Beijing Hedge Fund Conference

HEDGE FUNDS IN THE NEW NORMAL

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Talking Points

- Implications of Global Economic Regimes on Hedge Fund Strategies & Performance

- New Global Strategies and Trading Styles of Hedge Funds
  - Algo Trading and High Frequency
  - Capital Structure Arbitrage
  - Distressed & Credit
  - Activist Shorts

- Asset Allocation Strategies to Incorporate Hedge Funds
  - Alpha-Beta Separation
  - Core-Satellite
What is the New Normal?

- First articulated by PIMCO in 2009

- Predictions of the New Normal
  - Prolonged period of below average economic growth
  - High unemployment & weak job creation
  - Higher sovereign risks
  - Embedded inflation triggers
  - Tighter regulations
  - Multi-polar world

- Now, 5 years after 2008, what is the evidence?
Debt Overhang of Key Markets Lowers Growth

IMF projects that by 2015, developed market debt-to-GDP ratios will increase to nearly 110% due to government response to crisis.

As of Apr-10. Based on real GDP growth projected for 2008–2015
Source: IMF
Implications of New Normal

- **U.S.**—Low growth, inflation pressures
- **EUR**—Low growth, EU concerns, inflation pressures
- **EM**—Moderate growth, large dispersion between countries
- **UK**—Low growth, financial instability
- **Japan**—Low growth, fiscal and demographic issues
- **China, Brazil, India**—Strong economic growth

*Source: AARS*
Understand the Current Investment Climate

- Fear and Caution
  - Momentum Strategies are limited
- Negative Real Rates
  - Carry Trade viable but vulnerable to interest rate uncertainty
- High Liquidity Premiums
  - Sell Liquidity or Source opportunities in illiquid securities
- Short Term Bias
  - Position for Deep Value
  - Better opportunities for Long Term investors
- Regime Changes
  - Monetary Policy, Technology, Regulatory
# Taxonomy of Hedge Fund Strategies

<table>
<thead>
<tr>
<th>Style</th>
<th>Strategy</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity</strong></td>
<td>Long/Short Equity</td>
<td>“double alpha”, relative value type</td>
</tr>
<tr>
<td></td>
<td>Market Neutral</td>
<td>Similar to L/S with less exposure to betas</td>
</tr>
<tr>
<td></td>
<td>Short Bias</td>
<td>Naturally short market – used as diversification</td>
</tr>
<tr>
<td><strong>Opportunistic</strong></td>
<td>Global Macro</td>
<td>Exploits shifts in govt policy &amp; impact on asset prices</td>
</tr>
<tr>
<td></td>
<td>Managed Futures</td>
<td>Leverages on market moves &amp; price arb using futures</td>
</tr>
<tr>
<td></td>
<td>HY &amp; Distressed</td>
<td>Based on high coupon carry and price appreciation</td>
</tr>
<tr>
<td></td>
<td>Special Situations</td>
<td>Events on bankruptcies, spinoffs, carveouts, restructuring</td>
</tr>
<tr>
<td><strong>Arbitrage</strong></td>
<td>Fixed Income arb</td>
<td>Leverages on mispricings in bond &amp; derivative prices</td>
</tr>
<tr>
<td></td>
<td>Convertible arb</td>
<td>Leverages on convertible/equity mispricing and carry</td>
</tr>
<tr>
<td></td>
<td>Merger arb</td>
<td>Exploits spreads in merger pair deals</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>Multi-strategy</td>
<td>Combination of 2 or more of above</td>
</tr>
<tr>
<td></td>
<td>Emerging Markets</td>
<td>Focus on emerging market inefficiencies, macro style</td>
</tr>
</tbody>
</table>
Drivers of HF Strategies: Active or Quantitative?

- HF performances depend on different drivers due to variety of strategies engaged
- HFs must have adequate skill sets to manage relevant factors

<table>
<thead>
<tr>
<th>Styles &amp; Strategies</th>
<th>Skill</th>
<th>Drivers and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Macro</td>
<td>Active</td>
<td>Macroeconomic inflections, trading acumen</td>
</tr>
<tr>
<td>Long / Short Equity</td>
<td>Act/Quant</td>
<td>Correlation, dispersion, business fundamentals</td>
</tr>
<tr>
<td>Short Bias</td>
<td>Active</td>
<td>Equity beta, interest rates</td>
</tr>
<tr>
<td>Merger Arbitrage</td>
<td>Active</td>
<td>Corporate action (supply), business acumen</td>
</tr>
<tr>
<td>Convertible Arbitrage</td>
<td>Act/Quant</td>
<td>Volatility, credit spreads</td>
</tr>
<tr>
<td>Fixed Income Arbitrage</td>
<td>Quant</td>
<td>Yield curve, credit spreads, interest rates</td>
</tr>
<tr>
<td>Statistical Arbitrage</td>
<td>Quant</td>
<td>Correlation, credit spreads, models</td>
</tr>
<tr>
<td>Distressed</td>
<td>Active</td>
<td>Default rates, credit spreads, interest rates</td>
</tr>
<tr>
<td>Managed Futures</td>
<td>Technical</td>
<td>Strength of trends, trading acumen</td>
</tr>
<tr>
<td>Special Situation</td>
<td>Active</td>
<td>Corporate action (supply) vs capital (demand)</td>
</tr>
<tr>
<td>Emerging</td>
<td>Active</td>
<td>Macro policies, economic fundamentals</td>
</tr>
<tr>
<td>Multi Strategy</td>
<td>Act/Quant</td>
<td>Combination of other strategy factors</td>
</tr>
</tbody>
</table>
Which Strategies May Outperform in New Normal

- Strategies likely to do better in New Normal
  - Distressed
    - More opportunities with global crisis
  - Global Macro
    - Better suited to exploit country/regional changes

- Dark Horse that may surprise on upside
  - Long/Short Equity
    - Cyclical Betas
  - Emerging Markets
    - Structural Alphas

- Smaller Funds Likely to Outperform Larger Funds
Small Hedge Funds More Volatile

Scatter Plot of Fund Size and 1 Year Returns of HFs (to Oct 2012)
Small HFs Outperform Large HFs

- Research on 3,000 L/S HFs
- Small HF (<$50M), Large HF (>50M)
- Small HF outperform by 220bps pa
- Outperformance due to alpha not beta
- Dispersion of Small HF > Large HF

Source: CAIA Chartered Alternative Investment Analyst (2013)
HF Performance over Past 20 Years

Risks Returns of Hedge Fund Strategies vs MSCI (1994-2013)

Best Performers

Worst Performers
Tech Boom Years: Stocks & Long/Short Best


- Cyclical Best
  - Long/Short
  - SPX
  - Glbl Macro

- Cyclical Worst
  - MSCI
  - Futures
  - Emerging

- Mkt Neutral
- Risk Arb
- Convert
- EM Mstrat
- Multi-Strat
- Evnt Driven
- Distressed
- FI Arb
- HF Index
- EM Mstrat
- Long/Short SPX
- Glbl Macro

Annual Returns vs Annual Risks Chart
Emerging Boom Years: EM, Macro, Distressed Best

Risks Returns of Hedge Fund Strategies vs MSCI (2000-2007)
New Normal Years: Same Risks Lower Returns

Risks Returns of Hedge Fund Strategies vs MSCI (2008-2013)
Hedge v Traditional Funds – The Beta Discussion

- **Hedge Fund**
  - Exposure to Beta $\beta$
  - Alpha $\alpha$

- **Traditional Fund**
  - Exposure to Beta $\beta$
  - Alpha $\alpha$

- **Passive Fund**
  - Exposure to Beta $\beta$
  - Alpha $\alpha$ and Gamma $\gamma$

Performance Returns

Market Price
Actual Performance of Hedge Funds

Fund Strategies in 90s
- Aggressive
- Dispersed
- Larger betas

Fund Strategies in 2000s
- More conservative
- Correlated
- Smaller betas
- Outperformance over down-cycles rather than up-cycles
- Size Effect

Hedge Fund v MSCI Monthly Returns Scatter Plot (1994-2011)

\[ y = 0.4006x + 0.0069 \]
\[ y = 0.2422x + 0.0048 \]
HF Vols Have Fallen to 6% with Higher Hedge Ratio
HF Correlation with Market Surprisingly High
HF Style Correlation with Stocks Still Varied

Correlation of HF Styles Vs Stocks (12mth Roll Corr 1995-2013)
Most HF Styles Have Outperformed Stocks

Performance ALL

Index

Global Macro
Distressed
Evnt Dr
Long/Short
EM Mstrat
HF Index
MultiStrat
Risk Arb

MSCI
Hedge Funds Recoveries Much Faster Than Market

\[ \forall X(t), \ t \geq 0, \quad DD(T) = \min[0, X(T) - \max_{t \in (0,T)}[X(T)]] \]
HFs Have Met 67% of Investors Expectations

- Despite difficult years since crisis, HFs have met expectations of institutional investors
- Interestingly only 14% of investors showed a fall in confidence

Source: Preqin Special Report Nov 2011
Investment Attributes of HF Investing

- Reputation, Performance and Investment Strategy comprise the most important attributes of HFs for institutional investors.
- Liquidity and fees though significant are not leading concerns.

Source: Preqin Special Report Nov 2011
New Developments in Hedge Fund Strategies

- Algorithmic / High Frequency Trading
- Capital Structure Arbitrage
- Distressed
New HF Strategies Rely on New Instruments

New Hedge Fund Strategies

- Algorithmic Trading / High Frequency Trading
- Capital Structure Arbitrage
- Correlation Trading
- Loans, Liabilities and CDS
- Credit Liabilities
New Strategies: Algo Trading & High Frequency

Race to Full Automation

Sub-strategies in Quantitative Long/Short Equity HFs

Delta Neutral
Trend Strategies
Market Making
Pairs Trading
Statistical Arbitrage
Event Arbitrage

Race to Zero

High Frequency Trading
High Frequency Trading

- 1980s
  - Computer real time data
  - Seconds

- 1990s
  - “Tic” data
  - Milliseconds (10⁻³ second trading blocks)

- 2000s
  - High Frequency Trading
  - Microseconds (10⁻⁹ second trading blocks)

- Now:
  - Co-location and latency
  - Nanoseconds (10⁻⁹ second trading blocks)
New Strategies: Capital Structure Arb

Country A
- Currency
- Interest Rates
- Bonds
- Sub-Ord
- Convert
- Stocks
- Volatility

Firm 1

Firm 2

Country B
- Currency
- Interest Rates
- Bonds
- Sub-Ord
- Convert
- Stocks
- Volatility

Firm 1

Firm 2
Capital Arbitrage Strategies

- Capital structure arbitrage is the extraction of profits from deviations in asset prices from fair value, where the assets are equity, debt and/or contingent claims on those assets.

- Capital structure arbitrage requires some systematic framework for relating asset prices across debt and equity markets.

- **Statistical Capital Structure Arbitrage** uses historical relationships across asset types and initiating trades when asset prices deviate significantly from those historical relations.

- **Financial Capital Structure Arbitrage** is based on the ability to replicate a portfolio of one type of asset by buying or selling other types of assets plus cash.
Financial Capital Structure Arbitrage

- Uses Merton’s option pricing approach to categorize stocks and bonds
- Stock = Call Option on Assets of Firm
- Bond = Short a Put Option on Firm
- Uses Put-Call Parity to extract relative value between Stocks and Bonds
Capital Arbitrage Strategies

- Use structural models to gauge the richness & cheapness of CDS spread.
- Usually a variant of Merton’s (1974) model
  - Models predict spreads on the basis of a company’s liability structure and its market value of equities
- Trigger if market spread is much larger than predicted spread
  - Possible Trades
    - If equity market is more objective in its assessment of the price of credit protection and the CDS market is gripped by fear,
      - Sell credit protection.
    - If market spread feels “right” and the equity market is slow to react to relevant information,
      - Sell equity.
    - If unsure (most common), do both and profit if market spread and model spread converge.
Capital Arbitrage Strategies

- **Motivation**
  - Securities from same issuer should be related
    - Higher stocks prices should translate into tighter spreads
    - Generally higher stock vols do result in higher spreads
  - Periods of **decoupling** and potential **arbitrage**
    - Changes in business or credit cycles
    - Releveraging of balance sheets can force equity to delink from credit

- **Key driver**
  - Fundamental variations in credit and equity markets
    - At Market, Industry and Company Levels
  - Good understanding will allow managers to **distinguish between temporary decoupling and permanent deviations**
Capital Arbitrage Strategies (2 Factors: Debt & CF)

Higher Cash Flows

- Re-Leveraging Falling Default Risk (Positive Stocks)
- De-Leveraging Falling Default Risk (Positive Credit)

Lower Cash Flows

- Re-Leveraging Rising Default Risk (Negative Stocks Negative Credit)
- De-Leveraging Rising Default Risk (Firm Specific)

Higher Debt → Lower Debt
Statistical Capital Structure Arbitrage

Credit More Correlated with Stock Vols than Prices
Credit and Stock Vols – Single Name CDS

Ford CDS Shows a Strong Relationship with Equity Implied Vols
**Capital Arbitrage Strategies**

- Size of equity position relative to the CDS notional amount is determined by delta hedging.

- Rationale: if CDS spread widens or if equity price rises,
  - the best an arbitrageur can hope for is that the theoretical relationship between the CDS spread and the equity price will prevail and the equity position will cushion the loss on the CDS position, or vice versa.
Example of Capital Arbitrage

- A common cited market example is that of Hanson PLC
  - 5 November 2002
    - Hanson CDS traded at 95bps
    - CDS model prediction estimation = 160 bps
    - Share price relatively stable at £2.91
  - Trader bought CDS protection and bought shares at 12% delta hedge ratio
  - 20 November 2002
    - CDS widened to 140bps
    - Share price rose to £2.95
  - Trader gains
    - CDS spread widening by 45bps
      - for 5yr CDS gain is about \(0.45 \times 4.3 = 1.9\%\)
    - Share price appreciation by £0.04 = 1.4%
    - Total gain = 3.3% over 2 weeks
Distressed/ High Yield

- Strategy is long low investment grade credit
- Distressed funds are usually long only and have long term lockups
- Invests in debt or equity or claims of firms in financial or operational distress or bankruptcy
- Rationale: Securities trade at substantial discounts to par

- Distressed firms trade at huge discounts to fair value due to
  - Illiquidity
    - Many mainstream investors are unable to own such assets
- Funds will buy these discounted securities in hope of reaching fair price

- Caveat: Prices of distressed are harder to value – mark to market risks
Distressed/ High Yield

- Two general types of investors
  - Active Distressed investors
    - Managers get involved in restructuring and refinancing process
    - Sometimes may even restructure the process independently
  - Passive Distressed investors
    - Simply buys equity or debt at substantial discount and hold till price appreciates

- Both approaches are labor intensive and requires much analysis

- Bankruptcy laws can differ significantly across countries with US laws giving more protection than European laws
New Development in Distressed: Special Situations

- Invests in Credit Receivables arising from financial lawsuit settlements in Brazil which are sold at significant discounts to par
- Result: Yields of 25-35% annually

**Event and Transaction Timeline**

*Initial Assessment*
*Documentation*
*Judicial Recognition of Credit*
*Prosecution*
*Outcome & Order of Payment*
*Assignment of Credit*
*Initial Payment*
*Partial Payment*
*Final Payment*

*Par Adjusted Up by Penalty Rate 15% pa*

*Purchase of Credit Rights at Discount (20%-70% of Par)*

*Source: Lumen Global Investments*
## Discount Prices in Various Credit Rights

<table>
<thead>
<tr>
<th>Asset</th>
<th>Phase 1 / Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>Phase 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Contractual Value / Maturity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savings</td>
<td></td>
<td>30% - 60%</td>
<td>-</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0 years</td>
<td>-</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Pensions</td>
<td>10% - 45%</td>
<td>45% - 55%</td>
<td>55% - 70%</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td>5.0 years</td>
<td>2.0 years</td>
<td>1.5 years</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Telebras</td>
<td>20% - 60%</td>
<td>60% - 80%</td>
<td>-</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td>5.0 years</td>
<td>3.0 years</td>
<td>-</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Insurance</td>
<td>20% - 70%</td>
<td>70% - 80%</td>
<td>-</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td>6.0 years</td>
<td>1.0 years</td>
<td>-</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Eletrobras</td>
<td>10% - 60%</td>
<td>60% - 80%</td>
<td>-</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td>6.0 years</td>
<td>4.0 years</td>
<td>-</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Pré-Precatórios</td>
<td>-</td>
<td>15% - 50%</td>
<td>-</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0 years</td>
<td>10.0 years (³)</td>
<td>+ Bonus</td>
</tr>
<tr>
<td>Precatórios</td>
<td>-</td>
<td>-</td>
<td>50% - 65%</td>
<td>Par Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>10.0 years</td>
<td>+ Bonus</td>
</tr>
</tbody>
</table>

*Source: Lumen Global Investments*
Asset Allocation with Hedge Funds

• Alpha Beta Separation
• Core-Satellite
Asset Allocation: Simple Example of Stocks & HFs

- Alpha-Beta Separation
  - ETFs and Equity Futures
    - Sources of Beta
  - Hedge Funds
    - Sources of Alpha

Objectives:

- Determine how much Alpha and Beta to target for the portfolio.
How Can We Separate Alphas From Betas?

Classic Risks & Returns Decomposition of Active Funds

Investing in Active Fund alone means bundling $\alpha$ with $\beta$ in a fixed proportion.

Can we separate $\alpha$ from $\beta$?
**Alpha Beta Separation Yields Higher Sharpe Ratios**

**Investing Separately in Alpha and Beta**

- **Actively Managed Fund** ($\alpha + \beta$)
- **Index Fund** ($\beta$)
- **Alpha Fund** ($\alpha$)
- **Risk Free Rate** ($r_F$)

Now we can optimize the weights in both $\alpha$ and $\beta$ .......

...... giving us a higher Sharpe Ratio

How can we separate $\alpha$ from $\beta$ in practice?
Core Satellite Approach For Risk Adjusted Returns

- Stocks
- Bonds
- Alternatives
- Cash

Core Satellite Approach For Risk Adjusted Returns
Step 1: Choosing the Core Assets

- Assets that comprise the Core should have the following features
  - Dominant
  - Efficient
  - Liquid
  - Diversified

- Typical Core Assets can include
  - Large Cap Developed Market Stocks
  - Global Developed Market Government Bonds
  - High Investment Grade Corporate Bonds
  - Alternatives (e.g., Real Estate)

- Core Assets Are
  - Usually Passive (ETFs as Proxy for Core)
  - Utilized for their Beta exposures
Step 2: Constructing the Core

- MPT can be used to construct *allocation weights* of the Core
Step 3: Choosing the **Satellites**

- Assets that comprise the Satellites should have the following features
  - Low Correlation with the Core Assets
  - Attractive Returns not generated by Core Assets

- Typical Satellites can include
  - TAA Funds
  - Hedge Funds
  - Structured Products
  - Commodities
  - Private Equity
  - Currencies

- Satellites Are
  - Usually Active
  - Utilized for their Alpha returns (Portable Alphas)
Step 4: Constructing the Satellites

- Alpha Beta Separation can also be used to construct allocation weights of the Satellites

![Diagram showing the relationship between return and risk with Core, Stocks, Bonds, Alternatives, Cash, and various satellites labeled.]
Example of Core Satellite Allocation

- Stocks
- Bonds
- Alternatives
- Cash

- Core
- S1
- S2
- S3
- S4
- S5
- S6
- S7
- S8

- FX ELN
- TAA
- Cap Protected Notes
- Equity Linked Notes

- Hedge Funds
- Commodity
- High Yield
- TIPS
Two ways of implementing Core-Satellite

**Funded Satellites**
Need to reduce allocation to Core

**Unfunded Satellites**
Maintain gross allocation to Core
Need to monitor leverage
THANK YOU!