



Topics in Hedge Fund Strategies (B40.3121)

Summer 2011, Thursday 6 pm - 9 pm (June 30th –August 4th)

Instructor

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Teaching Assistant

TBD

Course Description

This course surveys a broad range of hedge fund and proprietary trading strategies with an emphasis on understanding their fundamental investment process. Students will gain practical knowledge in regards to creating, back-testing, and implementing such trading strategies. There will be particular focus on the theoretical justification for the existence of inefficiencies or risk premium and the successful extraction of them. The first part of this course will cover the gambit of popular hedge funds strategies such as Long/Short, Event Driven (Distressed, Risk-Arbitrage), Equity Market Neutral, Statistical Arbitrage, Dedicated Short-Bias, Convertible Arbitrage, Emerging Markets, Fixed Income Arbitrage, Global Macro, Managed Futures, and Multi-Strategy. Particular attention will be placed on understanding the mechanics of the alpha-extraction methodology. An example of the type of question that will be addressed in this course is: What do hedge fund managers strive to capture and how do they do it? Close attention to the hidden-risks and limitations associated with the implementation of such strategies will be highlighted throughout this course. Upon successful completion of this course, students should gain a firm understanding of the popular hedge fund trading strategies currently employed in the industry.

This course is presented from a practitioner's perspective and will assume students have knowledge of basic financial theory, portfolio construction, arbitrage concepts, return calculations, statistics, and knowledge of financial instruments and derivative products. The class projects will be highly quantitative and will require that students be able to analyze and manipulate market data using statistical and mathematical modeling techniques. Only students serious about pursuing a career in hedge funds should take this course. The course workload will be very heavy.

Grading

The course grade will be comprised of two homework assignments, a final group project and class participation.

Homework Assignments

Homework #1: "Examine Hedge Fund Performance"	10%
Homework #2: "Build a Strategy"	20%
Group Project	50%
Class Participation	<u>20%</u>
Final Grade:	100%

Group Project

Students will form groups of 7-8 members and create a hedge fund strategy. The hedge fund strategy presentation must:

1. Have supporting investment documentation: (1) the investment thesis/idea, (2) back-tested data results/support, (3) survey of investment opportunity, and (4) a summary of any prior academic works. Several ideas for strategies are below, but students are highly encouraged to come up with their own ideas.
2. Be submitted in a written report and be presented to the class (10 minute time limit) on the last day of class.

Groups must study the economic rationale behind the strategy (what property of the market makes it inefficient in a way that you can exploit?), weigh and criticize the relevant evidence

from the academic literature (if any), the strategy's past returns using historical data, estimate the associated transactions costs and use of capital (margin), and describe its success (or failure) using several performance measures. The group project is due on the last class and will be presented to a mock "Investment Committee."

Guest Lecturers

Guest lecturers will be invited to provide in-depth analysis of current strategies throughout the class sessions. These guests will be seasoned professionals currently working in the hedge fund industry. They will provide insight on the current development of the industry, as well as current best-practices on strategy implementation.

Tentative Session Outline

(1) Introduction and the Basics of Strategy Development

(June 30th)

- a. General background on origins of hedge funds
- b. Taxonomy of strategies
 - i. Convertible Arbitrage: long converts, hedge equity, credit, fixed income; gamma, busted, high-money
 - ii. Dedicated Short-bias: identifying frauds, forensic accounting, e.g. Fraud Discovery Institute, CitronResearch.com
 - iii. Emerging Markets: emerging stock selection, country selection, currencies
 - iv. Equity Market Neutral: Fama-French factors, B/M, size, P/E, momentum, reversals, accruals
 - v. Statistical Arbitrage: convergence trades, pairs trading, high frequency trading, index arbitrage, etf arb, co-integration, OU process
 - vi. Event Driven: mergers (cash, stock for stock, cash and/or stock, collars); distressed; carve outs; spinoffs, splitoffs, when-issued; IPOs, SPACs
 - vii. Fixed Income Arb: swap spread, yield curve, butterfly, mortgage; CDS-bond basis, on-the-run/off-the-run, duration neutral
 - viii. Global Macro: real economy, carry trade (uncovered interest parity), devaluation, thematic, yield curve, country selection, tactical asset allocation
 - ix. Long/Short Equity: bottom-ups Buffet-style, value, growth, earnings quality, management quality, industry rotations, sector specialists
 - x. Managed Futures: trends, countertrends, overextended trends
 - xi. Multi-Strategy: several different styles in one fund
- c. Performance Measures (Sharpe Ratio, Sortino, Calmar, Jensen's Alpha, hit ratio, others)
- d. Strategy Development Components (data requirement, alpha design, portfolio construction, execution, diagnostic tests)
- e. Back-Testing (inadvertent cheat, abusive execution assumptions)
- f. Common Mistakes in the Search for Alpha

g. Limits of Arbitrage

***Assign Homework #1: “Examine Hedge Fund Performance”**

Required Readings:

- Fung and Hsieh (1999), “A primer on hedge funds,” *Journal of Empirical Finance*, vol. 6, pp. 309-331.
- Edwards and Liew (1999), “Hedge Funds versus Managed Futures as Asset Classes,” *The Journal of Derivatives*, Summer 1999.

Optional Background Reading:

- a. Malkiel and Saha (2005), “Hedge Funds: Risk and Return,” *Financial Analysts Journal*, vol. 61, no. 6, 80-88.
- b. Brown and Goetzmann (2001), “Hedge Funds with Style,” Working Paper Yale.
- c. Lo (2001), “Risk Management For Hedge Funds: Introduction and Overview,” Working Paper MIT.

(2) Futures Strategies / Momentum

(July 7th)

- a. Landscape/Players (Turtles, medium-long term trends vs Intra-day strategies)
- b. Global liquid futures markets
- c. Trend-following vs Momentum
- d. “The trend is your friend,” how to a build simple model? (MACD, RSI)
- e. Micro-structure issues, t-costs, the forward curve, open interest and volume
- f. Indices: GSCI, CRB, Roger
- g. Historical Performance

***Assign Homework #2: “Build a Strategy”**

Required Readings:

- Asness, Moskowitz, and Pedersen (2008), “Value and Momentum Everywhere,” working paper.
- Ribeiro and Loeys (2006), “Exploiting Cross-Market Momentum,” JPMorgan Investment Strategy.
- Ribeiro and Loeys (2009), “Markowitz in Tactical Asset Allocation,” JPMorgan Investment Strategy.

(3) Currency / Global Macro Strategies

(July 14th)

- a. Landscape/Players/Products
- b. Theoretical background (PPP, covered/uncovered parity)
- c. Portfolio construction
- d. “Carry-Me-Out”, which short-term interest rates to employ?
- e. Majors and minors
 - i. Intra-day mean reversion
 - ii. How to create a FX-Carry Index?

f. Historical Performance and Risk Profile

Required Readings:

- Jurek (2009), “Crash-Neutral Currency Carry Trades,” working paper Princeton University.

Optional Background Readings:

- a. Burnside, Eichenbaum, Kleshchelski, and Rebelo (2006), “The Returns to Currency Speculation,” working paper.
- b. Brunnermeier, Nagel, and Pedersen (2008) “Carry Trades and Currency Crashes,” NBER Macroeconomics Annual, 23, 313-348.

(4) Event Driven / Convert Arb / Distressed

(July 21st)

- a. Landscape/Players/Products (MERFX)
- b. Merger Deal Space (ArbitrageView.com)
- c. Merger Arbitrage (cash, stock for stock, etc.)
 - i. How to create a Merger Arb Index with 13Fs?
- d. Convert Bond Market
- e. Distressed
- f. Historical Performance and Risk Profile

Required Readings:

- Mitchell and Pulvino (2001), “Characteristics of Risk and Return in Risk Arbitrage,” *The Journal of Finance*, vol. 56; no. 6, pp. 2135-2176

Optional Background Readings:

- a. Mitchell, Pulvino, and Stafford (2002), “Limited Arbitrage in Equity Markets,” *The Journal of Finance*, vol. 57, pp. 551-584.

(5) Equity Strategies / Mean-Reversion

(July 28th)

- a. Landscape/Players (Long/Short vs EMN vs Stat Arb)
- b. Valuable-Investor Insights: 13-F insight into portfolio holdings (sec.gov)
- c. Common Alpha sources, extraction procedures, construction
- d. EMN: building factors for investment and risk management Barra, Northfield, APT
- e. The Killer-Quants: basic Stat Arb strategies mean-reversion, pairs, co-integration
- f. Execution Challenges and Realities
- g. Historical Performance

Required Readings:

- Liew and Vassalou (2000), “Can Book-to-Market, Size, and Momentum be Risk Factors that Predict Economic Growth?,” *The Journal of Financial Economics* 57, pp. 221-245.
- Fama and French (2007), “Dissecting Anomalies,” working paper.

- Avellaneda and Lee (2009), “Statistical Arbitrage in the U.S. Equity Market,” NYU Courant.

Optional Background Readings:

- De Bondt and Thaler (1985), “Does the Stock Market Overreact?,” vol. 49, no. 3, pp. 793-805.
- Jegadeesh and Titman (1993), “Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency,” The Journal of Finance, vol. 48, no.1, pp.65-91.
- Asness, Moskowitz, and Pedersen (2008), “Value and Momentum Everywhere”.
- Fama and French (1992), “The Cross-Section of Expected Stock Returns,” The Journal of Finance, vol. 47, no. 2, pp. 427-465.
- Fama and French (1993), “Common Risk Factors in the Return on Stocks and Bonds,” Journal of Financial Economics, vol. 33, pp. 3-56.
- Lakonishok, Shleifer, and Vishny (1994), “Contrarian Investment, Extrapolation, and Risk,” The Journal of Finance, vol. 49, no. 5, pp. 1541-1578.

(6) Presentation of Group Projects

(August 4th)

Ideas For Group Project

1. Momentum vs Mean-Reversion / Trend vs Counter-Trend:

Study the profits of momentum (trend) or reversals (counter-trend) in equity, industries, commodities, FX, or other markets. See papers in class 2. There are many others, e.g. Chan, Jegadeesh, and Lakonishok (1996), “Momentum Strategies,” The Journal of Finance, vol. 51, no. 5., pp. 1681-1713.

2. Value investing or HML, size investing SMB:

Quantitative Strategies based on well-known factors:

- A valuation ratio (B/M, P/E, etc.)
- Analysts expectations, changes in earnings, growth, ratings
- Net stock issues, corporate actions, spin-offs, split-offs
- Accruals, re-statements, fraud, new jets

3. Convertible bond arbitrage:

Get data on convertible bond prices and stock prices of the same companies and implement a back-test of the strategy. See also Agarwal, Fung, Loon, and Naik, “Risk and Return in Convertible Arbitrage: Evidence from the Convertible Bond Market,” working paper.

4. Carry-trade:

Get data on interest rates (BBG-BBA) and exchange rates (oanda.com) for a number of countries and consider the return on the carry trade. Is the risk symmetric, i.e. equal size of upside and downside returns?

5. Pairs-trading:

Some securities “should” follow each other, but sometimes diverge. How to define pairs? Look e.g. at Royal Dutch/ Shell and similar pairs and see also Gatev, Goetzmann, and Rouwenhorst (2006), “Pairs Trading: Performance [of a Relative-Value Arbitrage Rule,](#)” *The Review of Financial Studies*, vol. 19, no. 3, pp. 797-827.

6. Swap spread arbitrage:

Profit from the difference between two virtually risk free rates, the Treasury rate and the swap rate. See Duarte, Longstaff, and Yu (2005), “[Risk and Return in Fixed Income Arbitrage: Nickels in Front of a Steamroller?,](#)” working paper.

7. Yield curve arbitrage:

Make a strategy of risk free securities of various maturities. See Duarte, Longstaff, and Yu (2005) as above.

8. Excess volatility:

If traders trade “too much” and “push prices around excessively”, then how do you profit from this? Get inspiration from e.g. Greenwood (2006), “[Excess Comovement of Stock Returns: Evidence from Cross-Sectional Variation in Nikkei 225 Weights,](#)” forthcoming *Review of Financial Studies*.

9. (Shorting) Index options:

Consider index option strategies, such as selling at the money straddles. When is the strategy most profitable? See e.g. Amin, Coval, and Seyhun (2004), “[Demand for Portfolio Insurance and Index Option Prices,](#)” *Journal of Business* 77, no. 4.

10. Earnings announcement drift:

Is it profitable to buy companies with good earnings news and short those with bad news, after the news is released? See e.g. Bernard and Thomas (1989), “[Post-Earnings-Announcement Drift: Delayed Price Response or Risk Premium?](#)” *Journal of Accounting Research*, vol. 27, pp. 1-36.

11. Distressed investing

How do you identify opportunities among distressed bonds? How to evaluate default risk and recovery in case of default? Can bond holders be active investors? What is return to a

diversified portfolio of distressed bonds (i.e. with no attempt of security selection) and does this capture most of the risk premium? (Altman)

12. Dedicated short bias

How can you identify short-selling ideas? Are there ways of identifying frauds or does forensic accounting help? Is certain behavior of management a tell-tale sign of trouble?

13. Emerging markets

How do some of the investment strategies mentioned above work in emerging markets? What special considerations (e.g. costs, barriers, and risks) must be taken into account when investing in emerging markets? What are the special opportunities? How much of emerging market hedge fund returns can be explained by simply being long emerging market equity indices?

14. Selecting hedge funds building a FOFs

How do you select hedge funds? How should you analyze return data, and what other data is available (e.g. 13F, 13D, etc.), and how can this be used to cross-validate managers? How do you combine hedge funds into a portfolio? What is the best way to allocate capital across styles?

15. Dual-Listed Companies (DLCs)

Securities that have their listings on two separate exchanges should not have excess co-movement, right? Bedi, Richards, and Tennant, "The Characteristics and Trading Behavior of Dual-listed Companies," Reserve Bank of Australia working paper. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=418500