Hedge Funds

A LOOK BEHIND THE SCREEN

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Agenda

- Motivation and Outline of Study
- Brief Description of Hedge Funds
- Shorting
- Hedge Funds and Traditional Investment Management
- Hedge Fund Strategies
- Risk Management and Hedge Funds
- Fund of Funds

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- **Motivation and Outline of Study**
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Motivation and Outline of Study

- Most academic work on hedge funds analyses hedge fund indices (pooled returns)
  - Quantitative analysis and quantitatively drawn conclusions
  - Survivor bias
  - Poorly defined in terms of strategy
  - As a result, findings do not match reality
    - Spurious results also due to short track records
- In course of constructing hedge fund of funds, have privileged access to many hedge fund managers
  - Produce qualitative analysis of universe to match existing quantitative analysis
  - May not be as rigorous a methodology but may be of use as a guide to future work
  - Certainly not free of flaws - survivor bias, only know what they tell us,...

Motivation and Outline of Study

- 'Investibility' screening process aimed to find well established practitioners of 'pure strategies'
  - Obviously subjective to some extent
- Resulting group of 100+ top hedge fund managers
- Constructed 300+ (qualitative) factor database of 100+ hedge fund managers across range of strategies
- Aims
  - Use information to develop multi-manager funds
  - Reflect findings to help future academic researchers
  - Consider new areas that adds value to multi-manager fund management and existing academic research
    - Risk management
    - 'Strategy drivers'

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Hedge Funds

- **Not a new thing**
  - First hedge fund established in 1949
- **Not all the same**
  - Hedge Fund is an umbrella term that covers **many different strategies** and levels of risk
- Characteristics
  - Absolute return objective
  - Short selling and often leverage
  - Management and performance fees
  - Often small teams
  - Capacity constraints
  - Offshore and/or US Domestic LPs
- Assets total $400+ billion invested in 4000+ funds

The Hedge Fund Industry - Who Invests?

- In the past, *high net worth* investors
- Largest institutional investors are currently in the US
  - Pension Funds
    - e.g. CalPERS has committed up to 25% of its USD 45 billion actively managed portfolio to hedge funds and other 'hybrid' funds (6/2000)
  - Foundations and endowments
    - e.g. Harvard
- European, Japanese and Gulf institutions have followed suit
  - e.g. Fortis, Swiss Life, ABN Amro, BNFL, IBJ, ADIA…….and IKEA!
- Watson Wyatt survey shows that 30% of European pension funds invest in hedge funds and other alternative strategies
- Asterias survey shows that 1/3 of Danish, Swiss and Norwegian Funds expect to increase their exposure to hedge funds
- Harris/Ludgate find 64% of European institutional investors have invested or plan to invest in hedge funds

Hedge Fund Categories

- Long/Short Equity - Directional
- Long/Short Equity - Market Neutral
- Discretionary Trading
- Long/Short Equity - Quantitative
- Event Driven
- Volatility Trading/Arbitrage
- Merger Arbitrage
- Distressed/High Yield
- Systematic Trading
- Global Macro
- Mortgage Backed Security Arbitrage
- Statistical Arbitrage
- Fixed Income Arbitrage
- Convertible Bond Arbitrage

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Shorting

- The main difference between hedge fund strategies and 'long-only' equity investing is that they take short positions
  - Other differences are leverage and use of futures & options
- *Shorting* is the sale of a financial instrument that is not owned by the seller
  - To understand hedge funds, we must understand shorting
- Reasons for shorting
  - Hedging/exposure control
  - Alpha Generation
  - Arbitrage

Shorting

- **Shorting to control exposure**
  - Stock Index Futures used for general reduction of exposure
    - Quick, cheap to trade, inexpensive to own and liquid
    - Some hedge out 'big Europe' using S&P 500 and European tech exposure using Nasdaq
  - More specific hedges involve baskets of stocks
    - Sector outperformance bets
  - Most specific using individual stocks
    - Can use individual stock as proxy for sector
    - Pairs trades
    - Not necessarily shorting to produce alpha

Shorting

- **Shorting to control exposure**
  - Sometimes (e.g. in crash) futures used in first instance for speedy reduction of exposure, later replaced by specific shorts
  - Sometimes options used to reduce exposure
    - Buy puts but also sell calls in volatility plays
    - Investors - need to check that the manager has experience in this area if this is what they are doing
    - Far out of the money (so cheap) 'Doomsday Puts' sometimes used for protection in crashes
  - Sometimes, dynamic hedging is used
    - Portfolio insurance
    - Dangerous due to slippage increasing when you most need to trade

Shorting

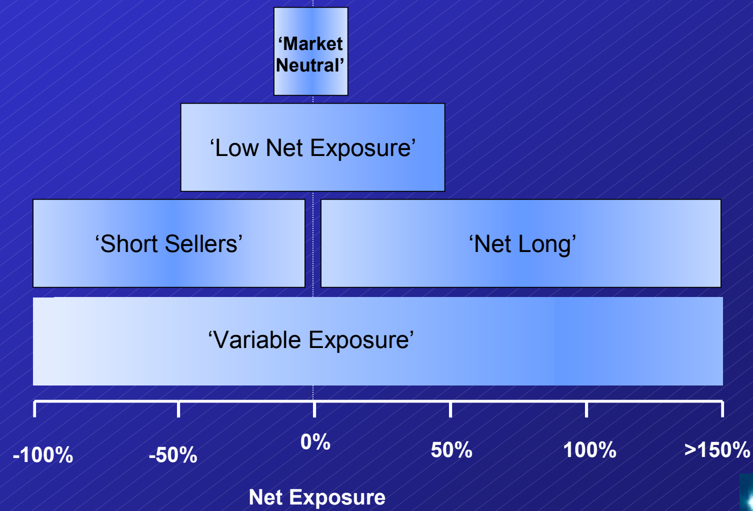
- **Shorting to generate alpha**
  - Shorts intended to produce alpha as well as reduce exposure
  - Usually research intensive
    - Company visits
    - Analysis of financials
    - Supplementary broker analyst research
  - Same as long side stock picking but….

Shorting

- **Shorting to generate alpha**
  - Shorting for alpha generation is the same as long side stock picking but….
    - Sometimes stock is 'difficult to borrow' so difficult to short
    - Sometimes expensive to close position when there is a rush to cover shorts - 'short squeezes'
    - Cash value of position increases as position moves against you (stock price increases)
    - Limitless upside for stock = limitless downside for position
    - Susceptible to corporate events e.g. takeover announcements

Shorting

Net Exposure can vary widely between different types of hedge funds



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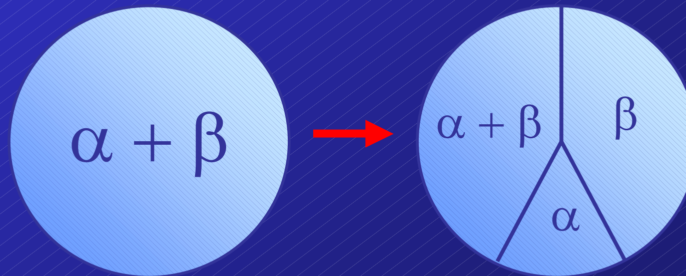
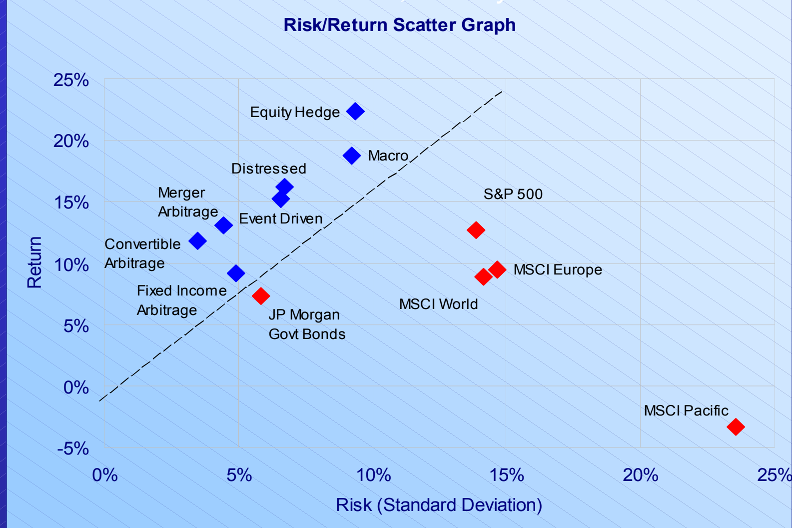
What's happening to Alpha?

– Massive increase in indexation
  - Approximately 10% in Europe
  - 20-30% in UK
  - 40-50% in US
– Active Equity/Specialist funds/ Proprietary trading desks spinning out to hedge funds
  - Decrease in risk budgets in investment houses
  - Rise of popularity and acceptability of hedge fund asset class
  - Bad markets
  - Fees



Hedge Fund Industry Performance

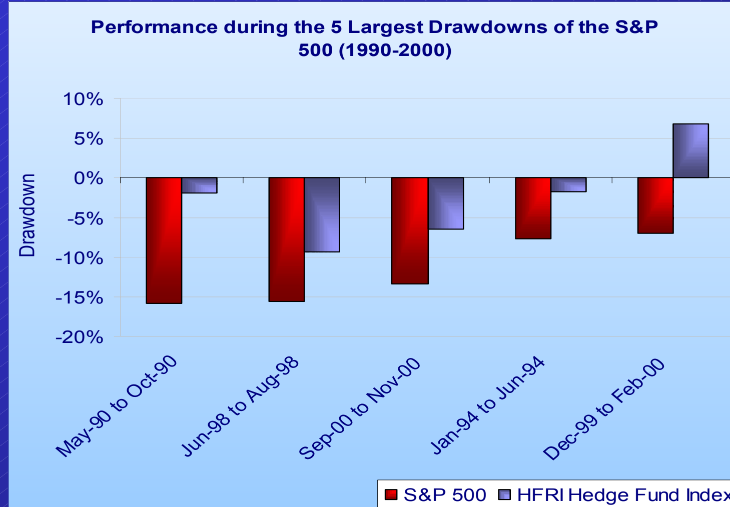
Risk and Return Scatter, January 1990 - December 2000



Source: HFR

Hedge Fund Industry Performance

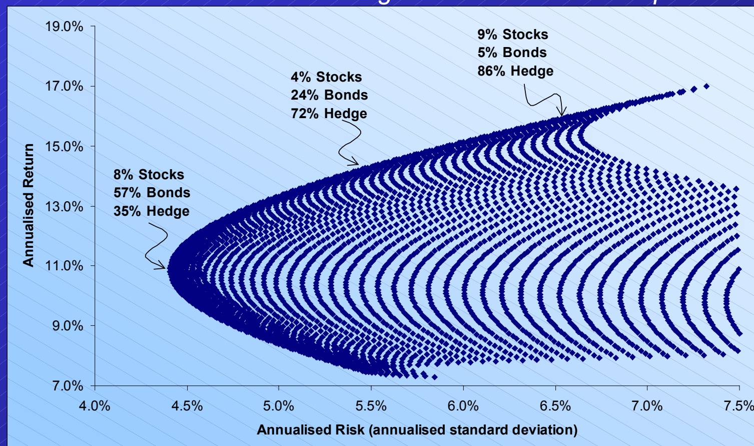
Performance in Negative Market Conditions, 1990 - 2000



Source: HFR

Hedge Fund Industry Performance

The addition of hedge funds to stock/bond portfolios

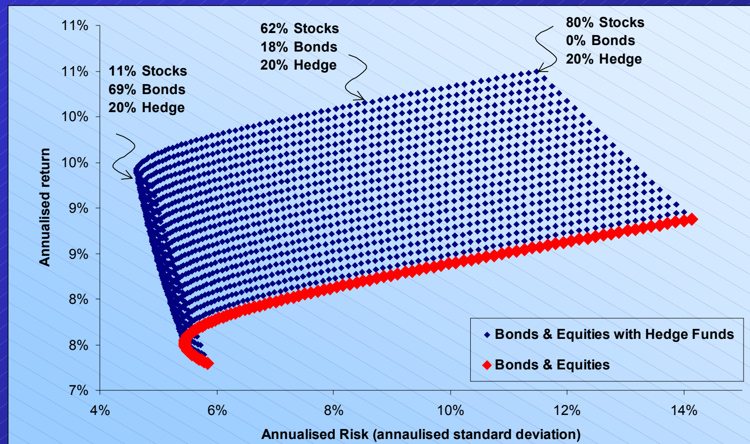


Source: HFR

MSCI World Equity, JP Morgan Global Bonds & HFRI Composite, January 1990 - December 2000

Hedge Fund Industry Performance

The addition of hedge funds to stock/bond portfolios with hedge funds constrained to 20% of portfolio



Source: HFR

MSCI World Equity, JP Morgan Global Bonds & HFRI Composite, January 1990 - December 2000

Are Returns Sustainable?

- **Equity long/short**
  - A ‘high capacity strategy’ still with ‘plenty of room’
  - On the short side
    - Shorting large- and mid-cap stocks isn’t usually a problem and the growth of the ‘stock borrow’ industry means that shorting is getting even easier
    - Small-cap managers see no shortage of capacity - tend to be more concentrated
  - On the long side
    - Increased assets and/or more participants should surely see each one gets less of a share of the long-side alpha BUT this may not be so because of
      - » Migration of Institutional assets from active equity selection to passive (indexation)
      - » Migration of many of the best active equity managers from ‘long only’ stock picking to the long/short world
  - Note that there is a difference between capacity at strategy level and capacity at manager level

Are Returns Sustainable?

- Arbitrage Strategies
  - Arbitrage returns should always be available given there exist sizeable market assets managed with different (non-arbitrage) objectives
    - e.g. long only stock pickers, index funds, etc
  - 'Long only' managers and long-short hedge funds, not just merger arbitrageurs, all profited from VOD/MMN and the spread still yielded in excess of 50%
  - Even when LTCM participated in highly leveraged merger arbitrage eating up billions of dollars of capacity, more conventional players returns were sound
  - Furthermore, merger and convertible arbitrage trading desks are being spun out of institutions, creating $$$billions of capacity
    - Bear Stearns, Lehman, SSB, etc
  - The truth is, we can't say for sure. However, rational argument would lead us to believe that there is a long way to go before arbitrage strategies reach capacity

But what is the Benchmark?

- What are the options?
  - Equity indices - but why benchmark ALPHA with BETA?
    - Fundamentally different levels of risk
  - Peer Group Index
    - No help to those outside the industry
    - Peer group is unregulated and unstandardised with wildly varying risk and survivor bias
  - Multiples of the cash rate
    - Maybe, but what multiple - greater leverage doesn't necessarily mean greater risk (and certainly VAR)?
    - Shouldn't the benchmark at least be (hypothetically) investible?

But what is the Benchmark?

Possible Solution

- Define the benchmark to be the 'passive state'
  - e.g. for active equity funds, the passive state is the underlying representative equity index
- **Q. What is the 'passive state' for hedge funds?**

OR

- **Q. If I chose not to invest in hedge funds, in what would I be invested?**
- **A. Not a hedge fund index but probably a balanced bond/equity portfolio**
- So, take the balanced passive portfolio as the benchmark
  - e.g. 60%MSCI World / 40% WGBI

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Hedge Fund Strategies

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Discretionary Trading | Long/Short Equity - Quantitative | Event Driven

Volatility Trading/Arbitrage | Merger Arbitrage | Distressed/High Yield

Systematic Trading | Global Macro | Mortgage Backed Security Arbitrage

Statistical Arbitrage | Fixed Income Arbitrage | Convertible Bond Arbitrage

Hedge Fund Strategies

– ***Merger Arbitrage***

- Seek to capture the spread between target and acquirer in mergers
  - Spread typically reflects the (un)certainty of the deal 'closing'
  - In depth research of companies involved, competitors, sector, deal terms, strategic rational, anti-trust issues and other potential deal breakers gives an edge in estimating probability of closure
- Various techniques to lock in spread
  - In a stock-for-stock deal would be long target and short acquirer in proportion to the the exchange ratio outlined in the terms of the deal
  - In cash deal, just need to buy target stock - potentially more market exposure
  - Gets more complex with collar deals since have a variable exchange ratio
- Returns mainly dependent on quality deal flow and not the underlying market
  - **No deals - no returns**
  - Portfolio is fully hedged provided deals don't break
  - Unexpected deal breakage will leave arbitrageurs with crystalised losses
- Can be extended to other include corporate reorganisations such as spin-offs and 'one-off' corporate events *(Event Arbitrage, Event Driven).*

Hedge Fund Strategies

- *Convertible Arbitrage*
  - Seek to identify mispricings, especially in the embedded optionality, by buying the convertible bond and delta hedging the equity risk by shorting the underlying stock
    - Sophisticated pricing models
    - Usually dynamically hedged
    - Often interest rate risk hedged
    - Sometimes credit risk hedged
  - Return from
    Running yield = bond coupon + short sale rebate - dividends payable
    +
    Profit from underpriced embedded option when it returns to fair value
    +
    Trading profit from dynamic hedging
  - Main source of return differs with region
  - Biggest risk is from corporate actions e.g. premature bond call, unexpected dividends

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Risk Management and Hedge Funds

- Are traditional measures of risk appropriate?
  - Is volatility/standard deviation appropriate?
  - Is downside volatility/downside deviation/semi-deviation more appropriate?
  - Path dependency & drawdown must be looked at
    - Mark-to-market vs Crystallized loss
- Are traditional risk management techniques appropriate for hedge funds
  - Efficiency
  - Liquidity
  - Pricing and fair value
  - Short-side specific

Risk Management and Hedge Funds

- VaR/Historical far from ideal
  - Event-driven breakdown in correlation structure
    - VaR potentially overestimates Merger Arbitrage
  - Fat tails and rare events underestimated by VaR
    - So underestimate the risk in high-leveraged spread capture strategies
    - LTCM: 'Picking up nickels in front of a steam roller'
- Scenario/'what if?' has greater potential
  - e.g. merger arbitrage: deal breakage modeling
  - e.g. convertible arbitrage: corporate events, scenario testing wrt volatility, credit & interest rate jumps
- <u>Must be careful when combining strategies</u>

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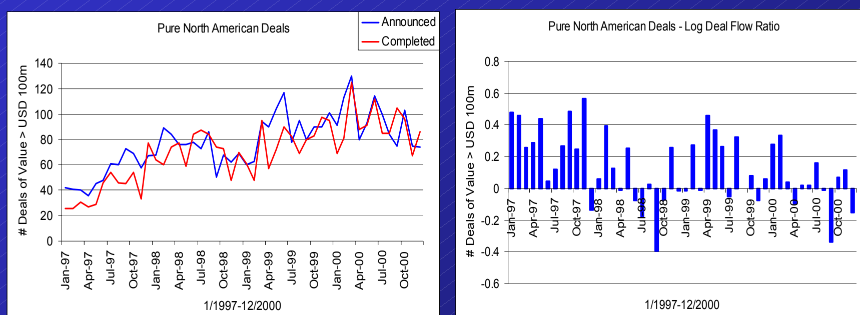
Fund of Funds

- e.g.

1/1990-12/2000	Annual Return	Annual sd	Sharpe Ratio
HFR Merger Arbitrage Index	13.10%	4.46%	1.82
HFR Convertible Arbitrage Index	11.78%	3.49%	1.94
50/50 Fund of Funds	**12.46%**	**3.43%**	**2.18**

Fund of Funds - Leading Indicators

- e.g. Merger Arbitrage
  - Deal Flow



Conclusions

- Existing good quantitative work on hedge funds
- However, return indices can hide much important information
  - True source of return
  - True nature of strategies
- Qualitative studies can redress this balance, but may lack rigour
- However, qualitative studies can be of use as a springboard and a guide to new, more rigorous research
  - Risk management
  - Leading indicators and true drivers/sources of return