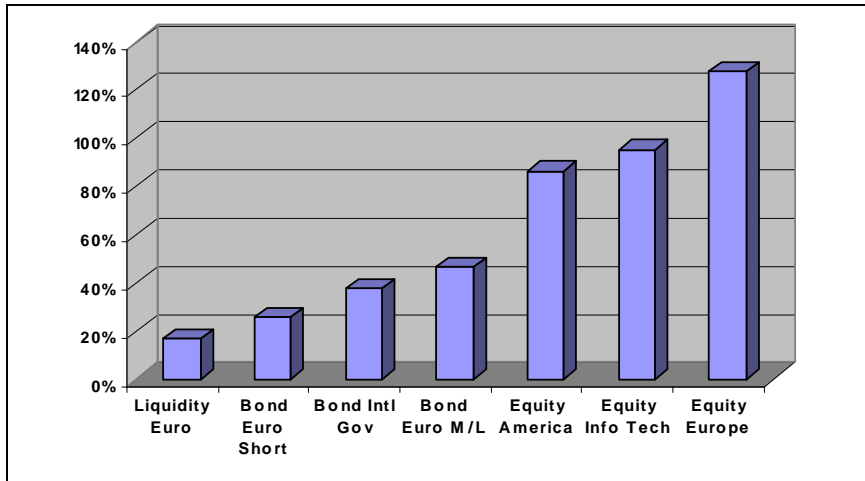
> 5%	ALFA GENERATION (Absolute Return) 2.5%	EFFICIENT 45%
< 5%	CASH ENHANCED 22.5%	DOMINATED 30%
	< 4%	> 4%

Average
Historical Risk

ABSOLUTE RETURN – BACK TO THE FUTURE?



ABSOLUTE RETURN – BACK TO THE FUTURE?



Benchmark management

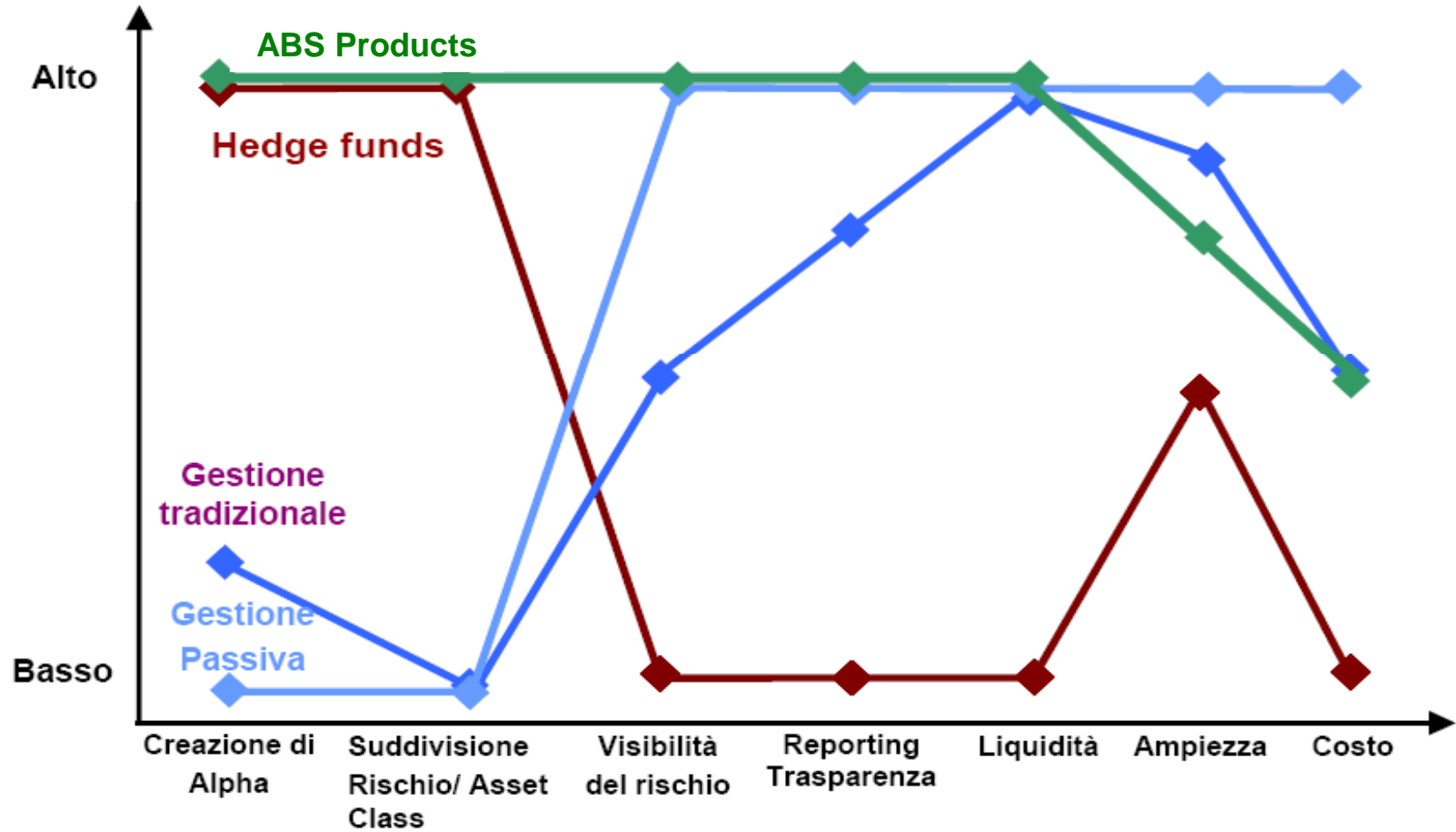
- **Benchmark-oriented → Beta management**
- **Minimization of costs**
- **Limited diversification**
- **Accounting reading**
→ **Asset allocation**
- **Horizon/asset class couple**

Absolute return management

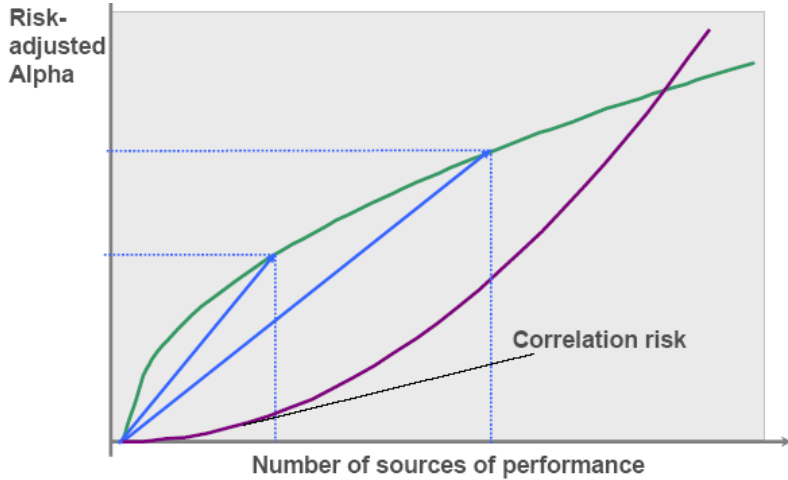
- **Performance-oriented → Alpha creation**
- **Maximization of revenues**
- **Maximum diversification**
- **Financial reading**
→ **Risk allocation**
- **Horizon/risk couple**

➤ *Beta versus Alpha Management:*

DIFFERENT MANAGEMENT STYLES

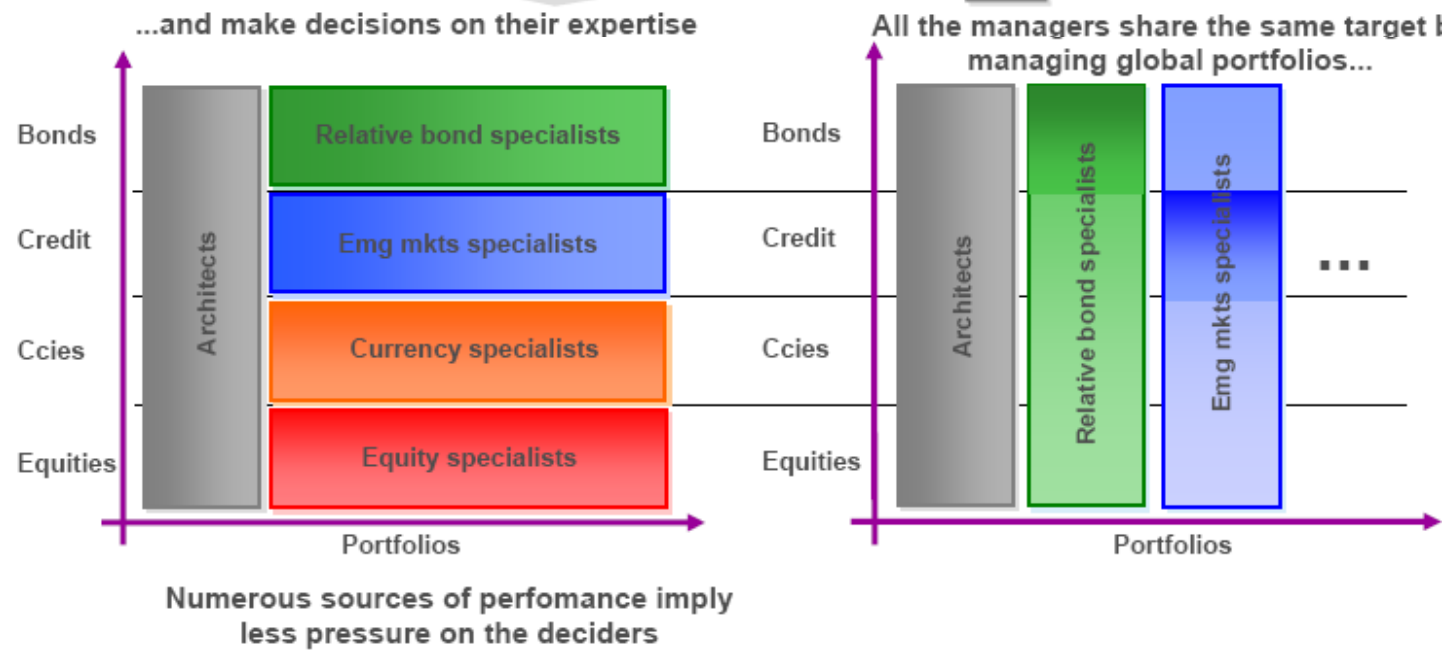


KEY MANAGEMENT GUIDELINES



Market views

Portfolio construction



WHERE IS ALPHA?

- Pick your battles

The markets where most of the money is are the most efficient!

Why:

- Weight of Assets
- Global Capital Flows
- Hedge Funds
- Internet

- So what do we do?

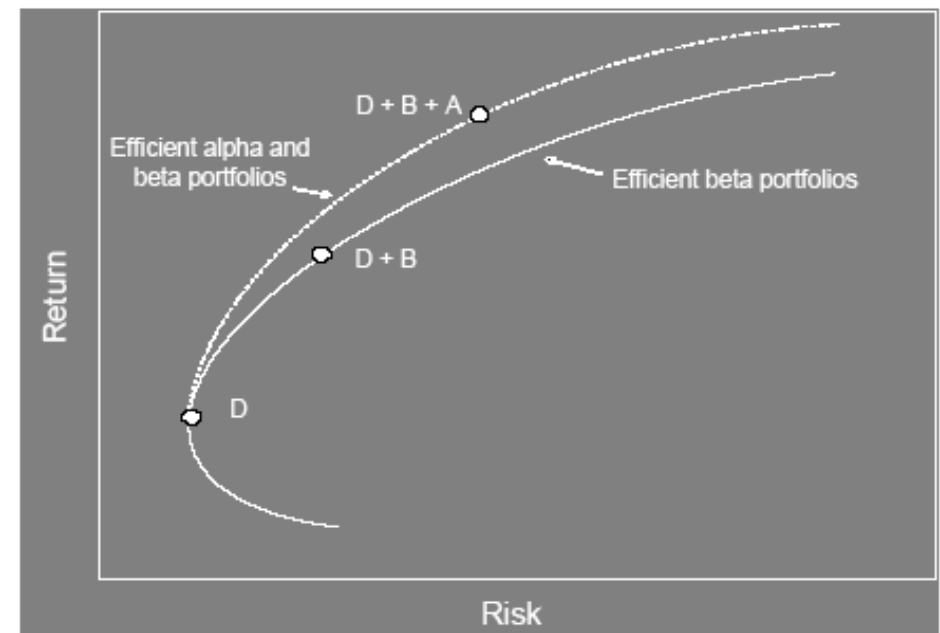
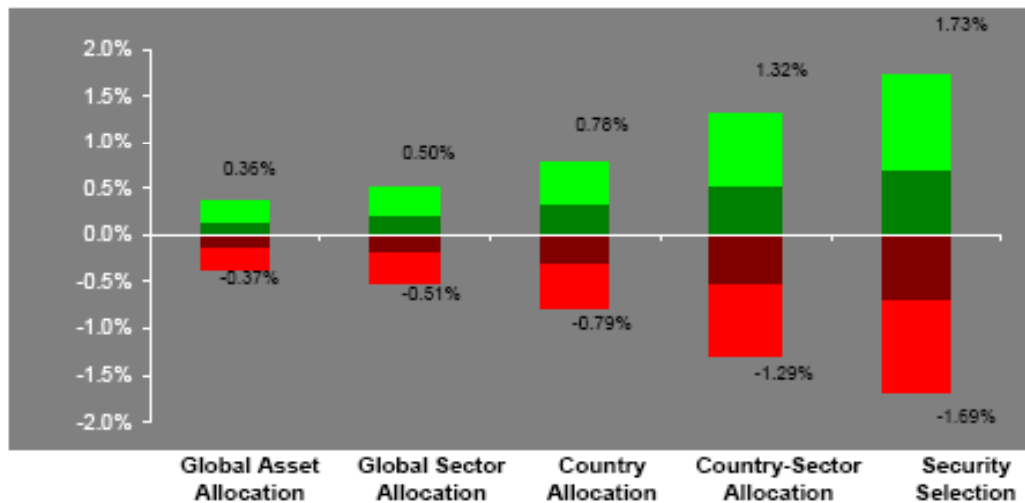
	Index	+1%	+2%	+4%
Efficient	US Government Bonds	90	95	
	UK Government Bonds	81	90	
	US Equities	73	79	83
Semi-Efficient	Global Equities	70	76	82
	UK Equities	69	77	83
	European Equities	56	65	73
Inefficient	EM Equity	52	61	69
	Japanese Equity	35	48	58

Source: Micropal, Lipper, Schroders; Percentile ranking of widely used indices on a rolling 3-year basis up to 31 Dec 2003. 100 best 1 worst. Mutual fund returns are measured after all fees

WHICH ALPHA SOURCES?

- bootstrapping simulation useful to determine different contribution
 - generate thousands of random portfolios that vary only along a single dimension, which represents a particular investment choice.
 - generate portfolios from a broad universe of available securities; hence we analyze the opportunity set of available returns rather than the realized returns of managed funds based on different management approaches.

5th, 25th, 75th and 95th Percentile Performance Over Horizon Annualized Difference from Average (1987-2001)



FIND ALPHA AND TRANSPORT IT

- Facts
 - Some markets are more efficient than others
 - It is easier to generate Alpha in inefficient asset classes
 - Inefficient markets are in 'less owned' asset classes
- Solution : Move the alpha to the asset class you want to have exposure to
- Most of long only active managers are already doing this!
 - How? By taking out of benchmark exposure with different systemic risks
 - i. Small Cap stocks vs. Large Cap benchmark
 - ii. Holding non-govt bonds versus governments

ALPHA'S CHARACTERISTICS

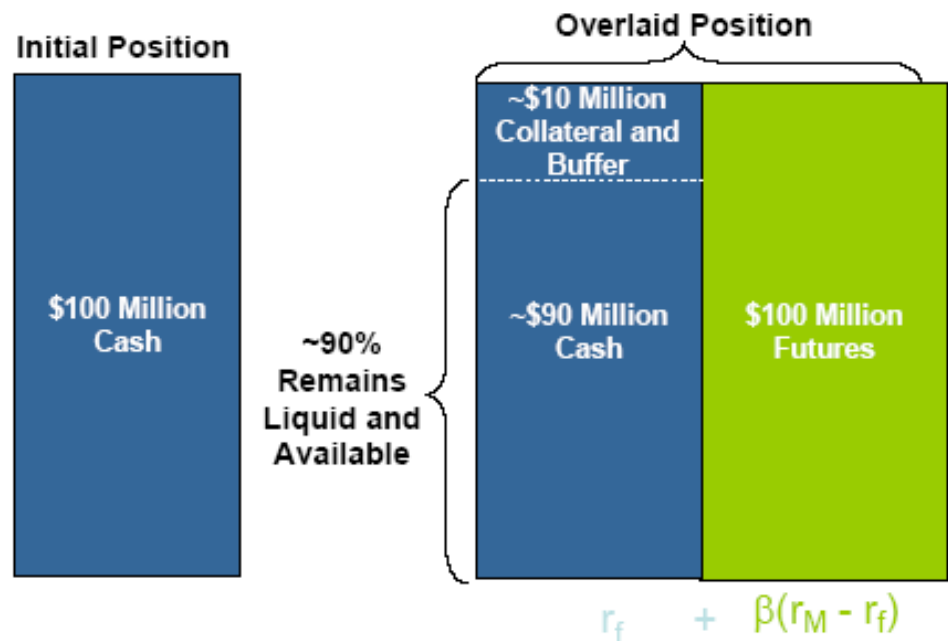
Equity Manager
Return = 10%



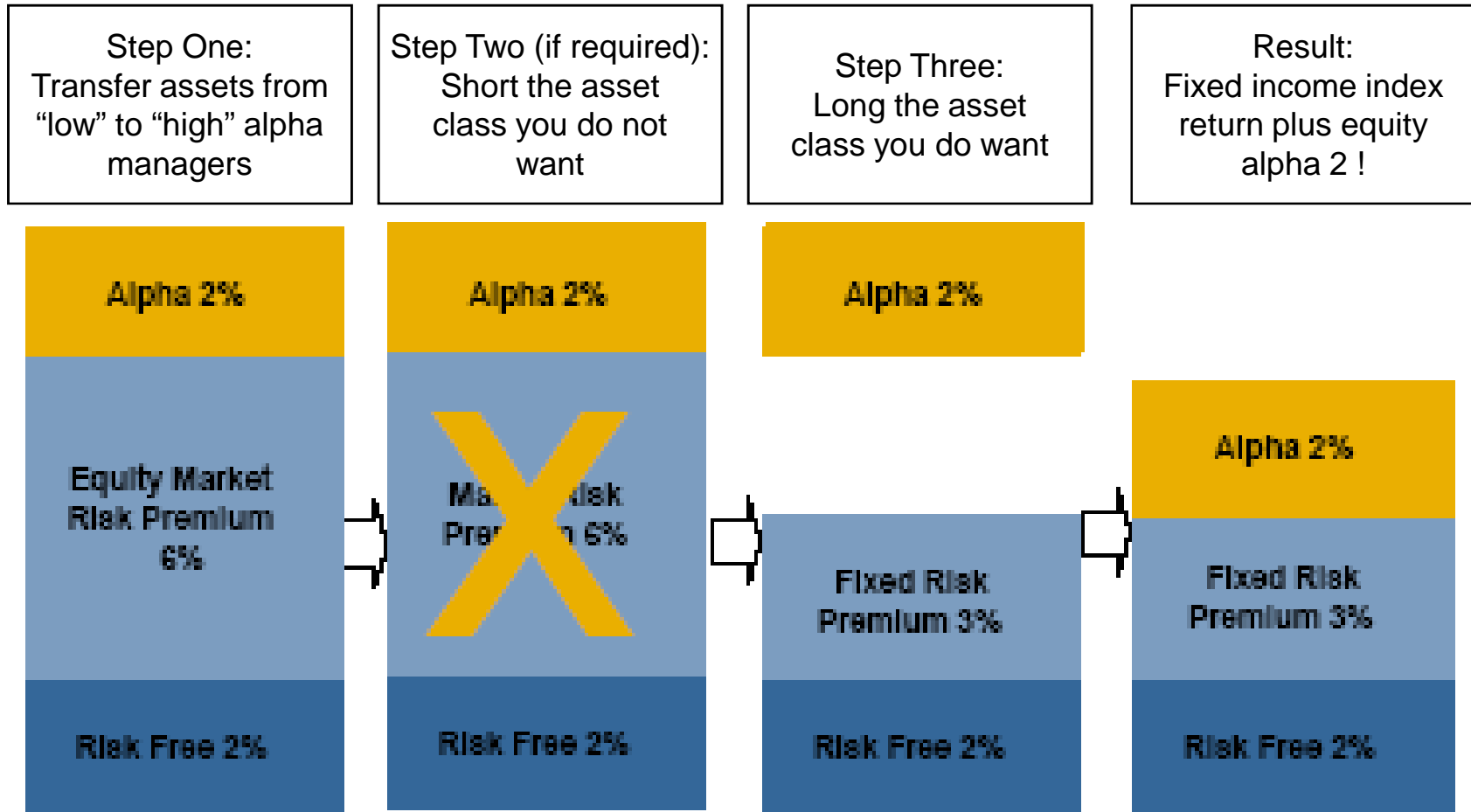
The manager's return can be expressed as:

$$\alpha + \beta(r_M - r_f) + r_f$$

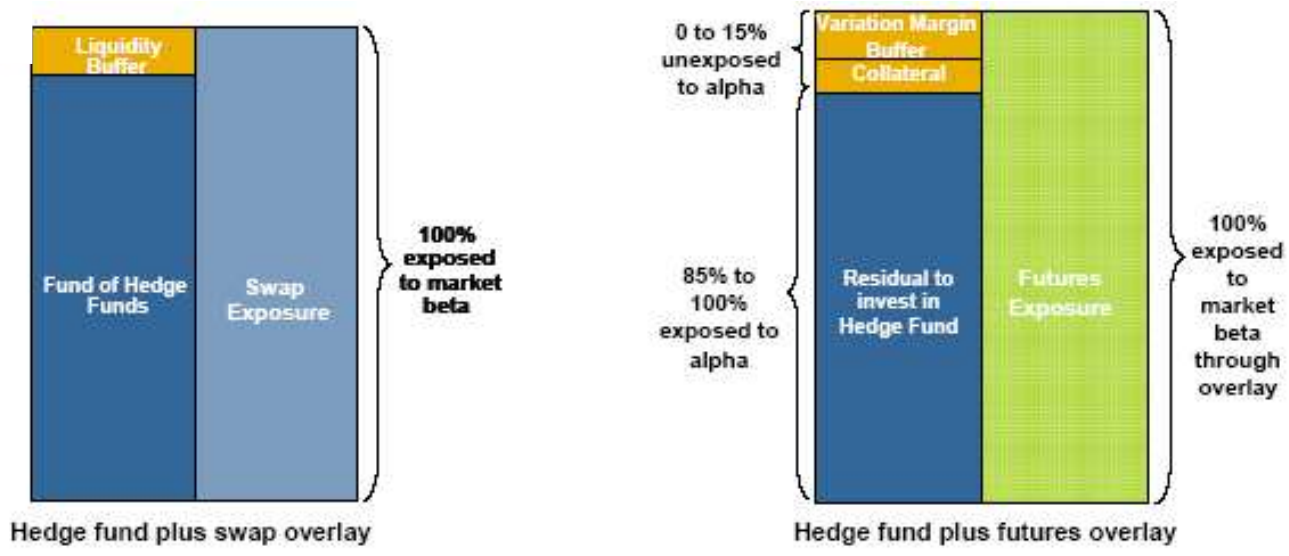
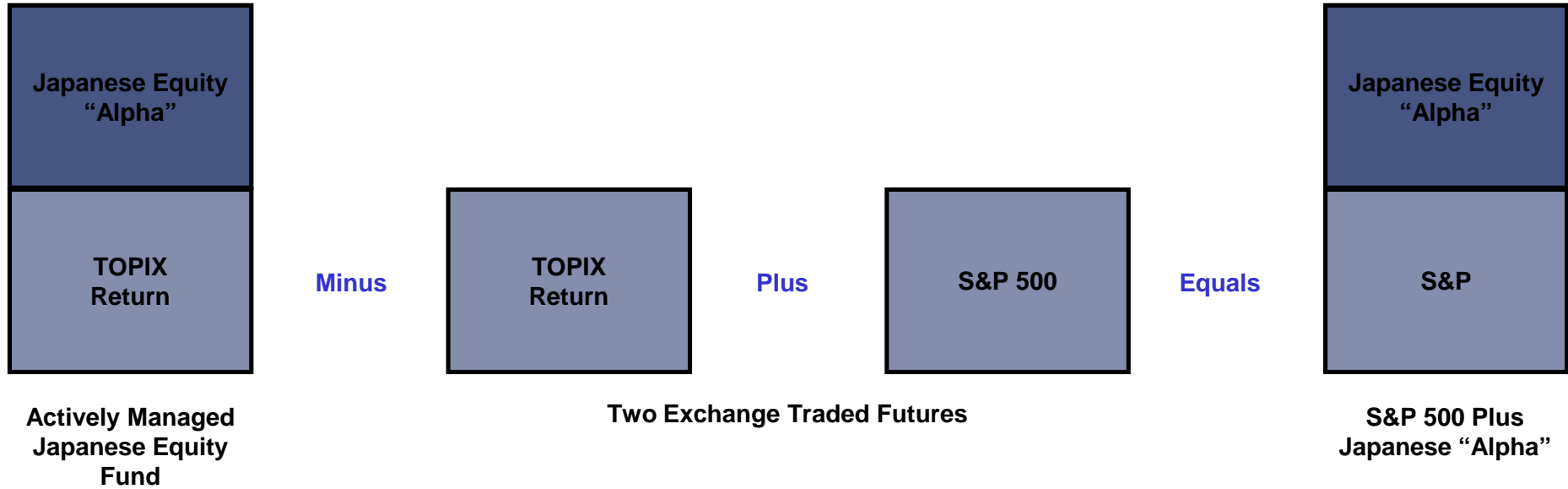
Futures/Swaps Provide This



PORTABLE ALPHA: MECHANICS



PRACTICAL EXAMPLES



BETA EXPOSURE VIA FUTURES VS SWAP

- Goal is to keep the value of the overlay aligned with the value of the underlying exposure to cash and/or alpha managers:
- Changes in the value of cash exposure and/or the alpha portfolio require a corresponding adjustment to the overlay
 - Valuation frequency potentially creates periods during which the value of the alpha engine and overlay can deviate (intraproduct over or under exposure)
 - Volatility of alpha engine helps quantify potential impact. A diversified basket of alpha reduces potential size of mismatch
- Changes in the value of the overlay are self-correcting and do not require a trade:
 - With Futures - daily margins flow in and out of the margin account, equal to change in value of futures (marked-to-market)
 - With Swaps – payable/receivable amount changes by equivalent amount of change in notional exposure (+/- LIBOR accrual)

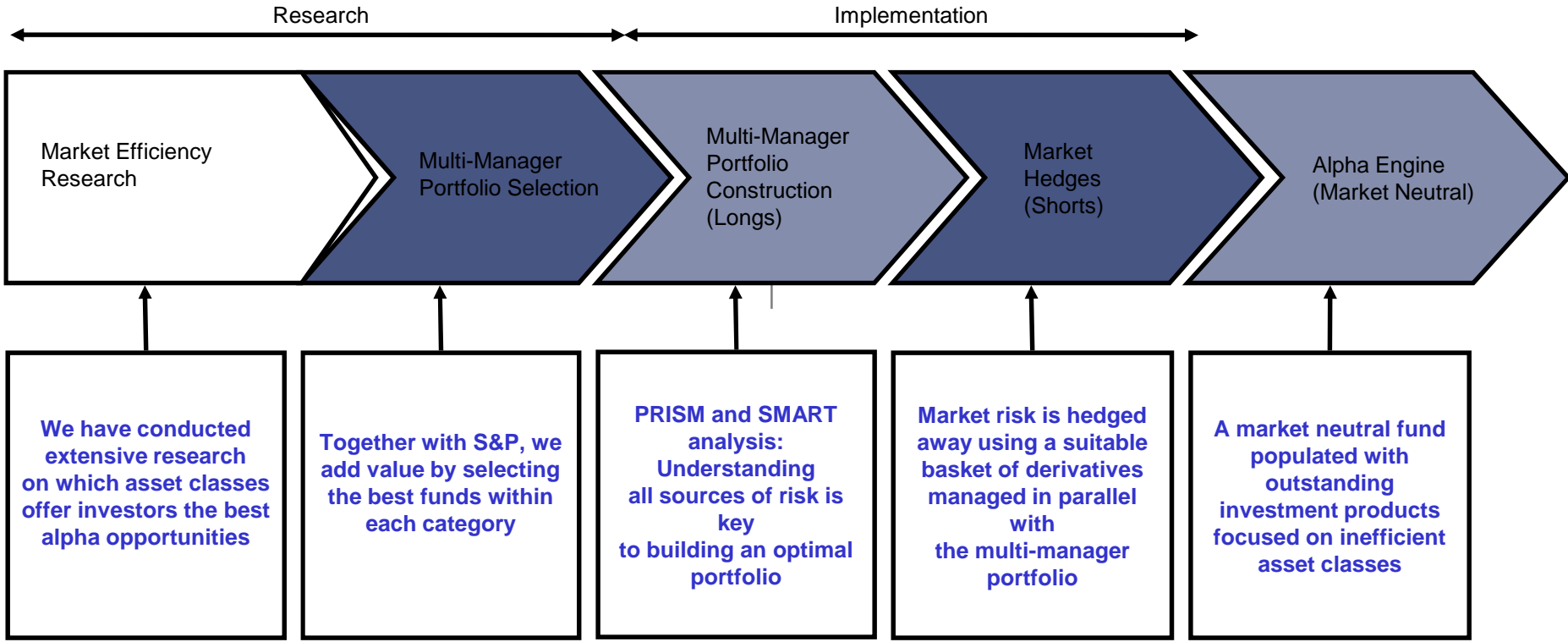
	Futures		Swaps
▪ Collateral requirements	Higher	←————→	Lower
▪ Tracking Error/Basis Risk	Higher	←————→	Lower
▪ Inflexibility of exposures	Higher	←————→	Lower
▪ Counterparty Risk	Lower	←————→	Higher
▪ Trading costs	Lower	←————→	Higher
▪ Set up documentation	Lower	←————→	Higher
▪ Reporting/valuation complexity	Lower	←————→	Higher
▪ Time Horizon	Shorter	←————→	Longer

USE OF ALPHA TRANSPORT IN PORTFOLIO CONSTRUCTION

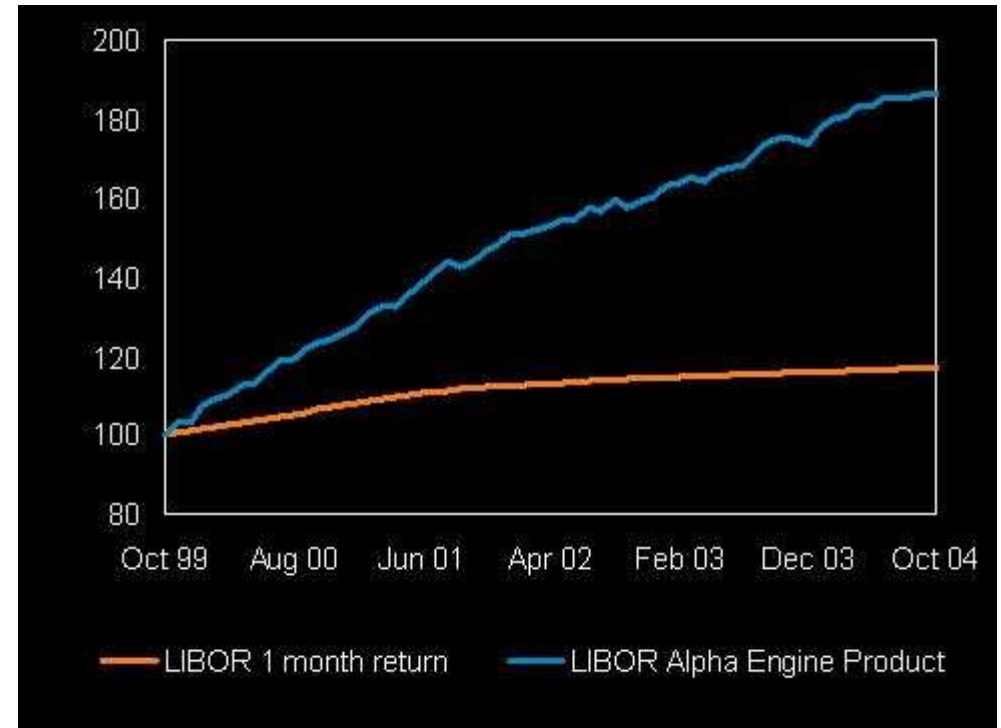
Traditional Portfolio	Long
UK Equity Fund	19.5%
Inst Europe ex UK Equity Fund	0.0%
Japan Equity Fund	0.0%
Emerging Markets Equity Fund	4.6%
Gilts All Stocks Bond	40.0%
Corp Bond Fund	15.9%
Prop Fund	10.0%
Cash Fund	10.0%
<hr/>	
Equities	24.1%
Bonds	55.9%
Other	20.0%
<hr/>	
Hedged	0.0%
Return	6.5%
Std Dev	4.6%
Sharpe Ratio	0.55

Alpha Separation Portfolio	Long	Short Position	Net Exposure
UK Equity Fund	13.9%	-5.5%	8.4%
Inst Europe ex UK Equity Fund	40.0%	-40.0%	0.0%
Japan Equity Fund	11.0%	-11.0%	0.0%
Emerging Markets Equity Fund	5.1%		5.1%
Gilts All Stocks Bond	20.0%		20.0%
Corp Bond Fund	0.0%		0.0%
Prop Fund	10.0%		10.0%
Cash Fund	0.0%		0.0%
<hr/>			
Equities	70.0%		
Bonds	20.0%		
Other	10.0%		
<hr/>			
Hedged	56.5%		
Return	6.4%		
Std Dev	2.7%		
Sharpe Ratio	0.90		

ALPHA ENGINE



ALPHA ENGINE RETURNS COMPARISON



DISTINGUISHING ALPHA (SKILL) VERSUS BETA (RISK)

- Skill measured — not just ex post “alpha imposter”
 - Considering multiple alpha sources — “active diversification”
 - Disciplined exposures — risk spent on intended factors
- IC is a statistical measure of skill
 - Correlation of return forecast with ex post residual return
 - **IC: $\text{corr}(\text{Expected alpha}, \text{realized alpha})$**
 - Based on well-accepted statistical methods

$$E(\alpha) = \sigma_{\alpha} * IC * \sqrt{N}$$

- IR is the reward for risk in residual space
 - Like Sharpe ratio in total risk space
 - Relates skill directly to Capital Market Theory, assuming specific IC properties and investor decision process
- □ Attribution ex post — calibrate alpha and risk models

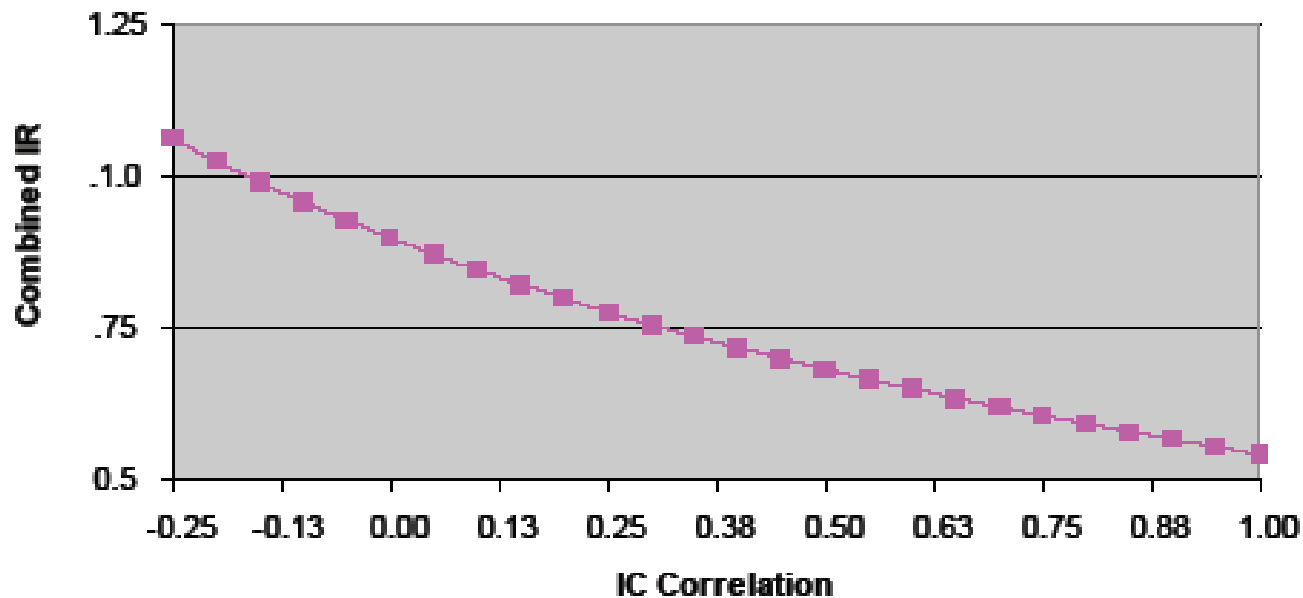
$$IR = \frac{\alpha_P}{\sigma_B}$$

MEASURES OF SKILL: IMPACT OF IC

- **Goal: Decision hit ratio** → IC → IR → α
- Hit rate is a basic measure of skill (have technical expressions)
 - Play well: Skill
 - Play often: Breadth
 - Play right game: Dispersion
 - Play efficiently: Transmission drain
- IR \approx skill applied to breadth in an interesting game; efficiently
- IR \approx IC $\times \sqrt{N}$
- IR \approx IC / std(IC) or ($\alpha \div \sigma$ after benchmark adjustments)
- IR \approx IC / std(IC) \times TC Alpha is — IC \times volatility \times score
 - where TC is transmission coefficient (rule of thumb: 40% haircut)
 - IC of .08 is really great if it is (1) stable (2) implement-friendly

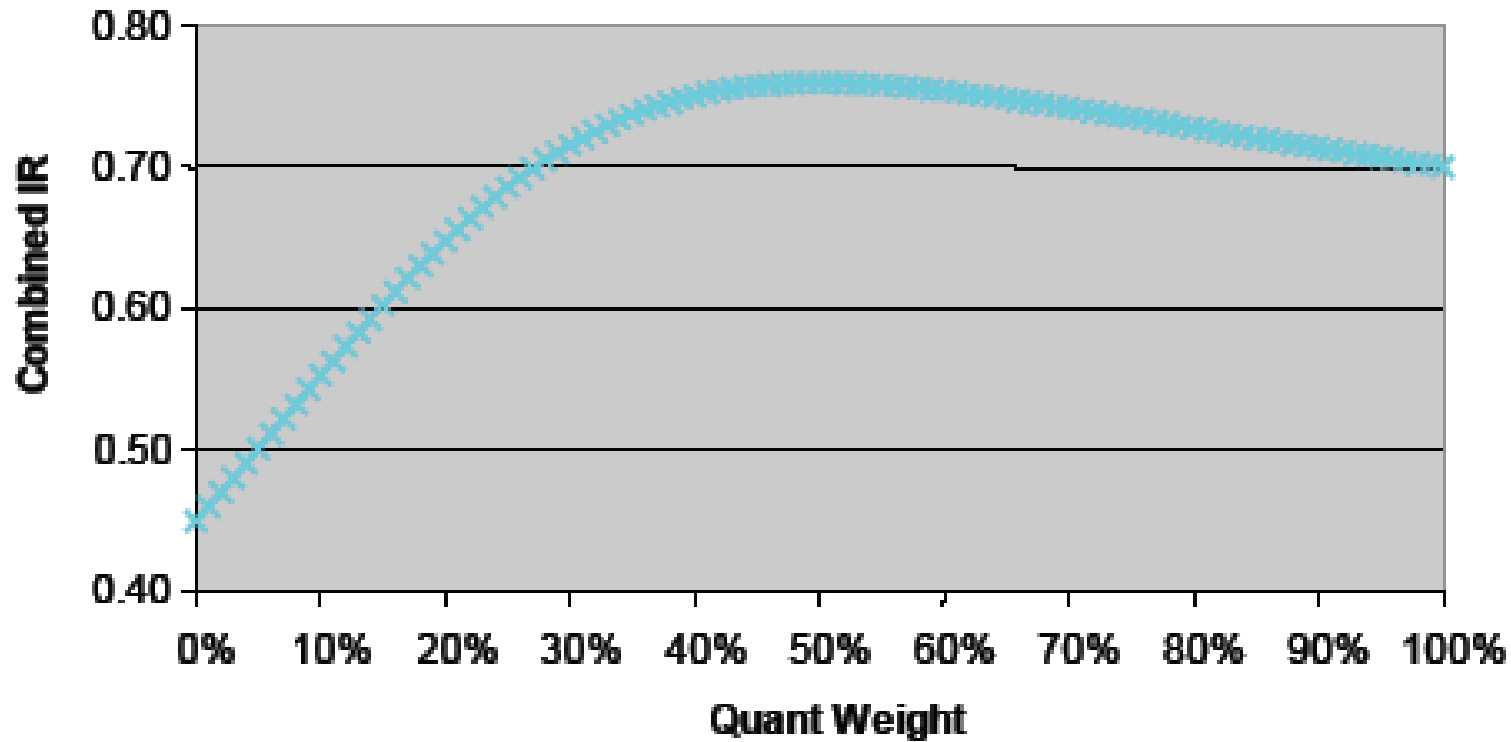
ALPHA FACTOR DIVERSIFICATION SUBSUMES STOCK DIVERSIFICATION

- Portfolio theory applies to alpha exposures and portfolio factor weights
 - Factor ICs translate into expected returns and covariances
 - ICs are correlated — the composite IR receives diversification benefits
- We can solve for IR as a function of factor weights and covariances
 - Derive the optimal combination of weights across alpha signals
 - IC correlation dominates signal correlation, ceteris paribus



	Avg(IC)	Std(IC)	IR	Weight
Quant factor	0.07	0.11	0.64	50%
Fundamental	0.04	0.09	0.44	50%
Signal correlation	0			

COMBINING ALPHA - OPTIMIZATION

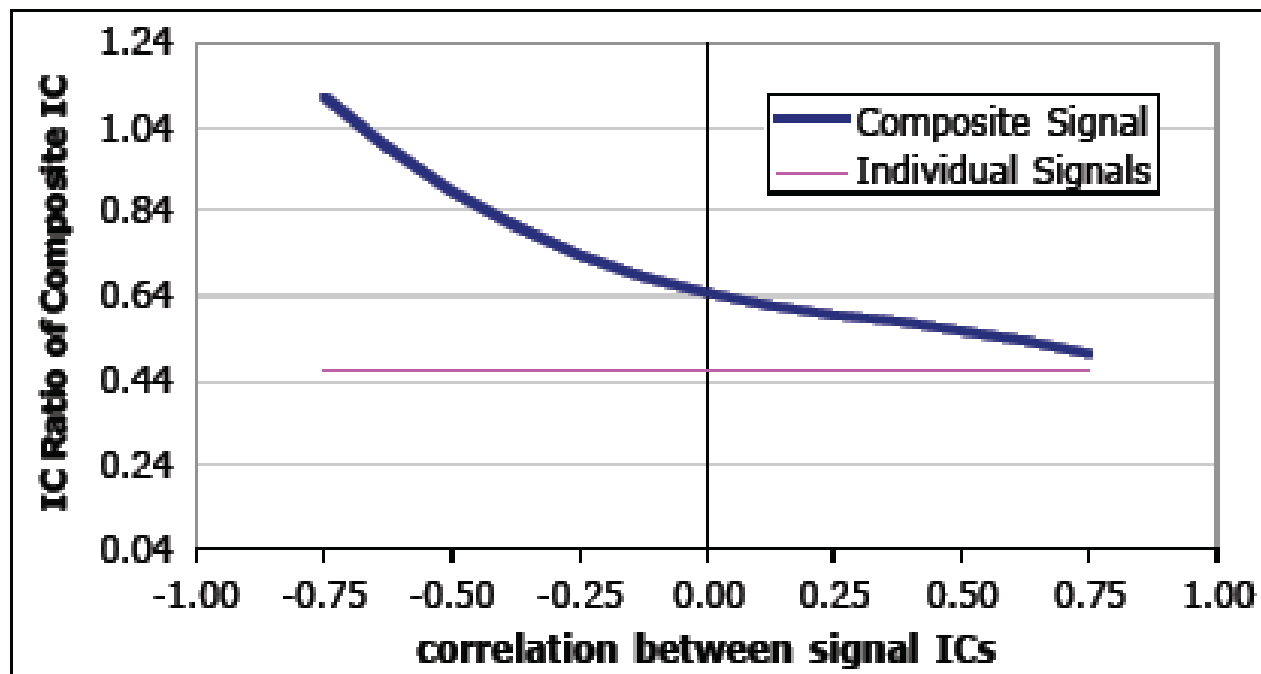


	Avg(IC)	Std(IC)	IR
Quant factor	0.07	0.11	0.64
Fundamental	0.04	0.09	0.44

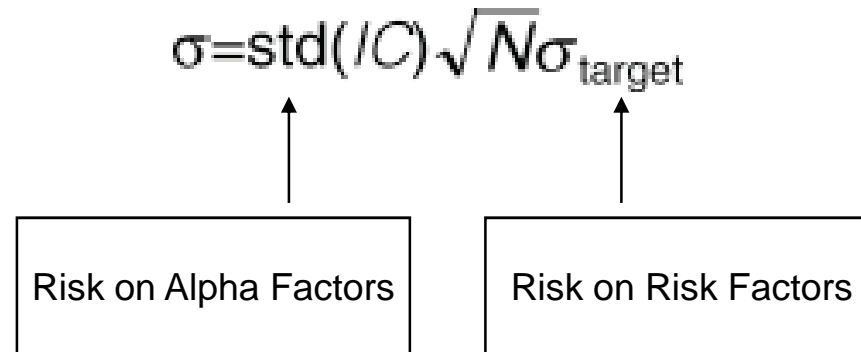
IRS BENEFIT FROM IC RELATIONSHIPS

FACTOR PRICING VERSUS SIGNAL RANKINGS

- Simulation — the volatility of the composite alpha varies directly with IC correlation; the mean composite IC is less dependent on IC correlation depending on signal correlation
- As long as the ICs are not perfectly correlated, the IR of the composite signal is higher than the two individual components



ALPHA FACTORS VS RISK FACTORS



CRITICAL ISSUES

- Are alpha factors uncorrelated with the risk factors?
- Are all factors independent?
- Shouldn't we spend all our tracking error on alpha risk?
- Consider the combination of alpha model risk and risk model risk scaled by breadth — and squeeze the risk into alpha sources

DOES PORTABLE ALPHA REALLY WORK?

	S&P 500 Index	(1) Median Return for S&P 500 Benchmarked Funds	Relative to S&P	(2) 4 Asset Class Mix Media Fund XS Return Transported to S&P 500	Relative to S&P	(1) Q1 Return for S&P 500 Benchmarked Funds	Relative to S&P	(2) 4 Asset Class Mix Q1 Fund XS Return Transport to S&P 500	Relative to S&P
1994	1.3	-2.1	-3.4	3.1	1.8	0.8	-0.5	7.4	6.1
1995	37.6	32.0	-5.6	34.8	-2.8	35.4	-2.2	39.3	1.7
1996	23.0	22.0	-1.0	25.0	2.0	25.3	2.4	31.3	8.3
1997	33.4	24.5	-8.9	33.0	-0.4	28.6	-4.8	38.7	5.3
1998	28.6	26.3	-2.3	26.6	-2.0	31.5	2.9	32.3	3.7
1999	21.0	20.3	-0.7	26.4	5.3	29.3	8.3	46.5	25.4
2000	-9.1	-8.6	0.5	-8.0	1.1	-1.3	7.8	-0.7	8.4
2001	-11.9	-14.7	-2.8	-12.5	-0.6	-9.3	2.6	-6.4	5.5
2002	-22.1	-23.8	-1.7	-22.8	-0.7	-20.6	1.5	-19.2	2.9
2003	28.7	24.5	-4.2	24.6	-4.1	28.0	-0.7	29.6	0.9
YTD	1.5	-0.4	-1.9	-0.2	-1.7	1.1	-0.4	2.0	0.5
Cumulative	289.9	219.4		285.5		344.3		524.3	
% Positive Periods			9%		36%		55%		100%

(1) Funds benchmarked against S&P 500

(2) 4 asset classes equally mixed – Funds benchmarked against Russell 2000, JP Morgan EMBI+, MCSI Europe X UK, TOPIX
Source: Lipper UK Offshore and Onshore. All returns are calculated after fees and full cost of derivative contracts