AIC 2006 ALTERNATIVE INVESTMENT

What Drives Equity Market Neutral Hedge Fund Returns?

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Hedge Fund Overview

- Explosive growth: over $1 trillion as of 2005
- Wide variety of styles:
  - Relative value (e.g. convert arb, equity market neutral)
  - Event driven (e.g. risk arbitrage, distressed securities)
  - Opportunistic (e.g. global macro, short bias, emer mkts)
- Limited regulation
- Lack of transparency

Equity Market Neutral (EMN)

- "This investment strategy is designed to *exploit equity market inefficiencies* and usually involves being simultaneously long and short matched equity portfolios of the same size within a country. Market neutral portfolios are designed to be either *beta* or currency *neutral*, or both. *Well-designed portfolios typically control for industry, sector, market capitalization, and other exposures*. Leverage is often applied to enhance returns."

www.hedgeindex.com

EMN vs. Other Equity Strategies

- Recall CAPM (excess returns): $ER_i = \beta_i \times ER_{mkt}$
- Jensen's alpha: should be zero in "CAPM world":

$$ER_i = \alpha_i + \beta_i \times ER_{mkt}$$

- Active equity manager: some α, some β
- Passive equity manager: no α, all β
- EMN manager: all α, no β

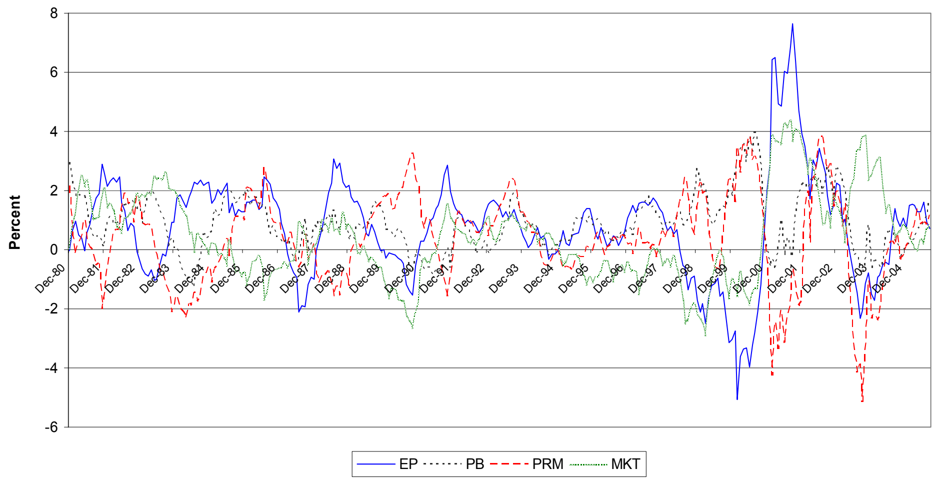
Focus of This Study

- Extend CAPM to consider other "style" factors in order to redefine alpha:
  - Long/short strategies
  - Economic factors
- Investigate EMN: truly "all alpha and no beta"??
- Extend analysis to other hedge fund strategies

Style Factors

- S&P 500 portfolios formed: long highest ranked quintile and short lowest ranked quintile
- EP – earnings/price
- PB – price/book
- PRM – price momentum
- MKT – market capitalization

Style Factor Returns
(12-month moving average)



Economic Factors

- Factors related to indicators of overall economic (business cycle) activity

- YLD – shape of yield curve (10-yr gov't less t-bill)
- PREM – default premium (Moody's Baa less Aaa)
- INFCH – inflation change (CPI year-over-year)
- VIX – market volatility (implied S&P std. dev.)

Factors Summary

- 1980-2005 – monthly

	EP	PB	PRM	MKT
Mean	0.78	0.54	0.37	0.38
Median	0.92	0.47	0.81	0.23
Std. Dev.	4.45	3.88	5.87	3.80

YLD	PREM	INFCH	VIX
1.85	1.08	-0.31	20.12
2.01	0.95	-0.10	18.75
1.27	0.46	1.74	6.86

- All style strategies provide positive returns, with annualized means of 4.5% to 9.8%

EMN Summary

- 1994-2005 – monthly
- RmRf = U.S. market less t-bill
- MSCIE = Morgan Stanley world index less t-bill

	EMN	RmRf	MSCIE
Mean	0.80	0.61	0.39
Median	0.79	1.29	0.78
Std. Dev.	0.87	4.47	4.07

- EMN mean of 10.0% p.a., relatively low risk

EMN (Excess) Regressions

- Positive alpha and low beta initially

	Int	RmRf	EP	PB	PRM	MKT	YLD	PREM	INFCH	VIX	Adj R^2
EMNE	**0.44** **(0.00)**	**0.07** **(0.00)**									0.131
EMNE	**0.43** **(0.00)**	**0.10** **(0.00)**	0.07 (0.00)	-0.09 (0.01)	-0.02 (0.08)	0.02 (0.42)					0.218
EMNE	**0.02** **(0.94)**	0.11 (0.00)	0.06 (0.00)	-0.09 (0.01)	-0.02 (0.11)	0.02 (0.43)	-0.09 (0.13)			0.02 (0.01)	0.279
EMNE	**-0.18** **(0.53)**	0.11 (0.00)	0.08 (0.00)	-0.09 (0.01)	-0.02 (0.11)	0.02 (0.55)	-0.13 (0.09)	0.53 (0.19)	0.09 (0.19)	0.02 (0.12)	0.287

- Alpha no longer significant with economic factors

Other Styles (Excess) Regressions

- Non-equity-related styles (e.g., convertible arb, fixed-income arb, global macro, managed futures) have low market betas
- Equity-related styles (e.g., event driven, long-short) have significant market betas
- Funds tended to have a “growth” tilt (vs. “value”)
- Event-driven strategies perform better in a low volatility environment

Summary and Conclusions

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- EMN strategies are not “pure alpha” → various style attributes and economic variables better explain the apparent excess returns
- Much of the EMN strategy can be “mechanically replicated”
- Good news: EMN returns are negatively related to the shape of the yield curve and positively related to market volatility, suggesting an important counter cyclical role for such a strategy