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Alpha Hedging: An Introduction

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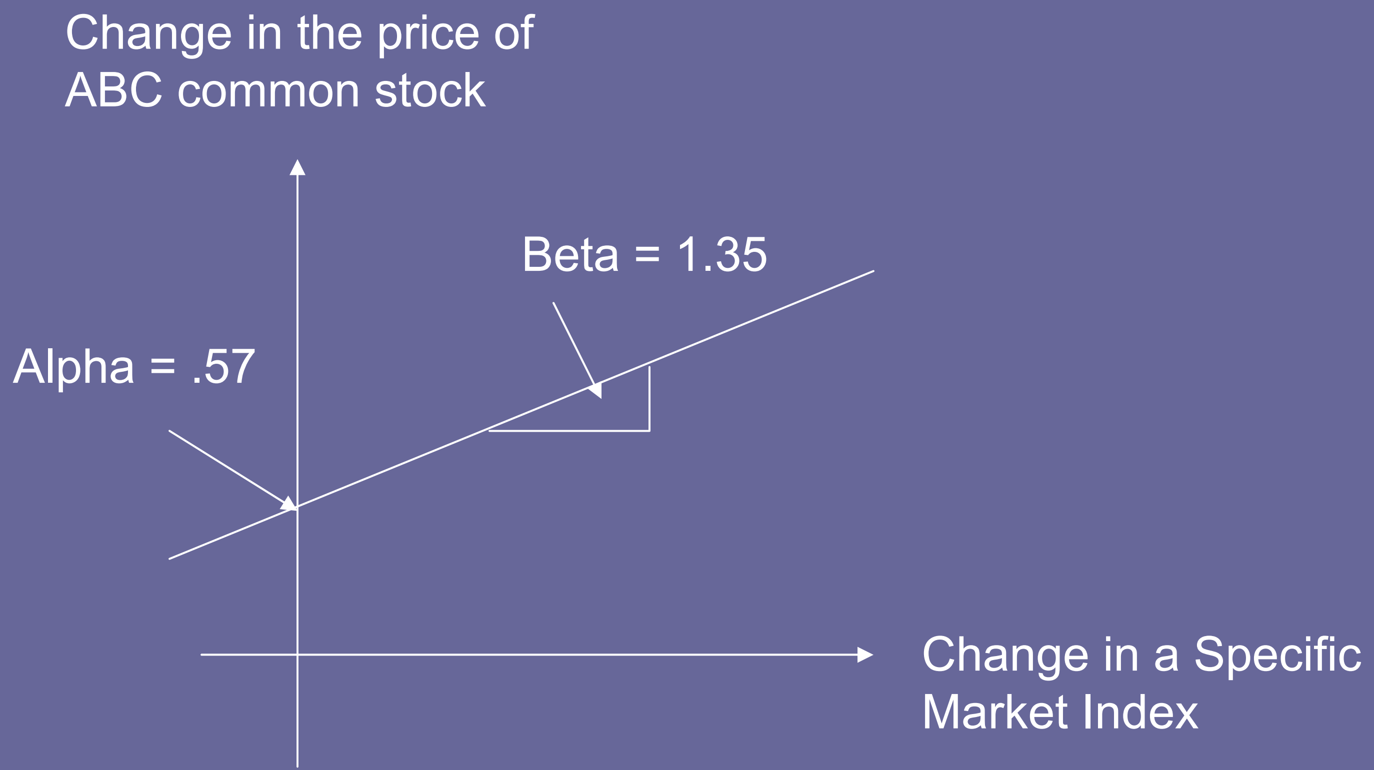
CAPM ALPHA



Change in the price of
ABC common stock
Beta = 1.35
Alpha = .57
Change in a Specific
Market Index

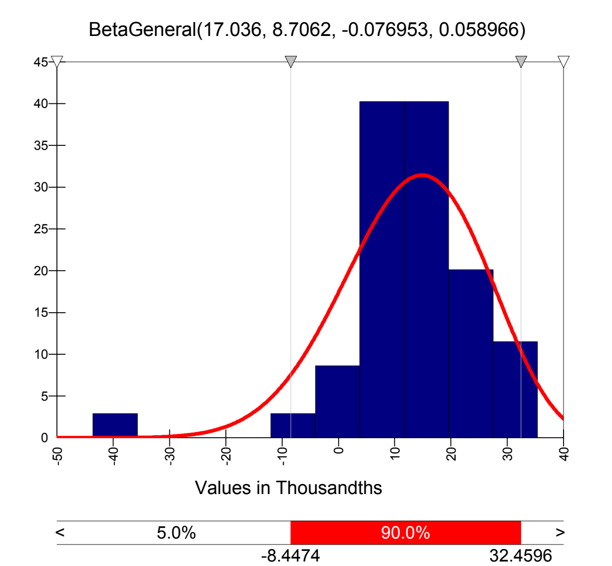
Hedge Funds in CAPM

Basic Problems

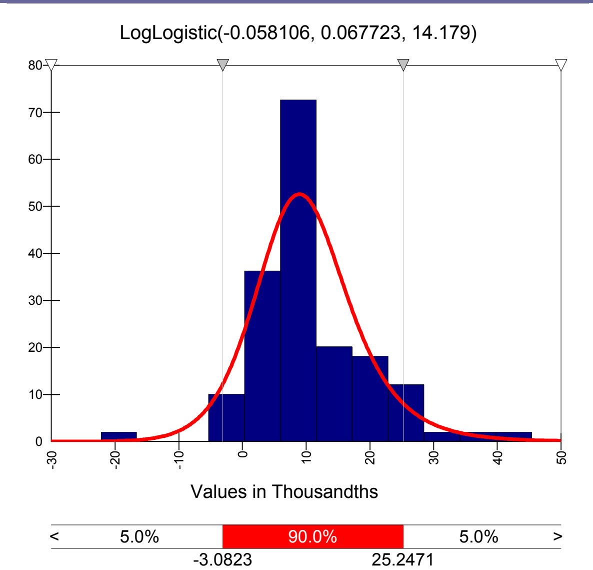
- CAPM not adapted to deal with non-sign-constrained, process-driven, investing.
- The CAPM lexicon does not convey, with much precision, any meaning in the context of non-sign-constrained, process-driven, investment strategies.
- Developing a set of CAPM-based investment management precepts for an investment class which is, by and large, assumed under CAPM not to exist, is a tall order.
- “CAPM speak” is widely in use in the Hedge Fund community without any precise one-to-one mapping of word and meaning.

GOT ALPHA?

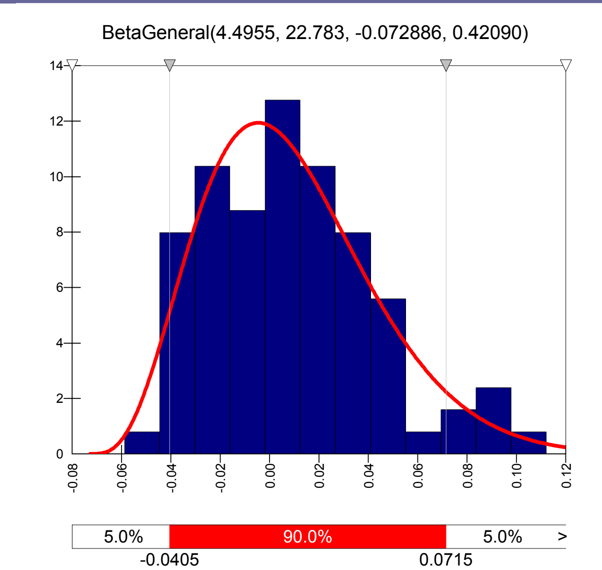
High Mode/Left Skew



Low Mean

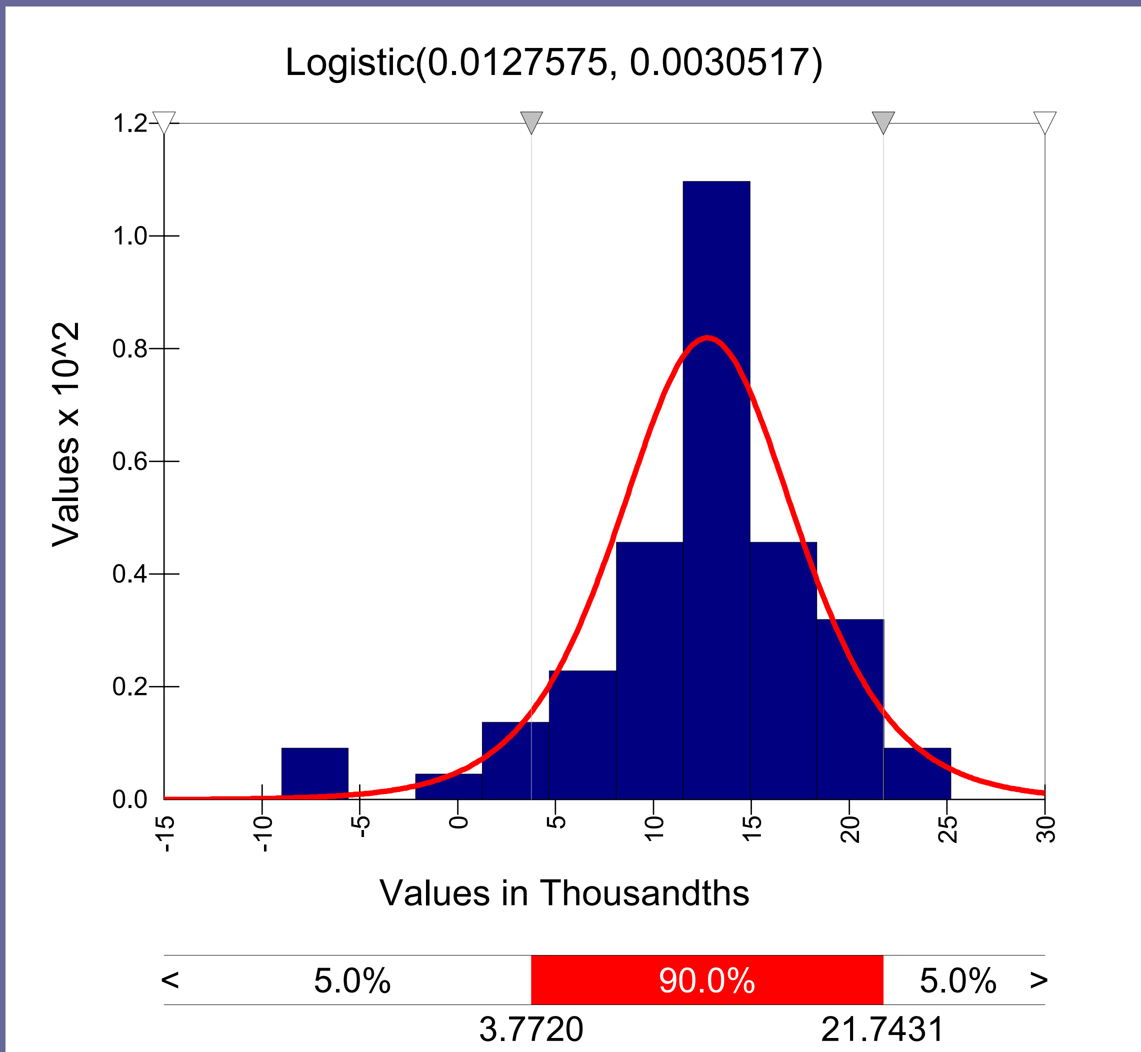


Wide Variance/Low Mean



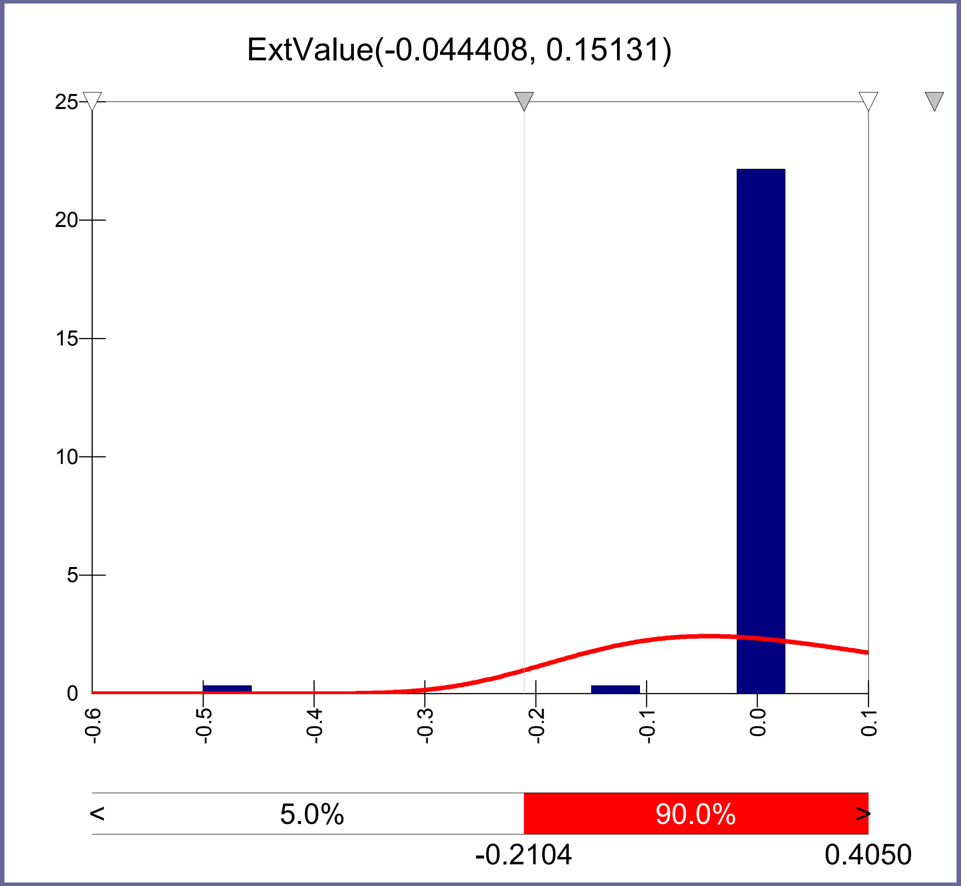
Q: Would We Recognize Alpha if it bit us in the asset pricing model?

Alpha?
That's Funny…



Mean	0.012258
Mode	0.012600
Median	0.012700
St Dev	0.006018
Variance	3.56E-05
Skewness	-1.0903
Kurtosis	5.3928

…You Didn't Look Skewish



Mean	0.002489
Mode	0.012600
Median	0.012650
Std. Dev	0.065155
Variance	0.004180
Skewness	-7.2084
Kurtosis	55.4606

WHY HEDGE FUNDS?

Four Out of Five Fiduciaries Say:

What the @#%& is Hedge Fund Alpha?

Alpha is generally the term for any kind of persistent edge in the capital markets.

But an edge need not be pretty:

“What makes a tough guy?… A guy with an edge. … A gun or a knife, a nightstick or a razor, something the other guy ain't got, yeah, a little extra reach on a punch, a set of brass knuckles, a stripe on a sleeve, a badge that says 'cop,' or a rock in your hand, or bankroll in your pocket, that's an edge, brother. Without an edge, there ain't no tough guy.”

-O. Welles in the ‘Lady from Shanghai’

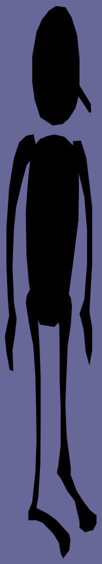
MAXIMIZING ALPHA

$$\max_{\bar{\rho}}\left[\nu^{-1}\left(\int_{-\infty}^{\infty}\overline{\rho}(I, h, x)\nu(x)dx\right)\right] \geq Ie^{r\ h}$$

The Experiment

Simulate "Alpha-Transfer" in a Two Trader/Two Style World:

- Trader Vic
  - Long Lower Probability Bets:
    - Less Frequent Wins
    - Larger Periodic Payouts
    - Smaller Periodic Losses
    - Long Options

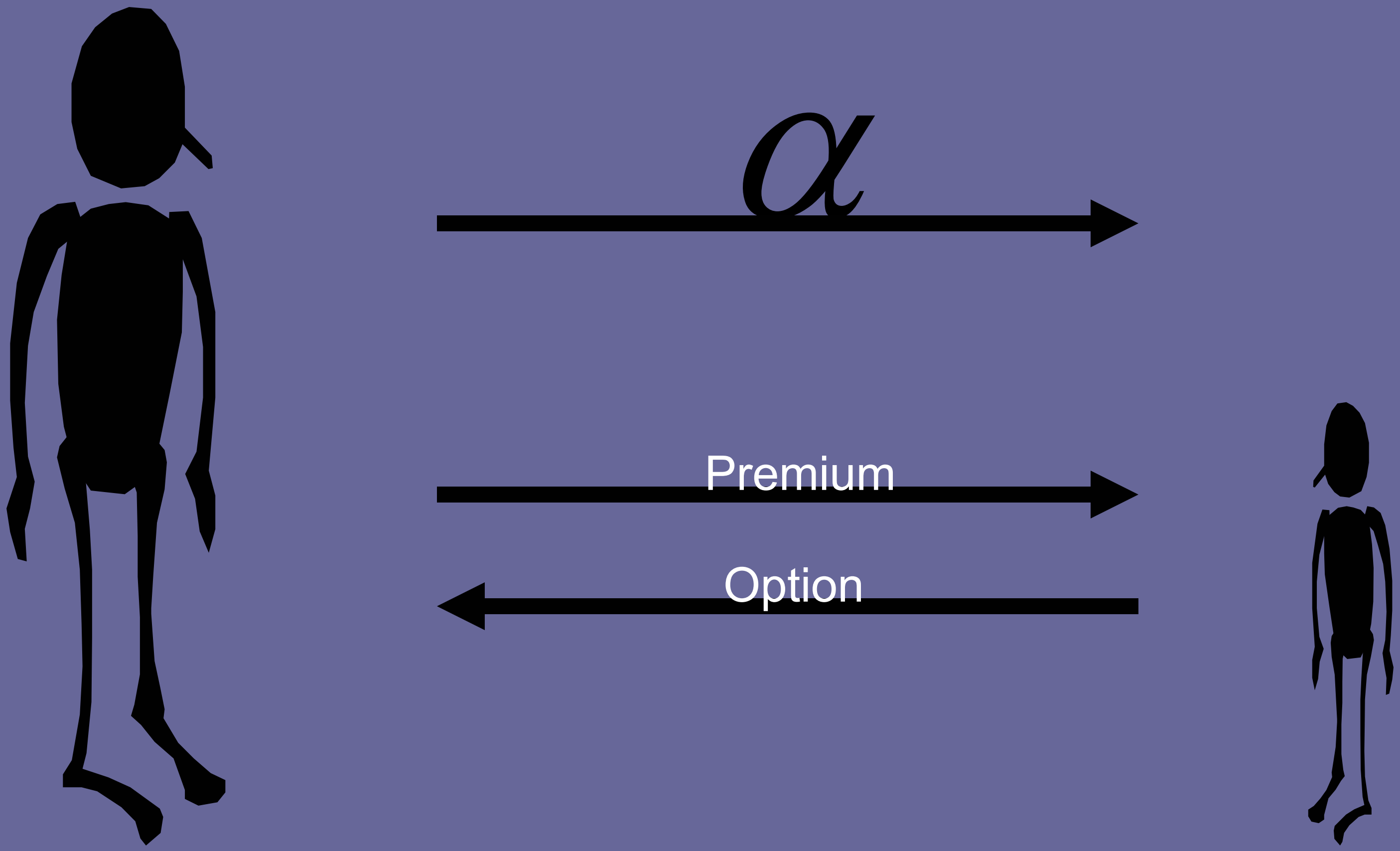


- Trader Joe
  - Long Higher Probability Bets:
    - More Frequent Wins
    - Smaller Periodic Payouts
    - Larger Periodic Losses
    - Short Options

Case 1

- Joe sells Out of the Money Options to Vic
- Struck 2 Std Dev Out of the Money
- Options Valued at Black-Scholes + 10%
- Underlying Process: GBM
- Options Purchased at Start of a Month and Expire at the End of Every Month
- Joe Takes in 35 BP’s of Premium
- Vic Spends 35 BP’s of Capital on Premium
- Risk Free Rate: 5%

Case 1: Joe takes Alpha from Vic

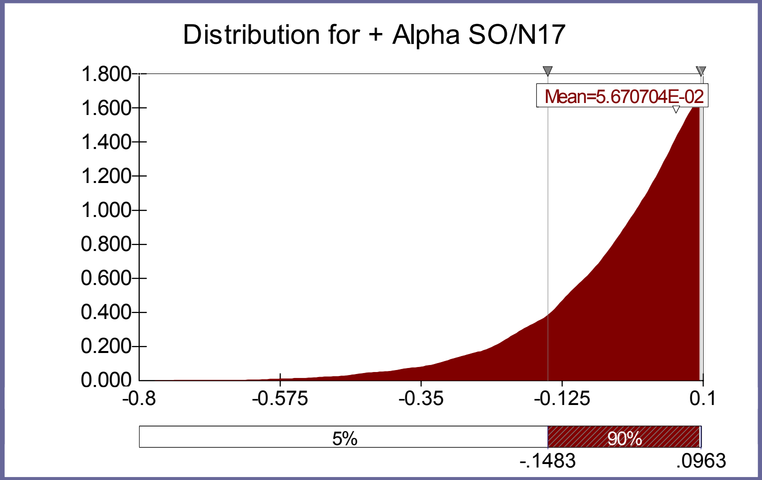


Vic (Long Option)

Joe (Short Option)

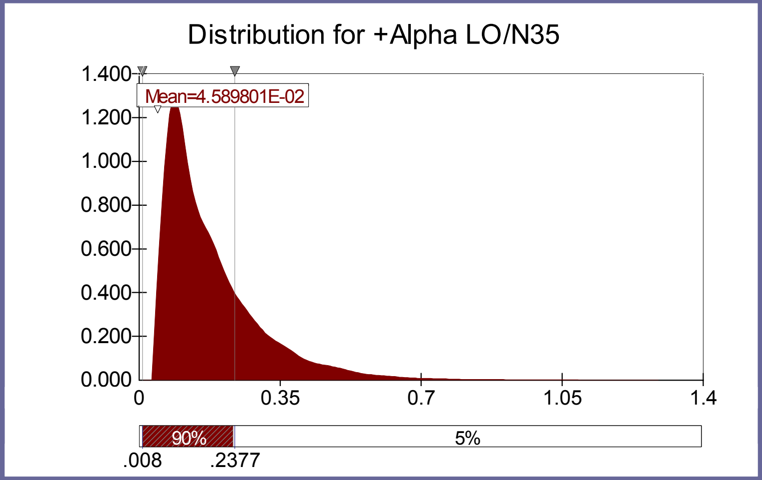
Alpha Transferred to Short Option

Short Monthly Return Histogram:



- Short Profile:
  - High Mean: 5.67%
  - Higher Mode: 9.63%
  - Truncated Profit: 9.63%
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 166.90

Long Monthly Return Histogram:

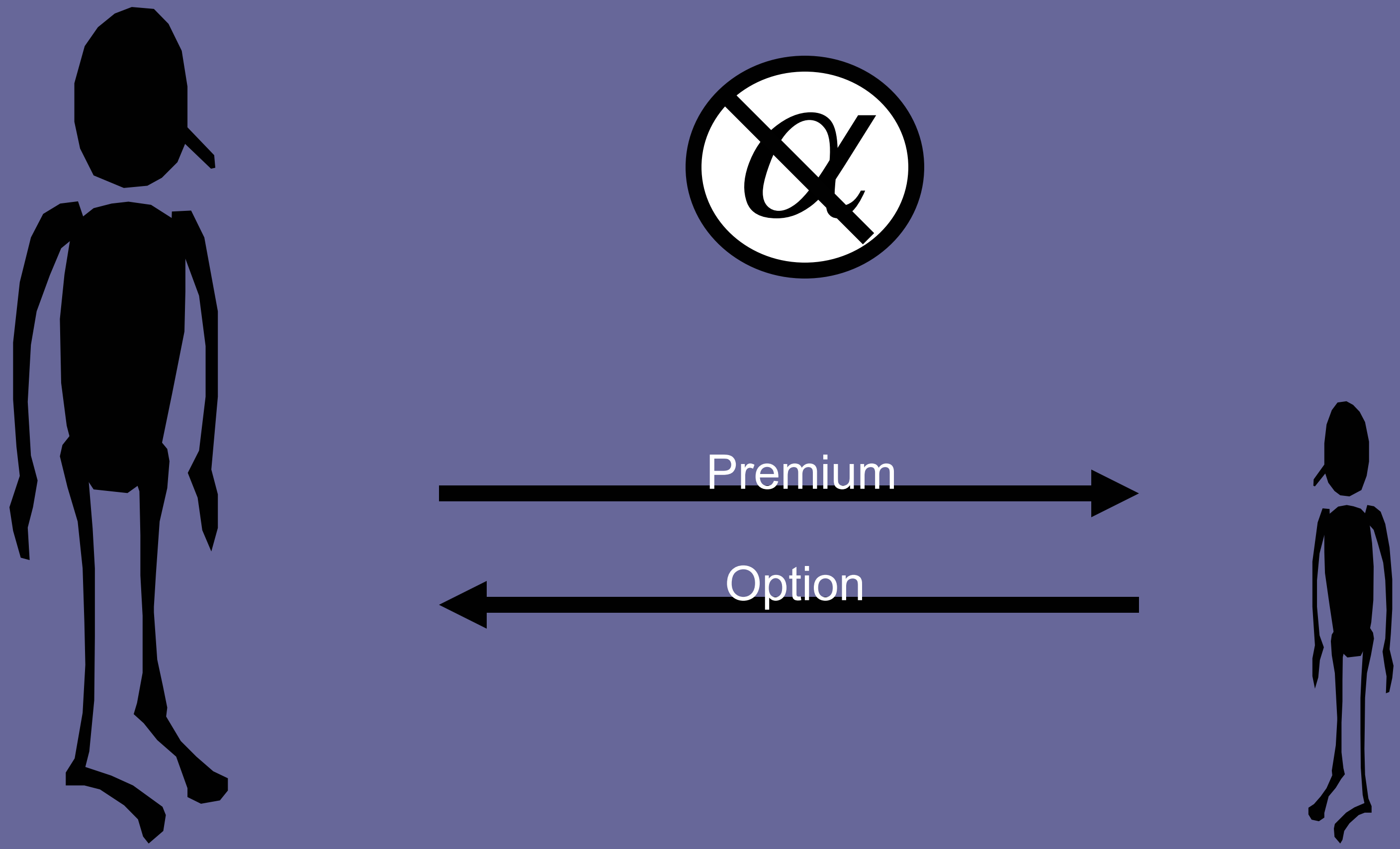


- Long Profile:
  - Low Mean: 4.59%
  - Lower Mode: 0.80%
  - Truncated Loss
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 97.52

Case 2

- Joe sells Out of the Money Options to Vic
- Struck 2 Std Dev Out of the Money
- Options Valued at Black-Scholes
- Underlying Process: GBM
- Options Purchased at Start of Month and Expire at the End of Every Month
- Joe Takes in 35 BP's of Premium
- Vic Spends 35 BP's of Capital on Premium
- Risk Free Rate: 5%

Case 2: No Alpha Exchange

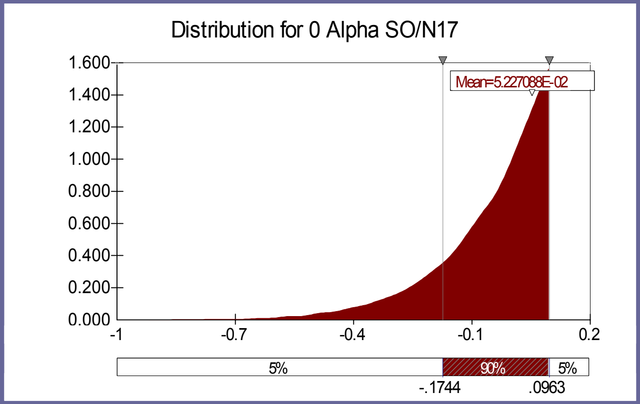


Vic (Long Option)

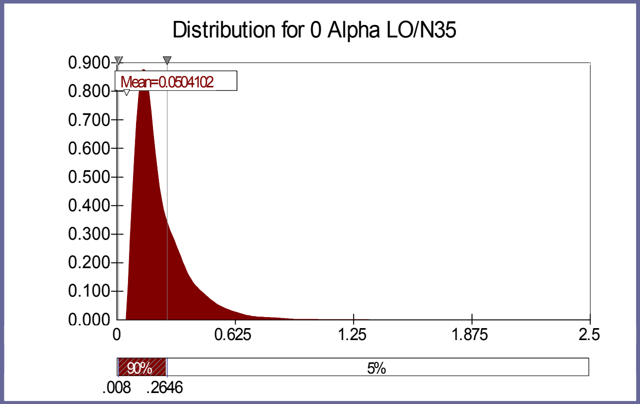
Joe (Short Option)

No Alpha Transfer

Short Monthly Return Histogram:



Long Monthly Return Histogram:

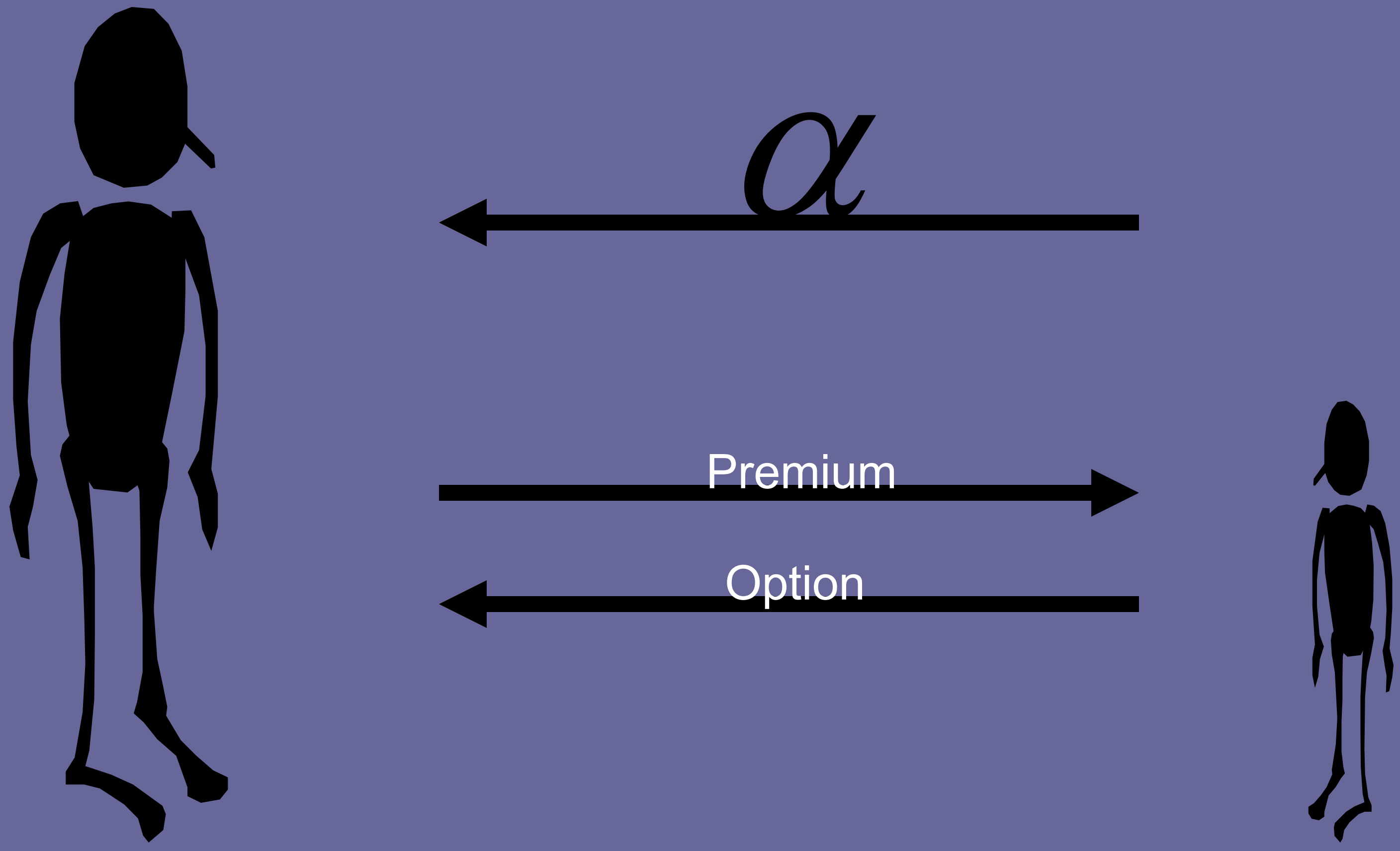


- Short Profile:
  - High Mode: 9.63%
  - Mediocre Mean: 5.23%
  - Truncated Profit
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 156.10
- Long Profile:
  - Mediocre Mean: 5.04%
  - Lower Mode: 0.80%
  - Truncated Loss
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 126.93

Case 3

- Joe sells Out of the Money Options to Vic
- Struck 2 Std Dev Out of the Money
- Options Valued at Black-Scholes -10%
- Underlying Process: GBM
- Options Purchased at Start of Month and Expire at the End of Every Month
- Joe Takes in 35 BP's of Premium
- Vic Spends 35 BP's of Capital on Premium
- Risk Free Rate: 5%

Case 3: Vic takes Alpha from Joe

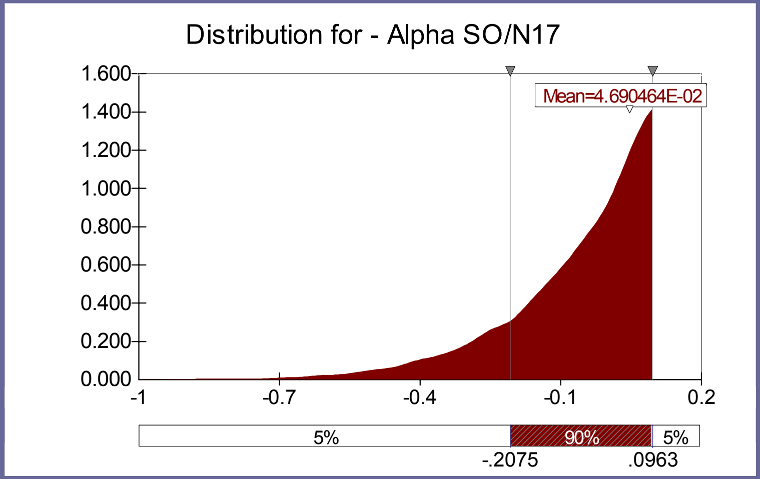


Vic (Long Option)

Joe (Short Option)

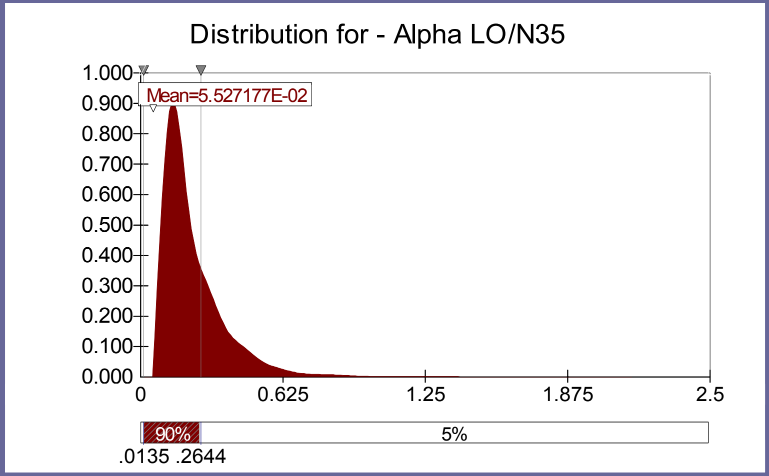
Alpha Transferred to Long Option

Short Monthly Return Histogram:



- Short Profile:
  - High Mode: 9.63%
  - Low Mean: 4.69%
  - Truncated Max
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 146.44

Long Monthly Return Histogram:



- Long Profile:
  - Low Mode: 1.35%
  - High Mean: 5.53%
  - Truncated Loss
  - Average Net Present Value of Incentive Fees Over Ten Year Period: 143.98

Performance Comparison

	- Alpha	+ Alpha	0 Alpha	**Short to Long Alpha Transfer**
Short Option	Mean: 4.69% Mode: 9.63% Fee: 146.44	Mean: 5.67% Mode: 9.63% Fee: 166.90	Mean: 5.23% Mode: 9.63% Fee: 156.10	Mean: 4.69% Mode: 9.63% Fee: 146.44
Long Option	Mean: 4.59% Mode: 0.80% Fee: 97.52	Mean: 5.53% Mode: 1.35% Fee: 143.98	Mean: 5.04% Mode: 0.80% Fee: 126.93	Mean: 5.53% Mode: 1.35% Fee: 143.98

Option Alpha Trivia

- Short Optionality Results in a Significant Increase in Per Unit Cost of Alpha
- Short Option Strategies Have Modal Rates of Return That are Largely Insensitive to Alpha
- Feasible Cases in Which Negative Alpha Strategies are Preferable to a Manager

Alpha Hedging Defined

α-Hedging: The Use of Generalized Optionality To Increase the Expected Value of Incentive Fees Independent of Alpha.

In General, Short Option Strategies Tend to Permeate Hedge Fund Land

What Is Alpha: α
What is Schmalpha: ∞

Alpha is Excess Expected Value Extracted From Investments in Capital Markets

Schmalpha is Excess Expected Value Extracted From Investors in Capital Markets

While Schmalpha is an Alpha Mimic, it is not generally a product of conscious deception. It is instead bred as an evolving response to a system of selective pressures.

Figure: The ‘Mirror Orchid’

Perfectly Mimicking a Female Wasp