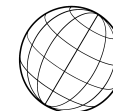


Managing Hedge Fund Risk

Michael Howell
May 2004

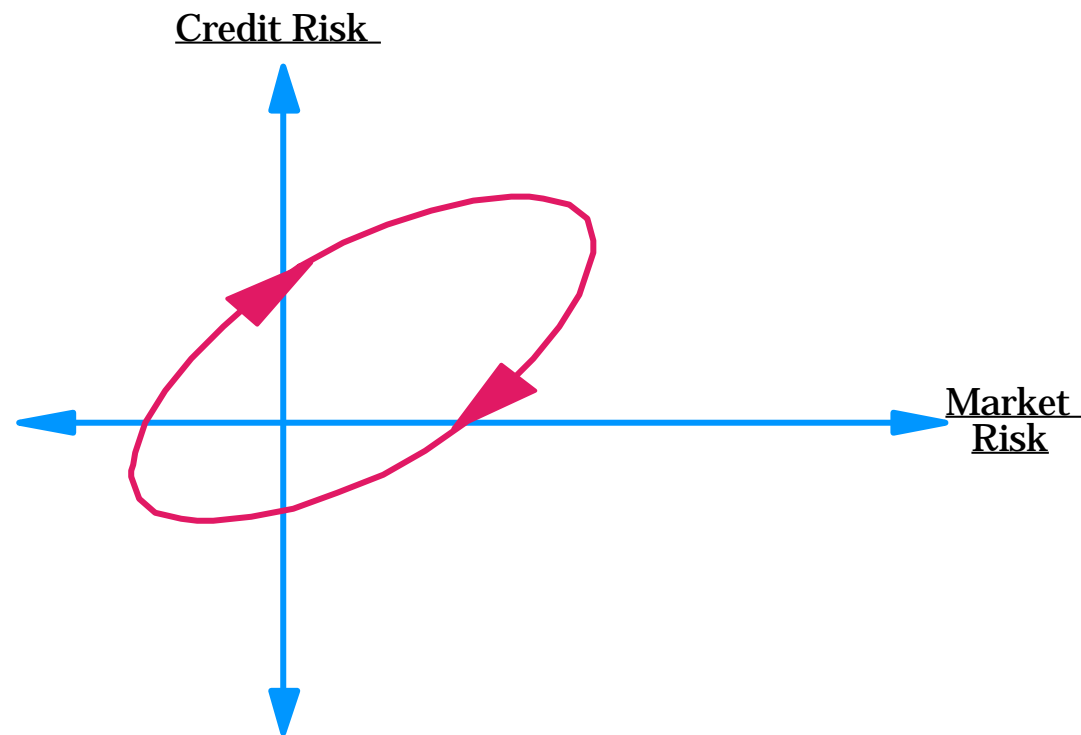
Marcol House
289-293 Regent Street
London W1B 2HJ
Tel: +44 (0) 20 7535 0400
Email: www@liquidity.com
<http://www.liquidity.com>



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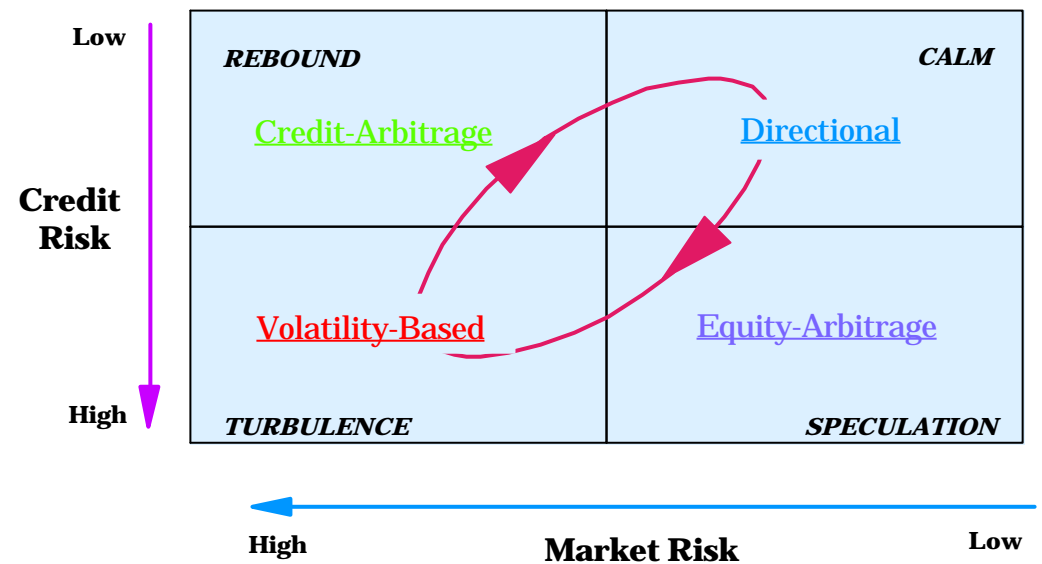
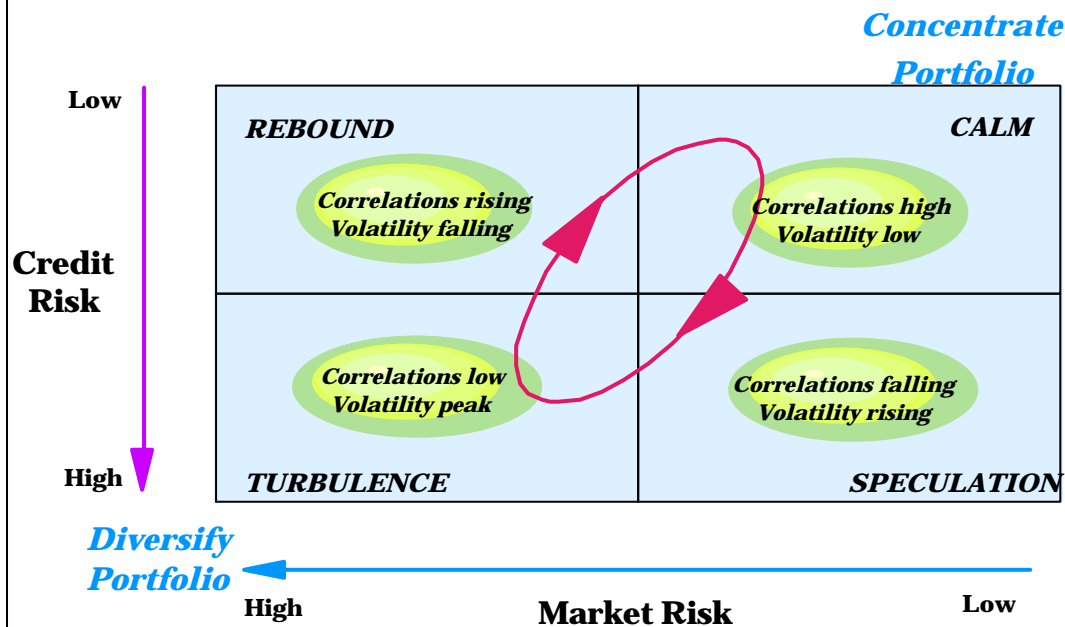
The Risk Cycle

- Risk moves systematically
- *Credit risk* and *market risk* major risk axes



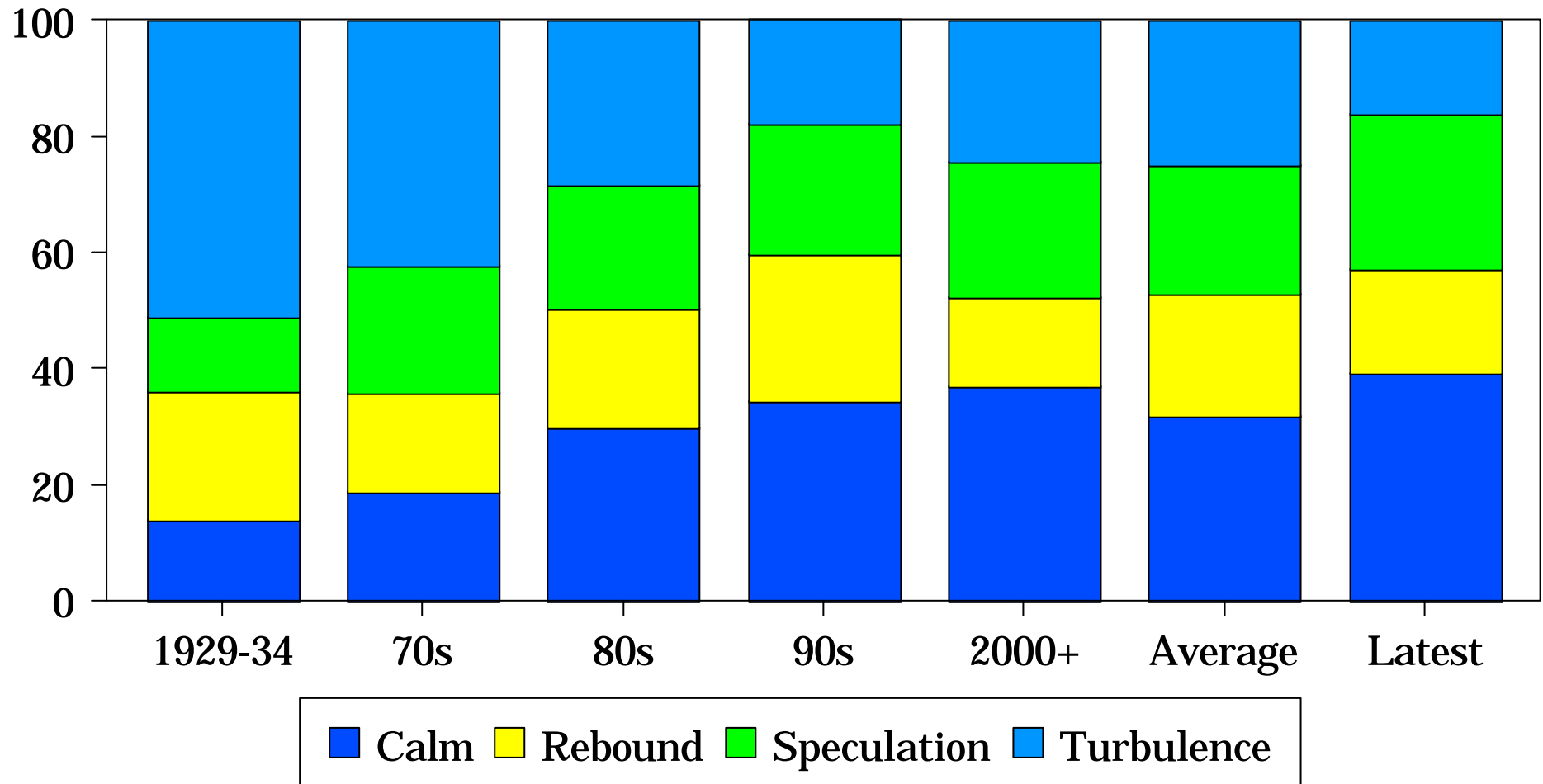
Investment Zones/Risk Regimes

- *Credit risk* and *market risk* define structure of asset returns
- Four major (discrete) risk regimes



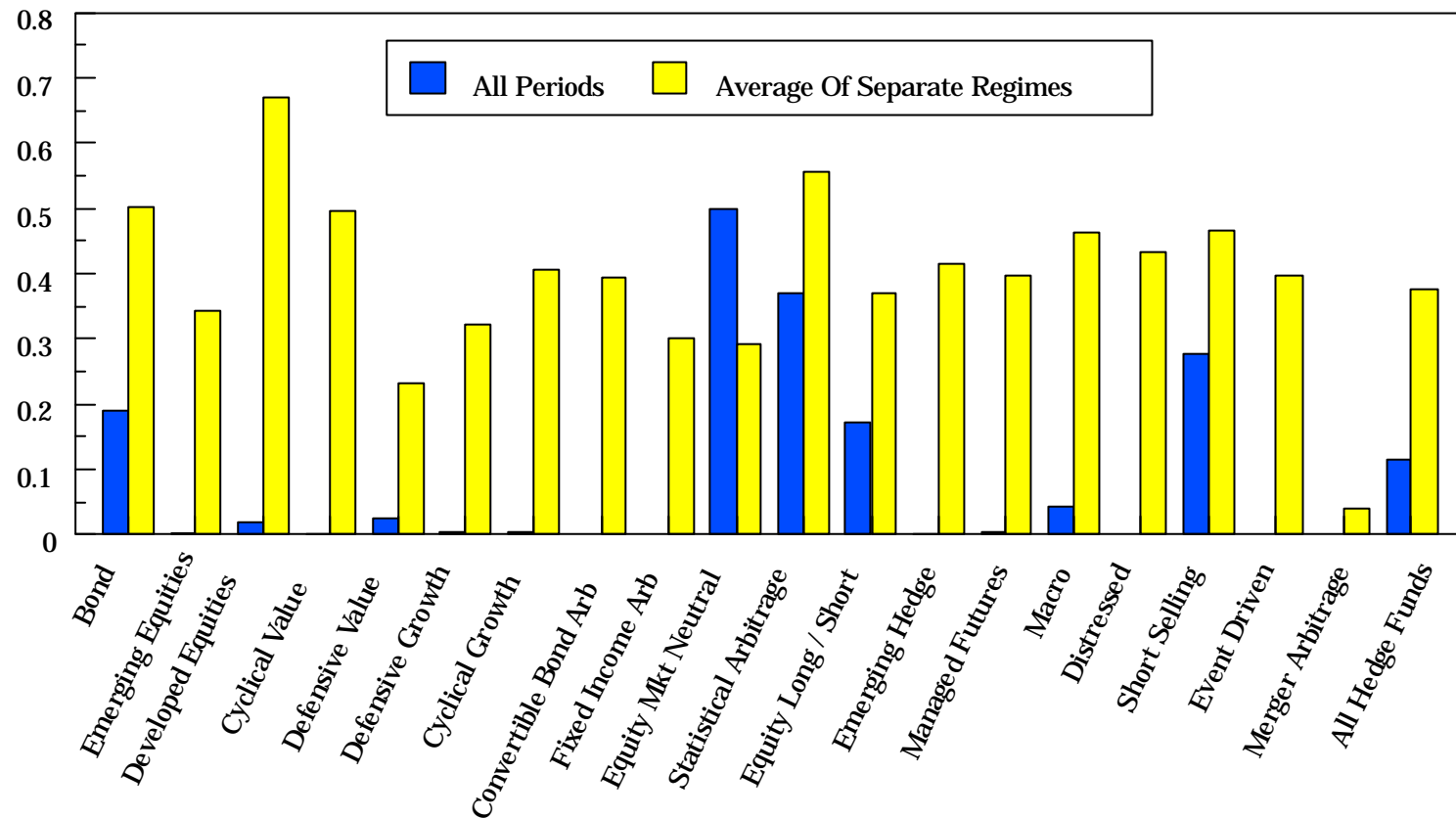
A Chronology Of Risk Regimes

- Four investment regimes
- Duration of each regime varies over time



Shapiro-Wilke Test For Normality

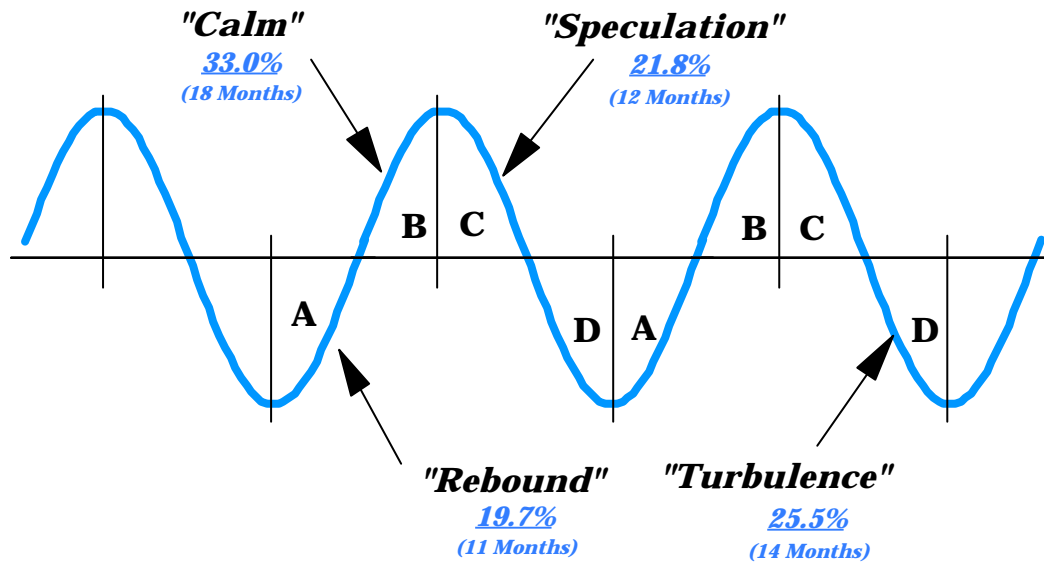
- Do major assets/styles display normal return distributions?
- They do, but only within defined investment regimes



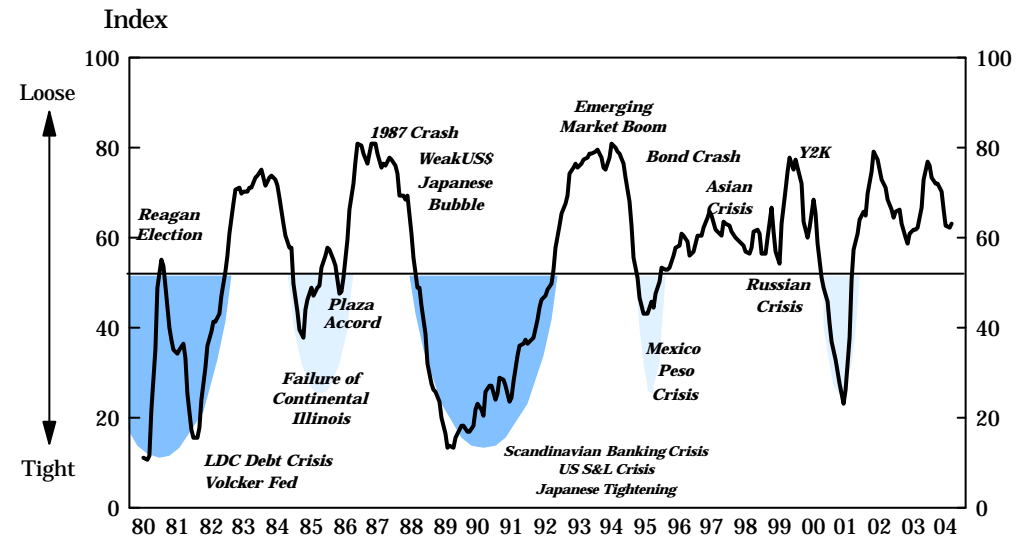
The Liquidity Cycle

- Where are we in the 4-5 year cycle?
- At global level, "*Speculation*"

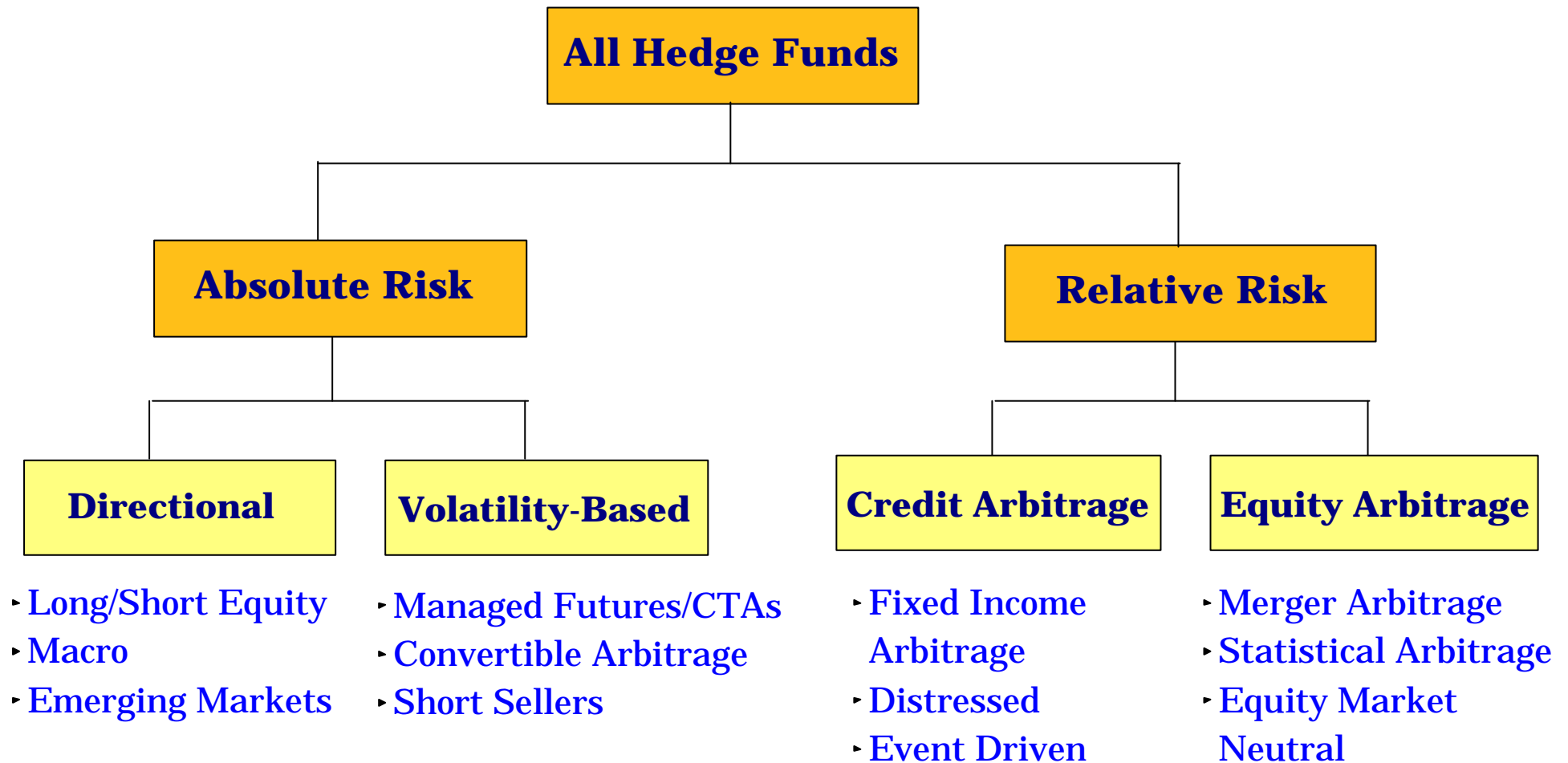
Theory



Actual

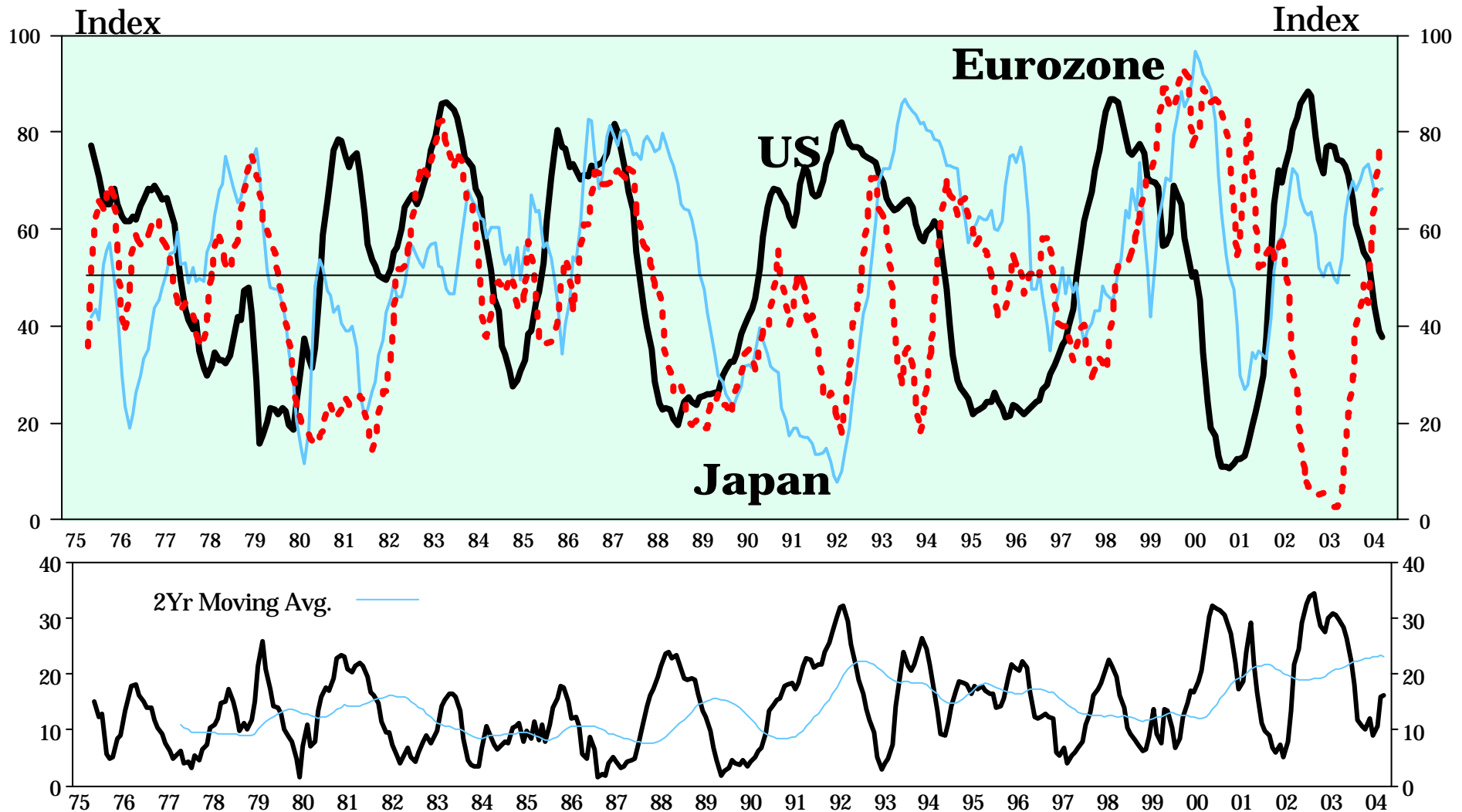


A Taxonomy Of Hedge Fund Styles



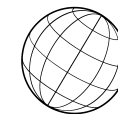
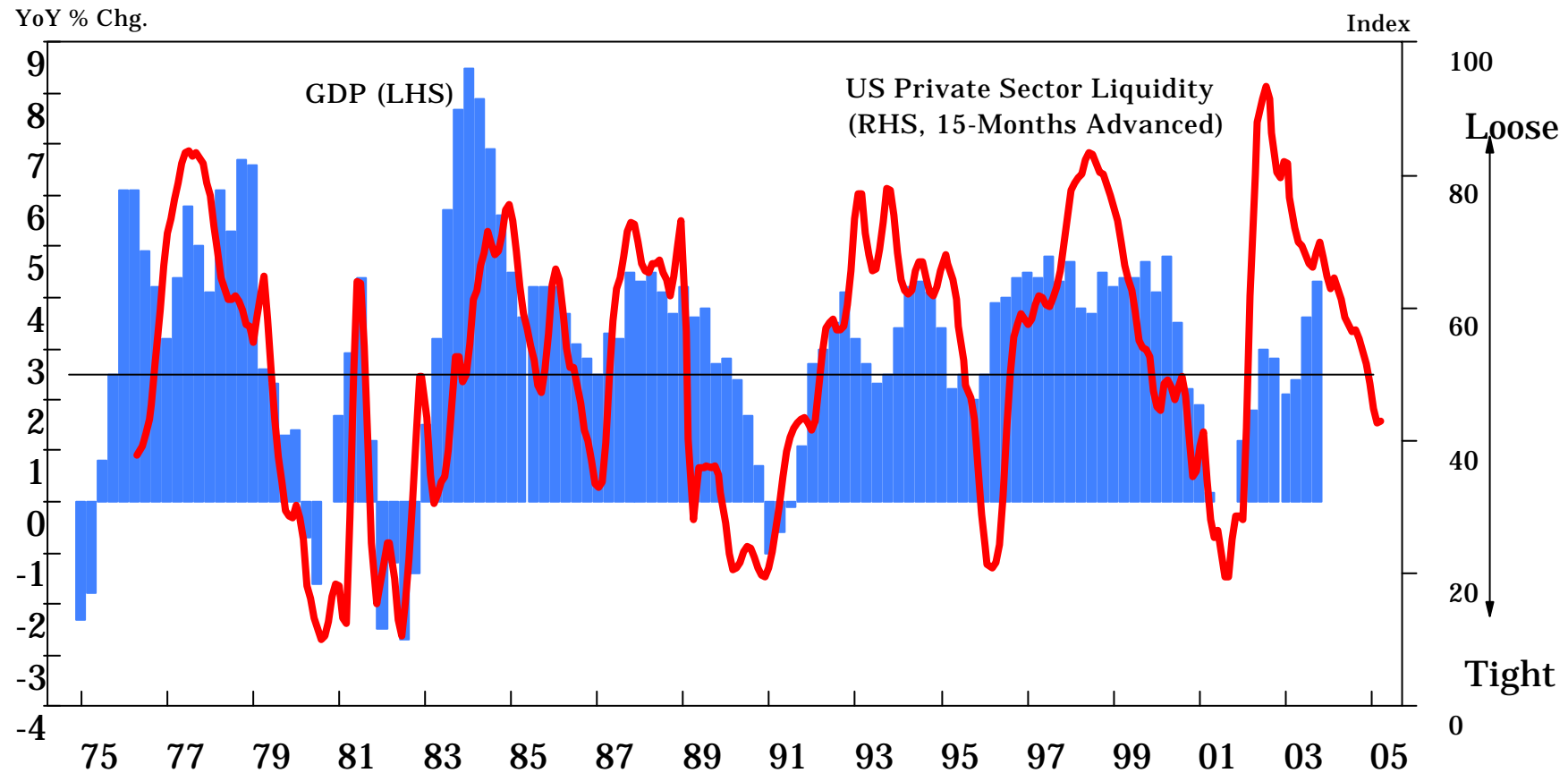
G3 Central Bank Policy: Still Out Of Step

- Fed tightening and BoJ/ECB easing. Divergent Central Bank policies from early 2002 mean divergent economies, low inflation and trade balance adjustment



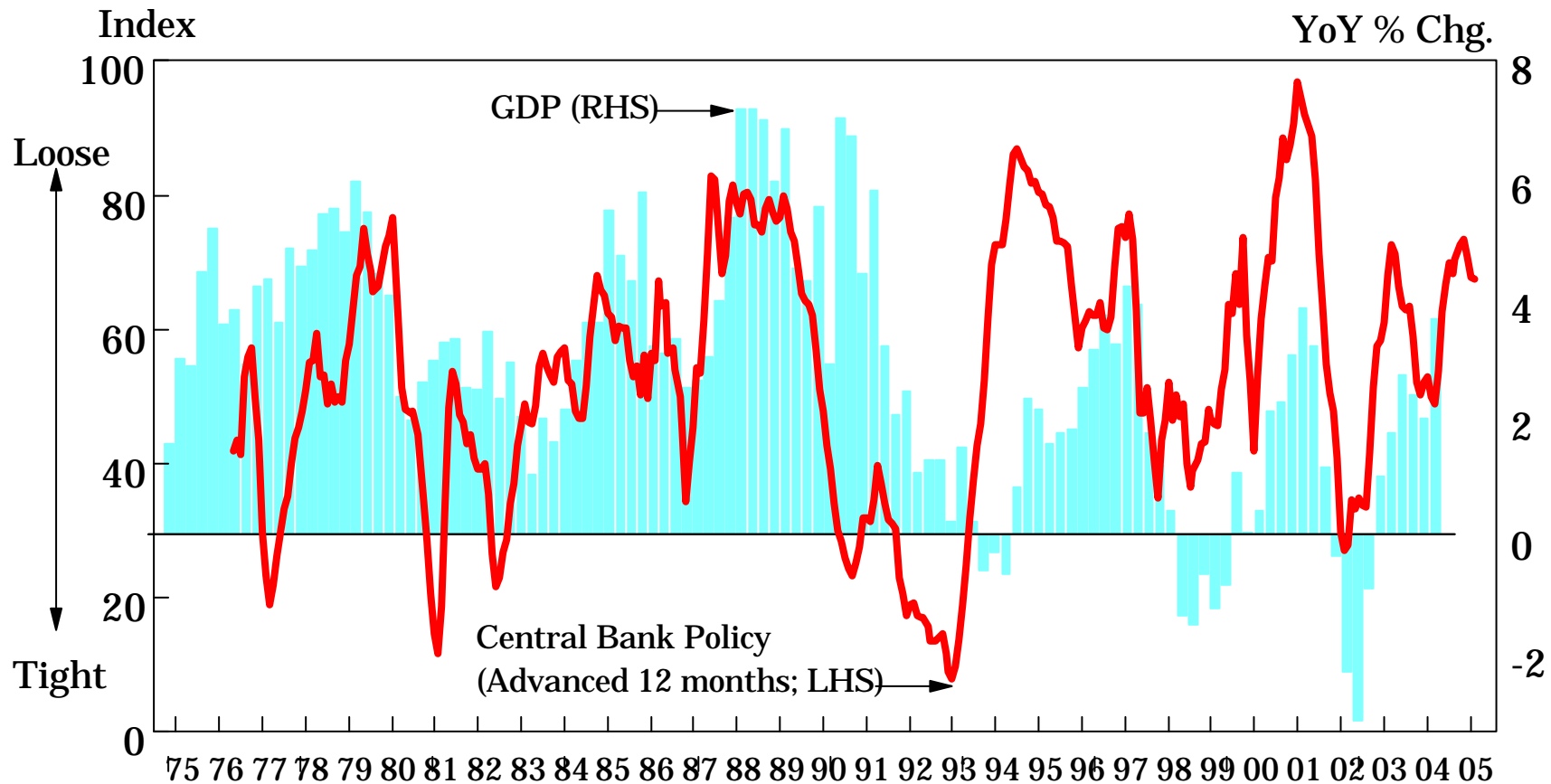
US Private Sector Liquidity And GDP

- Private sector cash flow leads GDP growth by 15 months
- GDP growth likely to exceed 4% in 2004, but 2H 2004 economy will weaken



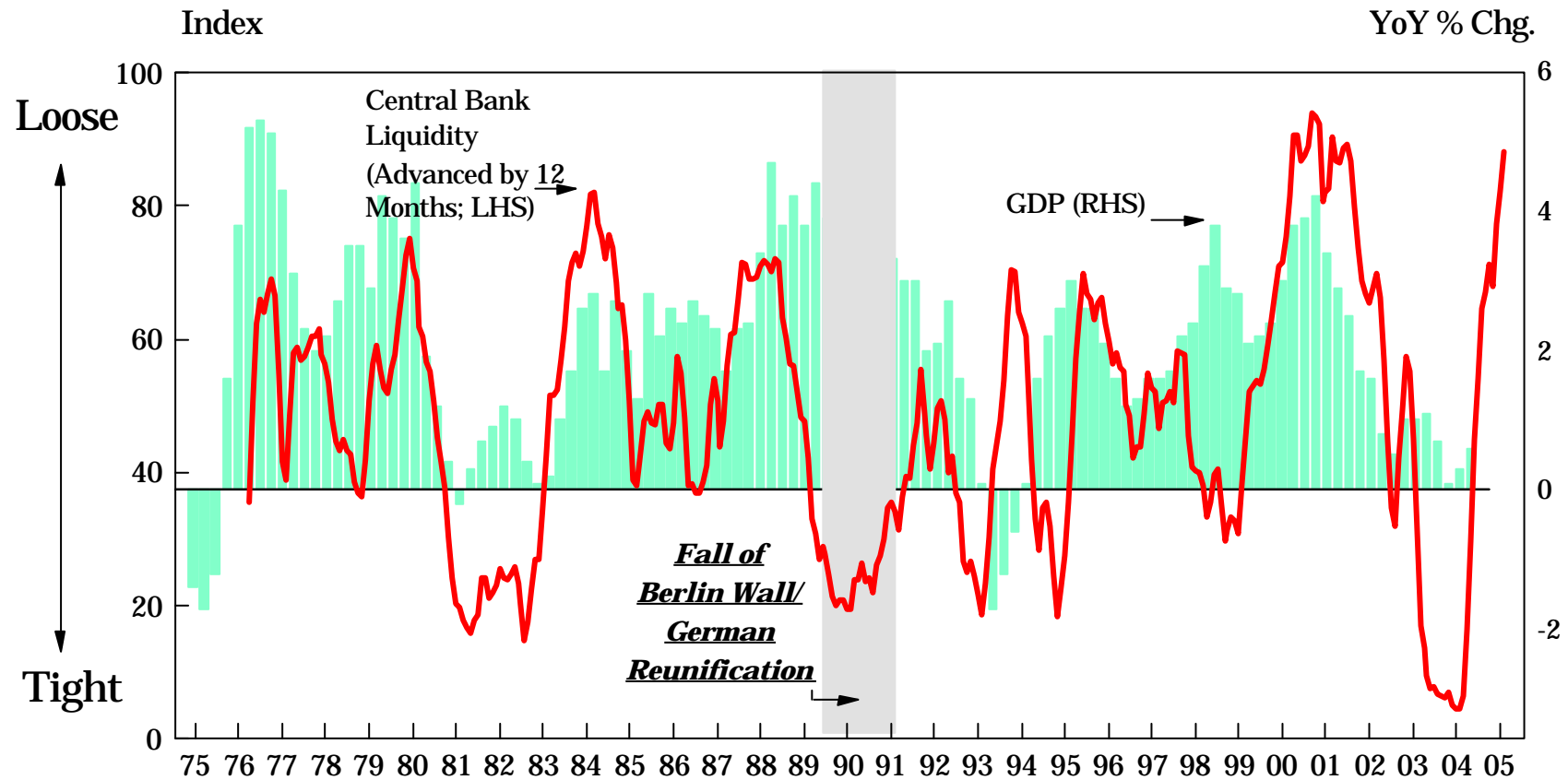
Japanese Central Bank Policy And GDP

- Japanese business cycle follows similar swings in BoJ liquidity cycle with around 12-month lag
- 2004 better year than investors currently expect. Likely 3-4% GDP growth and led by domestic spending



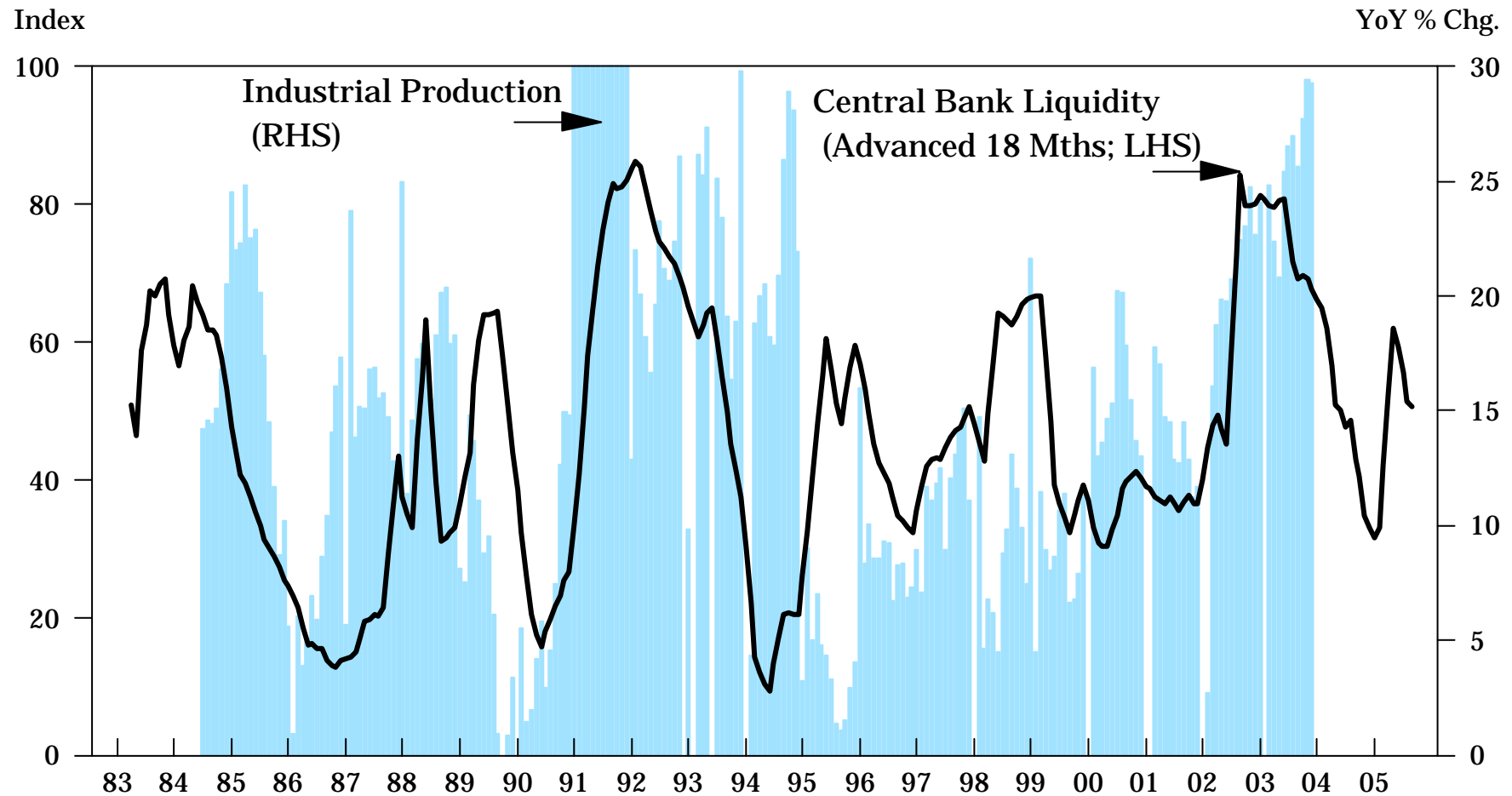
Eurozone Central Bank Policy And GDP

- Central Bank Liquidity leads GDP growth by around 12 months
- Rising Central Bank liquidity will boost GDP growth especially in 2H 2004



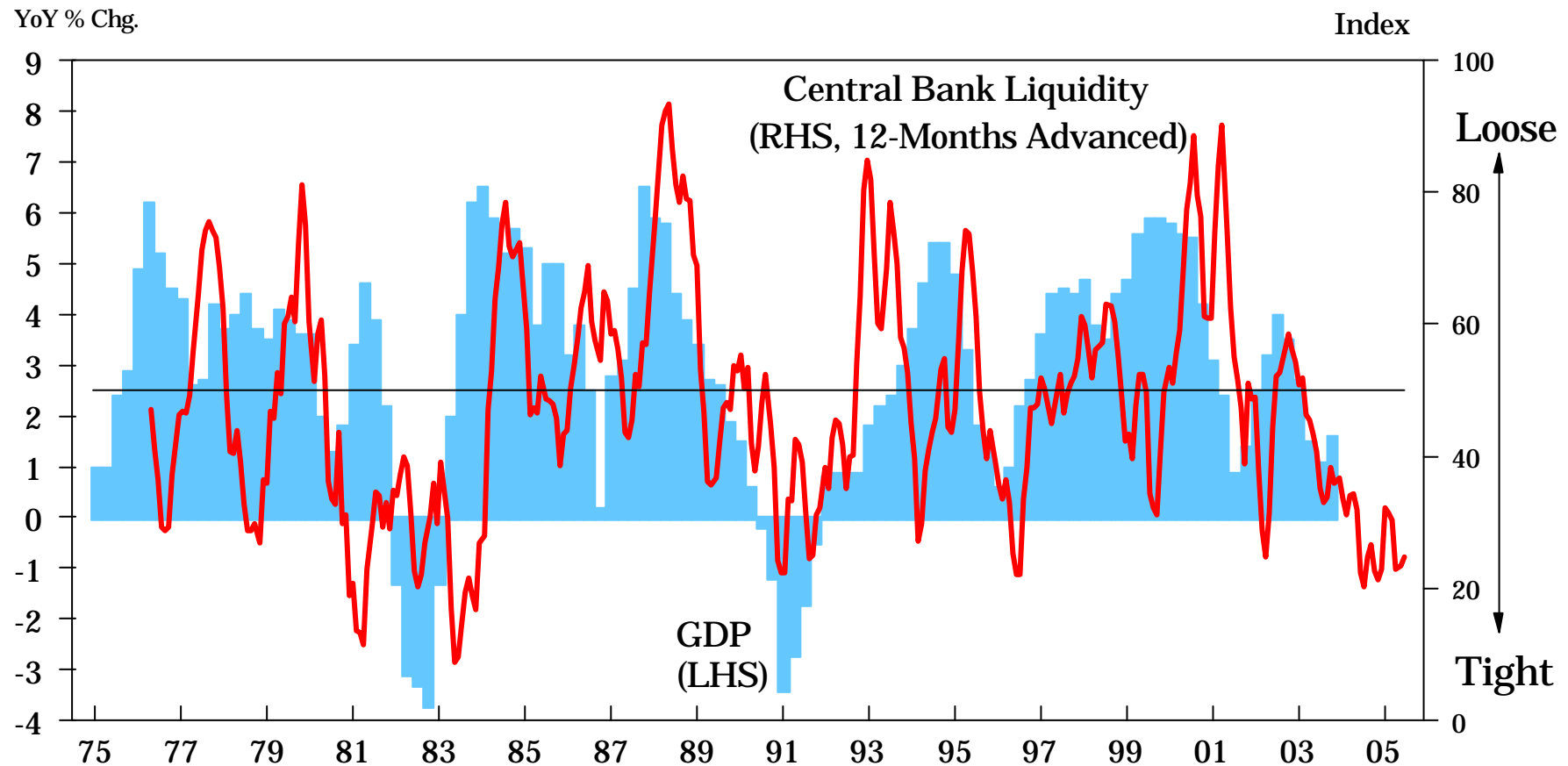
China Central Bank Liquidity And Industrial Output

- Chinese credit conditions have already been squeezed. This is likely to sharply slacken Chinese economic growth and will add to fears of domestic credit risks

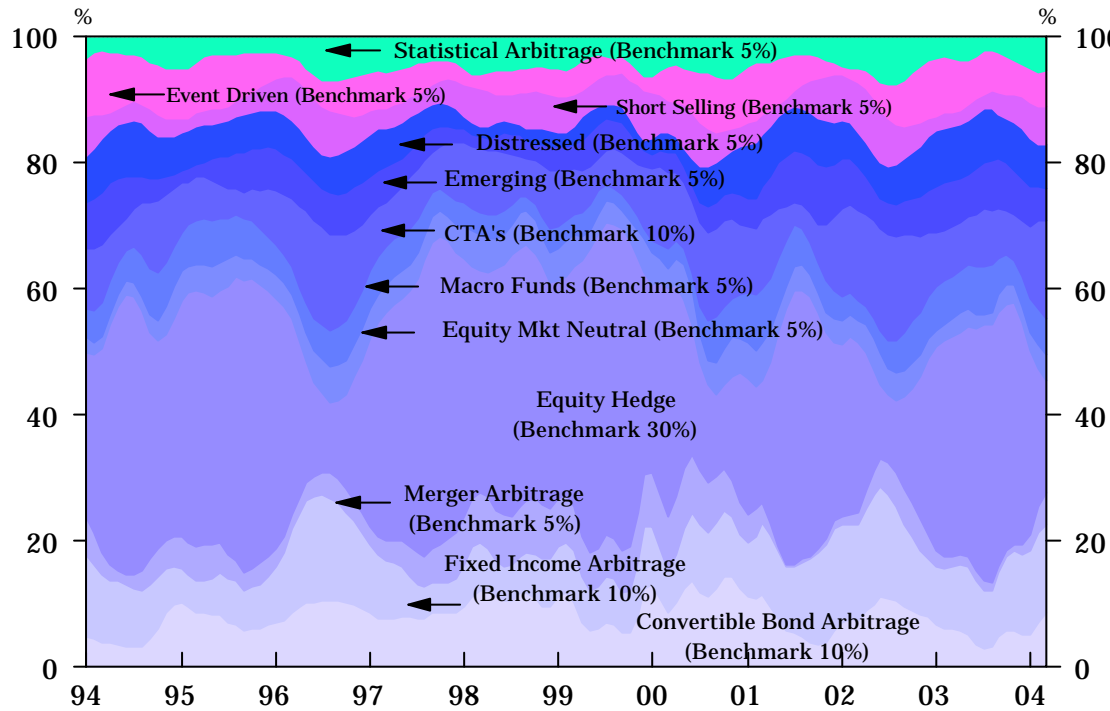


Canada Central Bank Policy And GDP

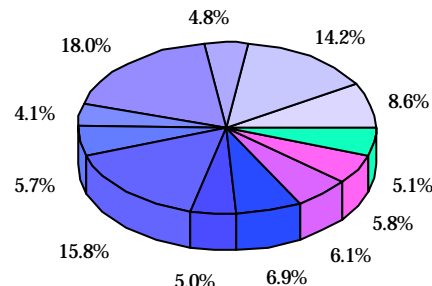
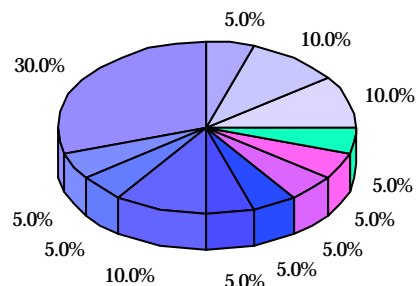
- Central Bank Liquidity leads GDP growth by around 12 months
- Falling Central Bank liquidity will lead to sharp slowdown during 2004/2005



Tactical Style Selection

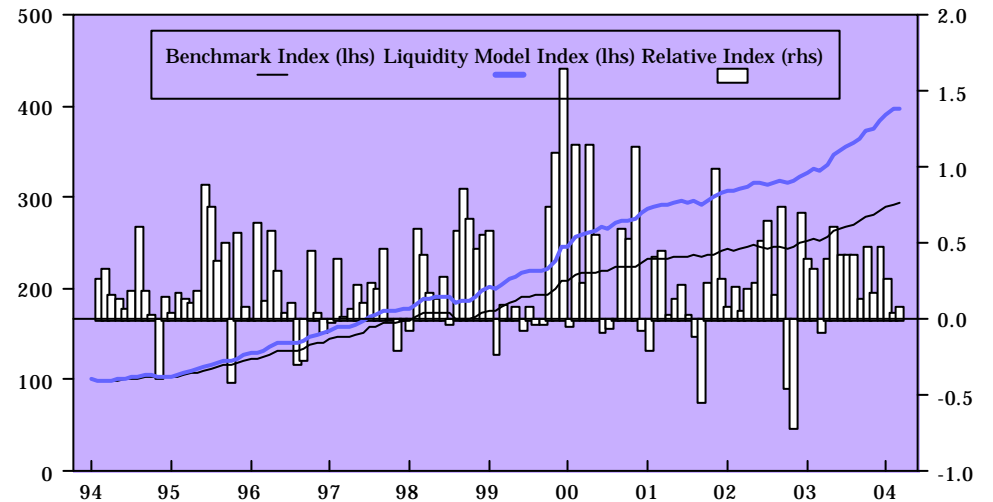


- Exposure raised to styles dependent on high market volatility, *e.g. CTAs*, and exposure reduced to Directional styles, *e.g. Long/Short Equity*
- Fixed Income Arbitrage, Emerging Markets and Distressed Securities most favoured styles. Equity-based strategies falling from favour
- TSS model has beaten HFRI benchmarks by 339 bp annually since inception, with 2.7x information ratio



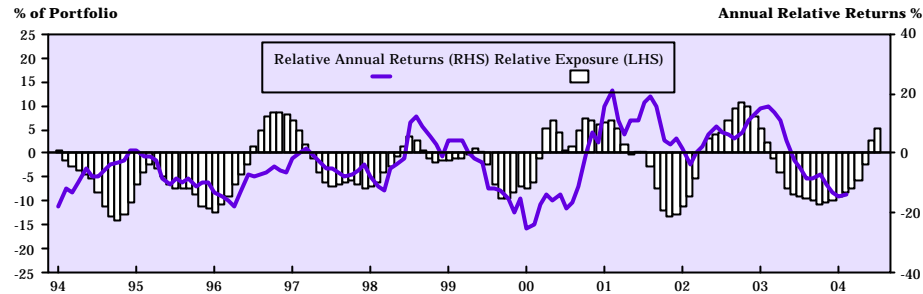
Benchmark Index

Target Portfolio

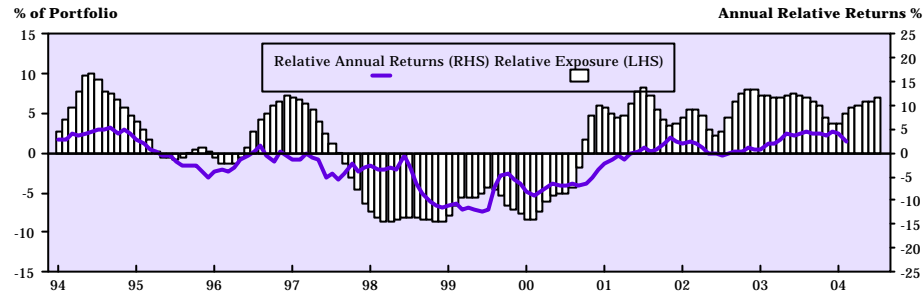


TSS Exposure And Returns By Broad Style

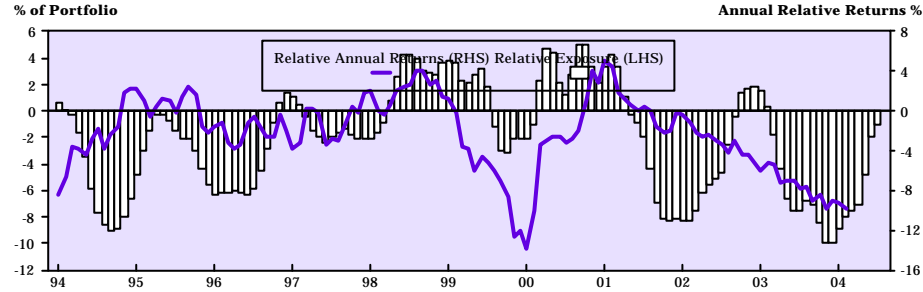
**Volatility-
Based**



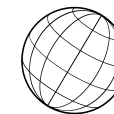
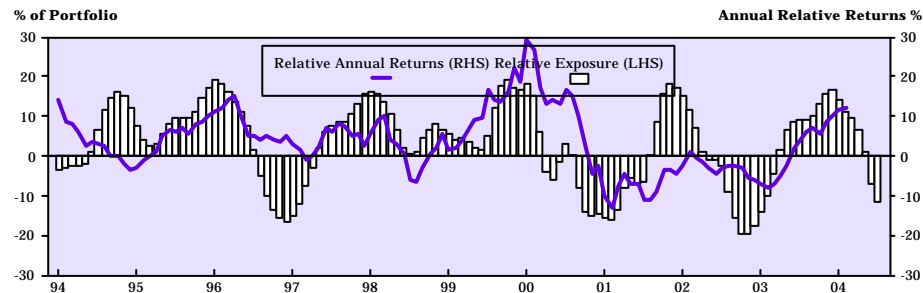
**Credit
Arbitrage**



**Equity
Arbitrage**

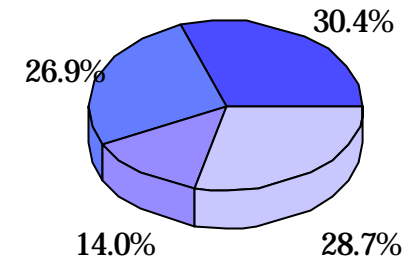
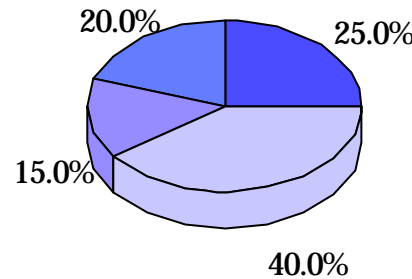


Directional



TSS Latest Exposure By Broad Style

- Exposure raised to styles dependent on high market volatility, e.g. CTAs, and exposure reduced to Directional styles, e.g. Long/Short Equity

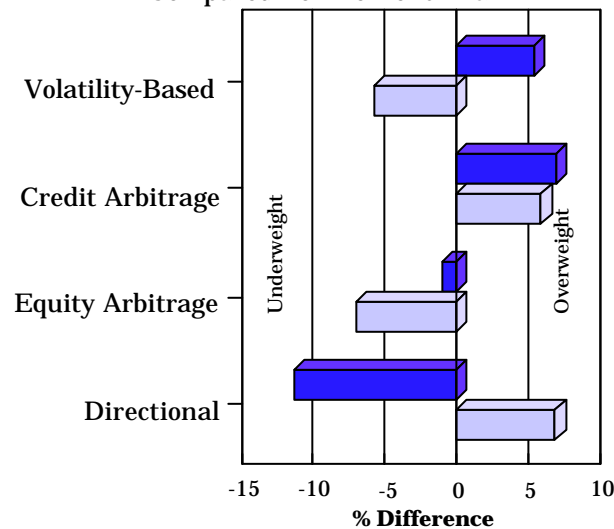


Benchmark Index

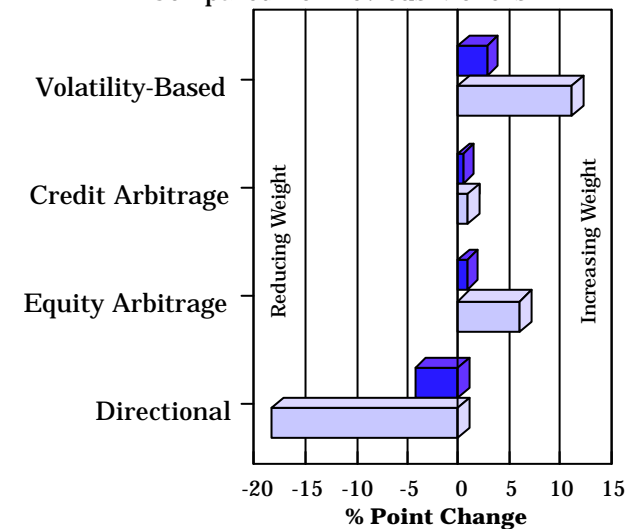
Target Portfolio



Compared To The Benchmark



Compared To Previous Months



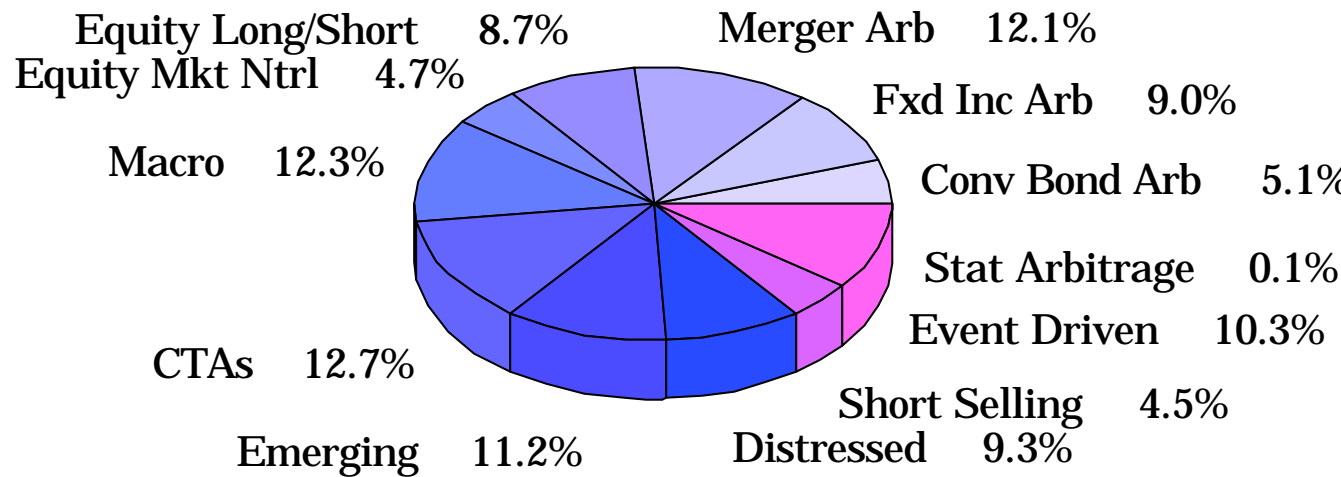
This Month 3 Months Ago

1 Month Ago 3 Months Ago

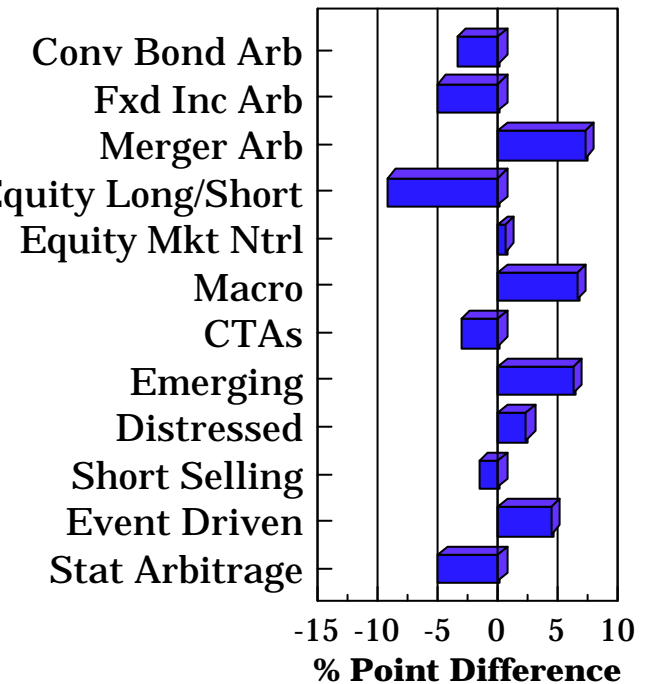


What Are Funds Of Hedge Funds Doing?

- Exposure to *Directional* still very high
- Exposure to *Credit Arbitrage* and *Equity Arbitrage* high relative to TSS
- No clear move into *Volatility Based*



Compared To TSS Recommendation



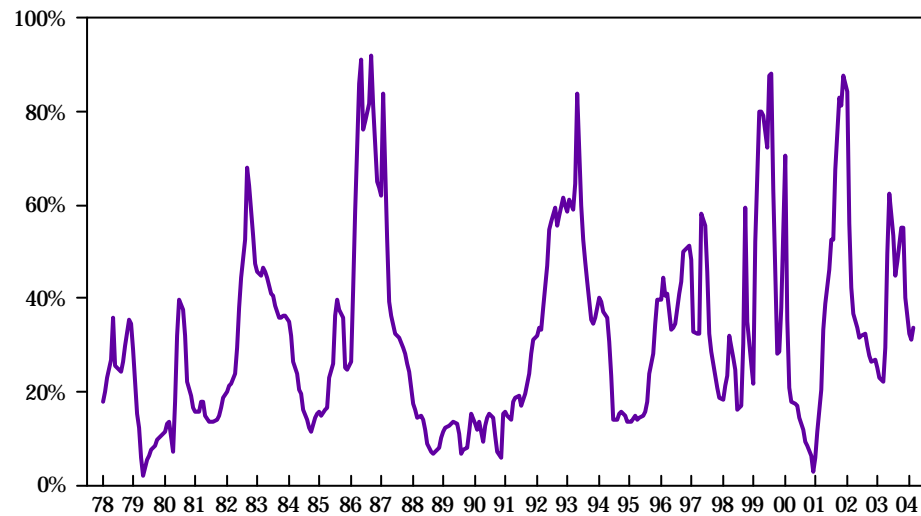
Funds of Hedge Funds



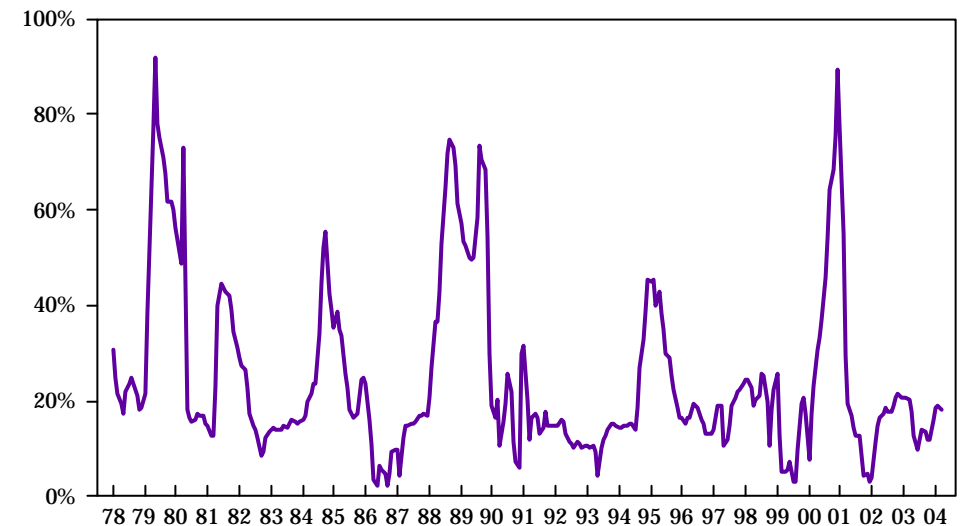
Probability Of Calm And Turbulence

- Probability of '*Calm*' has clearly dropped
- Probability of '*Turbulence*' gradually rising

Calm

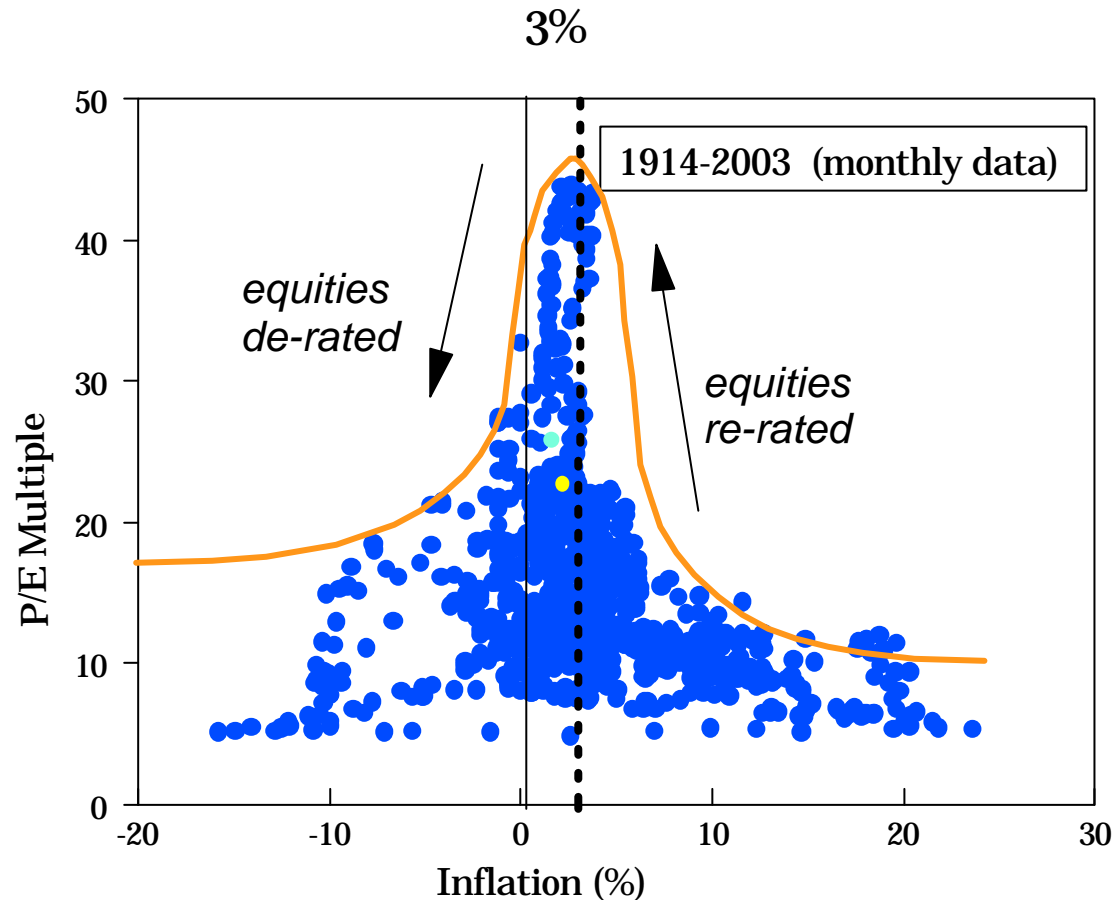


Turbulence



US P/E Multiple And Inflation

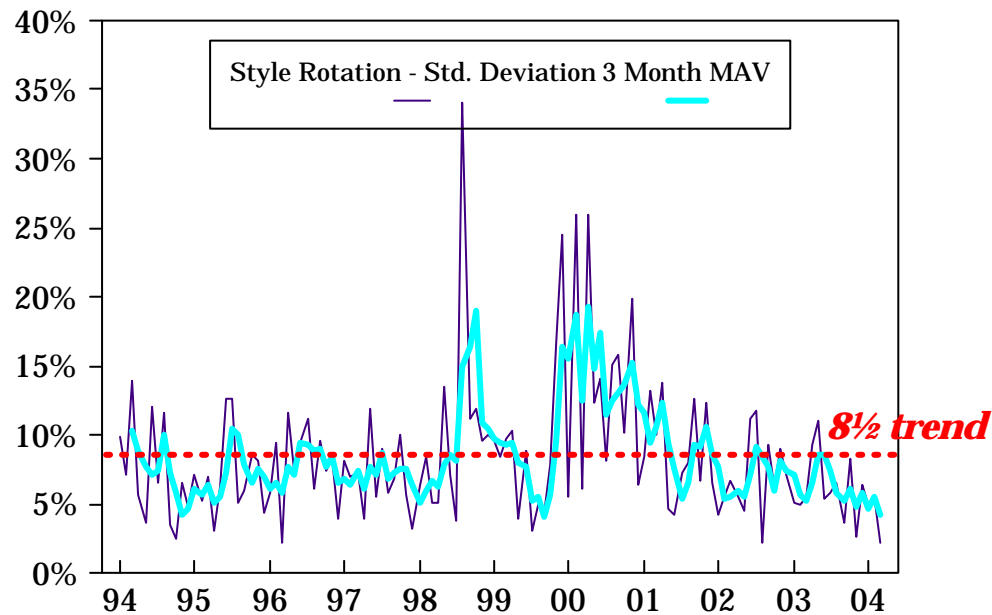
- Strategic asset allocation depends on inflation
- P/Es also sensitive to inflation. Post-WW2 experience shows that low and falling inflation means high and rising P/Es. But in previous deflations P/Es collapsed, like now
- Threshold is 3% inflation, where P/Es hit a maximum. Below 3% inflation, pricing power diminishes rapidly and equities are de-rated. Above 3%, earnings quality decreases and P/Es fall. Dilemma!



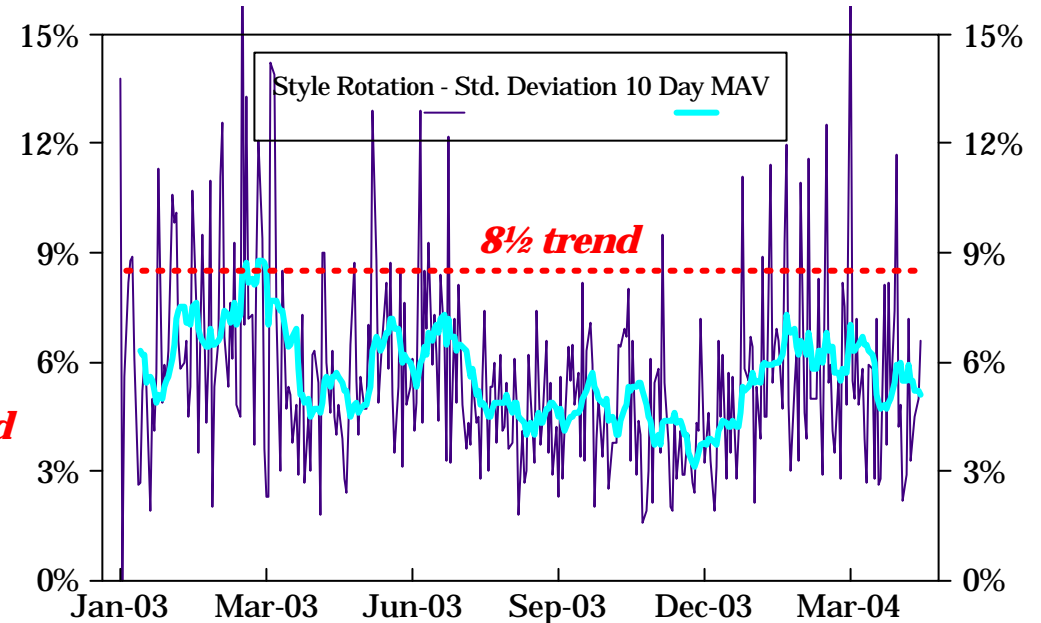
Style Rotation

- Dispersion (standard deviation) of monthly returns unusually low
- Shows high correlation between managers and consistent with recent '*Calm*' zone, but unlikely to persist

Monthly



Daily



CROSSBORDER CAPITAL LIMITED

**MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435**

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