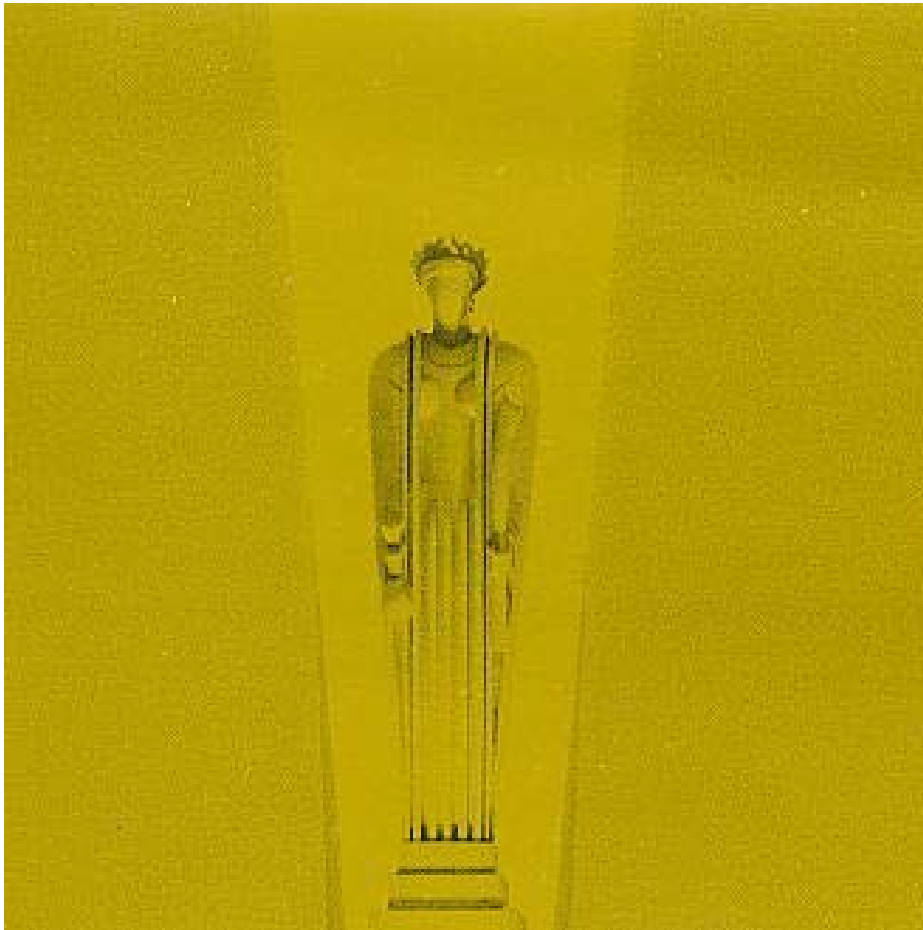


# IMPLICIT OPTIONS IN HEDGE FUND PRODUCTS



*Chicago*

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**Chicago, IL**

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# Implicit Options in Hedge Fund Products

I. Investor Preferences

II. Risk-Transfer  
Function

III. Manager Incentives

... all lead to the optionality  
embedded in hedge fund  
products.



- This presentation is based on an article in “Derivatives Week,” 2/17/03, by Hilary Till and Joseph Eagleeye, co-founders, Premia Capital Management, LLC.



## **I. Investor Preferences**

- **Varying investor preferences result in different types of absolute-return products.**



## I. Investor Preferences (Continued)

- **The optimal behavior of a loss-averse investor depends on whether an investor is in a situation of surplus.**
- **For those in surplus, the optimal strategies have long option profiles.**
- **For those who don't have a surplus, the optimal strategies are income-producing, short option-like payoffs.**

- Siegmann, Arjen, and Andre Lucas, "Explaining Hedge Fund Investment Styles By Loss Aversion: A Rational Alternative," Tinbergen Institute Discussion Paper, May 2002.



## Investor Preferences (Continued)

### **A. Income-Producing Short Option-Like Payoffs**

- **U.S. Institutional Investors**
- **Payoffs of Arbitrage Strategies**

### **B. Long Option Strategies**

- **Wealthy Clients of European Private Banks**
- **Payoffs of Commodity Trading Advisors  
and Global Macro**





## **A. Income-Producing Short Option-Like Payoffs**

### **U.S. Institutional Investors**

- **“Institutional investors often use hedge funds as part of absolute return strategies in pursuing capital preservation while seeking high single to low double digit returns.”**
  - Kao, Duen-Li, “Risk Analysis of Hedge Funds versus Long-Only Portfolios,” General Motors Asset Management Working Paper, 10/01.



## **A. Income-Producing Short Option-Like Payoffs**

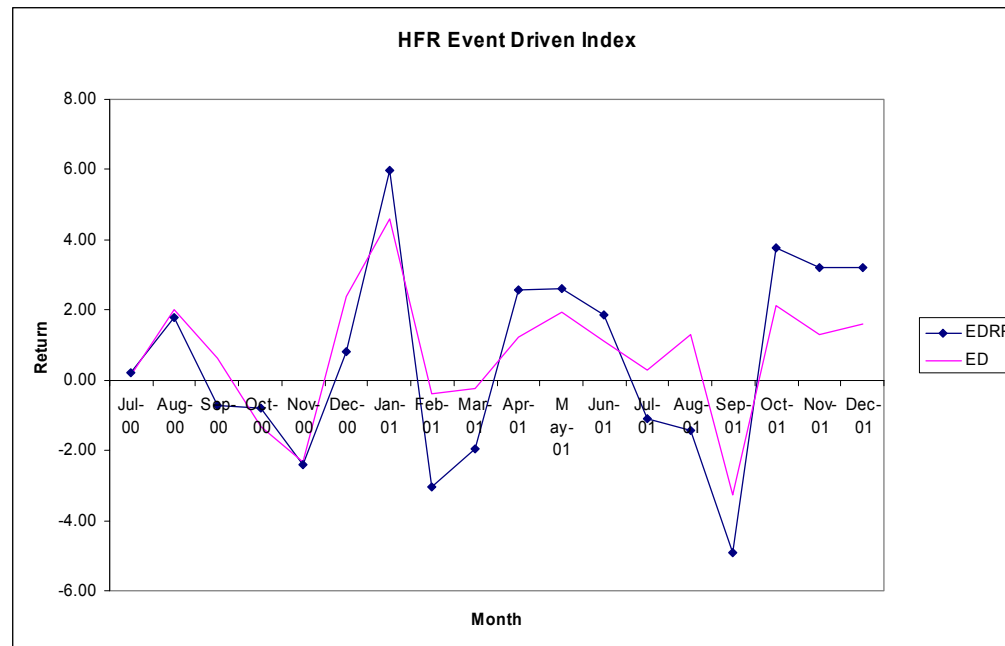
### **Payoffs of Arbitrage Strategies**

- **The payoffs of a number of arbitrage strategies resemble that from writing a put option on the market index.**
- **The figure on the next page illustrates the performance of the Event Driven hedge fund index versus a replicating portfolio of equity style factors and an out-of-the-money put on the S&P 500 ...**
  - Agarwal, Vikas and Narayan Naik, “Risks and Portfolio Decisions involving Hedge Funds,” Forthcoming Review of Financial Studies (2003).



## A. Income-Producing Short Option-Like Payoffs

### Payoffs of Arbitrage Strategies (Continued)



- Agarwal, Vikas and Narayan Naik, “Risks and Portfolio Decisions involving Hedge Funds,” Forthcoming Review of Financial Studies (2003).



## **B. Long Option Strategies**

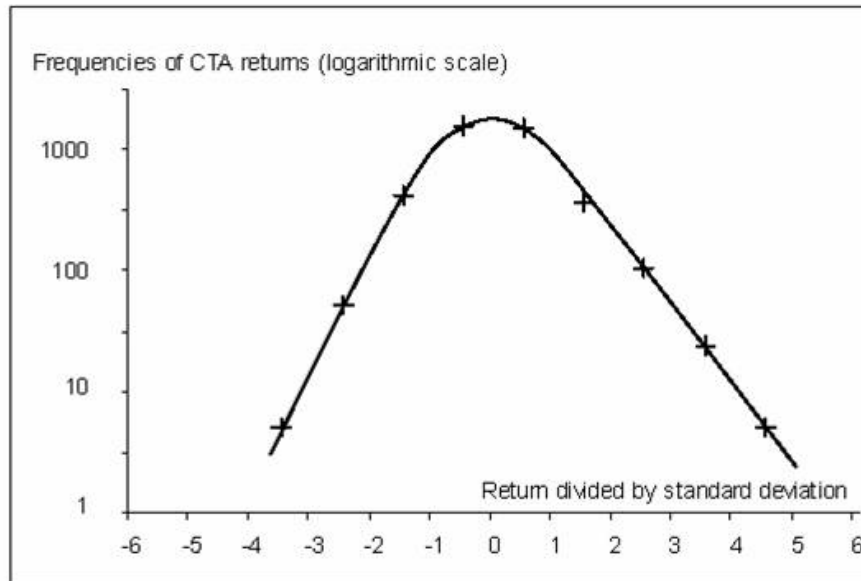
### **Wealthy Clients of European Private Banks**

- **Anecdotally, the very wealthy clients of European fund-of-funds prefer strategies with a lot of optionality, including CTA's and Global Macro.**
- **They will frequently gravitate to managers who are in the midst of large draw-downs ...**
- **... since with such a large dispersion of results, there is an increased chance of a large upside.**



## B. Long Option Strategies

### Payoffs of CTA's



- **“Positive Skewness”**

- Schmidhuber, Christof and Pierre-Yves Moix, “Fat Tail Risk: The Case of Hedge Funds (Part II)”, AIMA Newsletter, December 2001.



## B. Long Option Strategies

### Payoffs of CTA's (Continued)

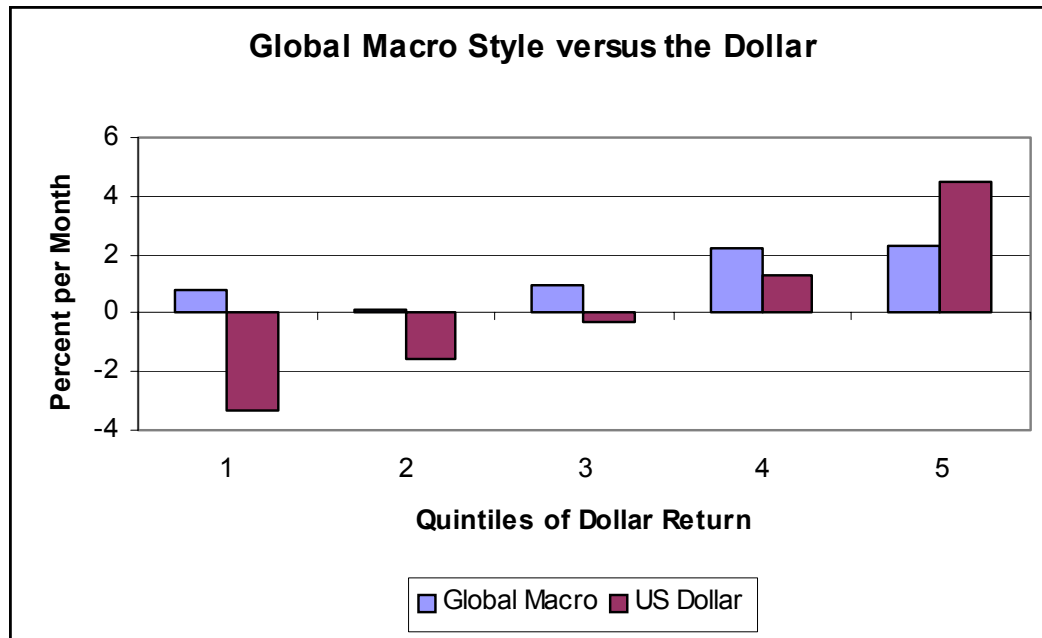
- Potential of 100%+ returns (but note associated draw-downs, too!)

Top 20 CTA Performers Past Five Years							
For the period 1/1/96 to 12/31/00. Includes only CTAs managing at least \$10 million as of 12/31/00							
TRADING ADVISORS	5-YR COMP. ANNUAL RETURN	SHARPE RATIO	LARGEST DRAW-DOWN	% WINNING MONTHS	BEST 12-MO. PERIOD	WORST 12-MO. PERIOD	FUNDS UNDER MGMT
1. SoundView Capital Mgmt. (MAP)	57.88%	1.68	17.94%	63.33%	+252%	-13%	\$10M
2. Tucson Asset Mgmt. (Domestic 2X)	48.58%	1.42	41.18%	68.33%	+176%	-38%	\$31M
3. Hathersage (Accelerated Appreciation)	40.07%	1.15	26.43%	65.00%	+132%	-16%	\$71M
4. Gollyhott Trading (Discret.)	35.62%	1.32	7.85%	63.33%	+241%	+1%	\$102M
5. Eckhardt Trading Co. (Higher Leverage)	34.48%	0.92	28.42%	56.67%	+185%	-13%	\$20M
6. Johnson Management	32.96%	2.38	2.70%	70.00%	+68%	+12%	\$15M
7. Beacon Management Corp. (Meka)	32.35%	0.79	46.48%	60.00%	+119%	-36%	\$131M
8. Cipher Investment Management Co.	32.25%	1.32	12.90%	61.67%	+133%	-4%	\$365M
9. Quicksilver Trading, Inc.	29.57%	1.17	17.14%	63.33%	+106%	-0%	\$24M
10. Ansbacher Invest. Mgmt. (Opt. Writing)	27.34%	0.83	26.89%	65.00%	+113%	-17%	\$30M
11. Dunn Capital Mgmt. (WMA)	27.23%	0.58	44.16%	58.33%	+106%	-44%	\$1,066M
12. DigiLog LLC	26.83%	0.82	19.63%	56.67%	+104%	-8%	\$103M
13. Clarke Capital Mgmt. (Worldwide)	26.08%	0.98	8.48%	61.67%	+73%	+1%	\$87M
14. Eckhardt Trading Co. (Standard)	25.25%	0.88	17.05%	56.67%	+117%	-13%	\$269M
15. Bell Fundamental Futures (Standard)	24.97%	0.87	21.37%	60.00%	+100%	+2%	\$37M
16. Capital Fund Mgmt.	24.86%	1.40	8.01%	63.33%	+54%	-5%	\$47M
17. Analytic Investment Mgmt. (3R Strat)	24.73%	1.73	6.69%	75.00%	+44%	+7%	\$299M
18. Hathersage (Long Term Growth)	24.48%	1.37	7.94%	68.33%	+50%	-6%	\$14M
19. Jacobson Fund Managers (Curr.)	23.99%	0.94	19.07%	65.00%	+84%	-9%	\$188M
20. Macquarie Treasury (Diversified)	23.27%	1.36	8.96%	66.67%	+79%	-7%	\$28M



## B. Long Option Strategies

### Payoffs of Global Macro Style



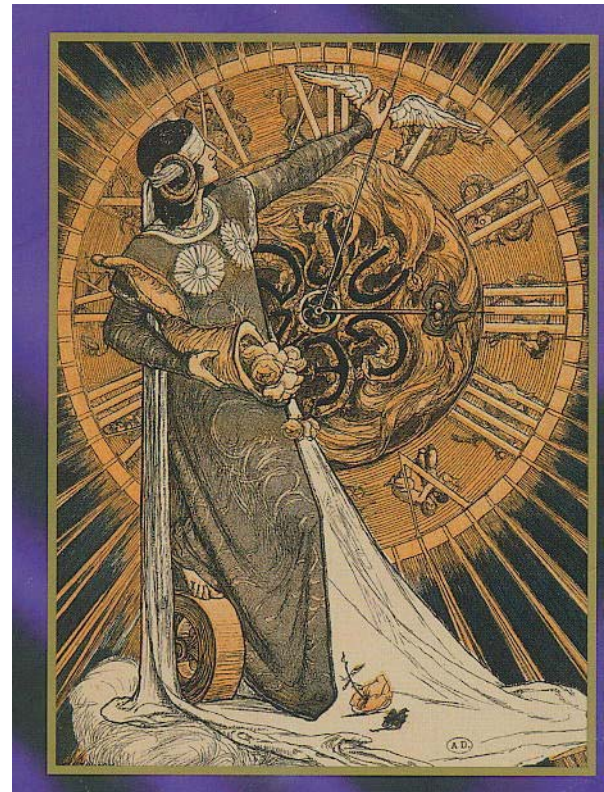
- **A straddle on the U.S. dollar.**

- Fung, William and David Hsieh, “Empirical Characteristics of Dynamic Trading Strategies: The Case of Hedge Funds,” The Review of Financial Studies, Summer 1997.



## II. Risk-Transfer Function

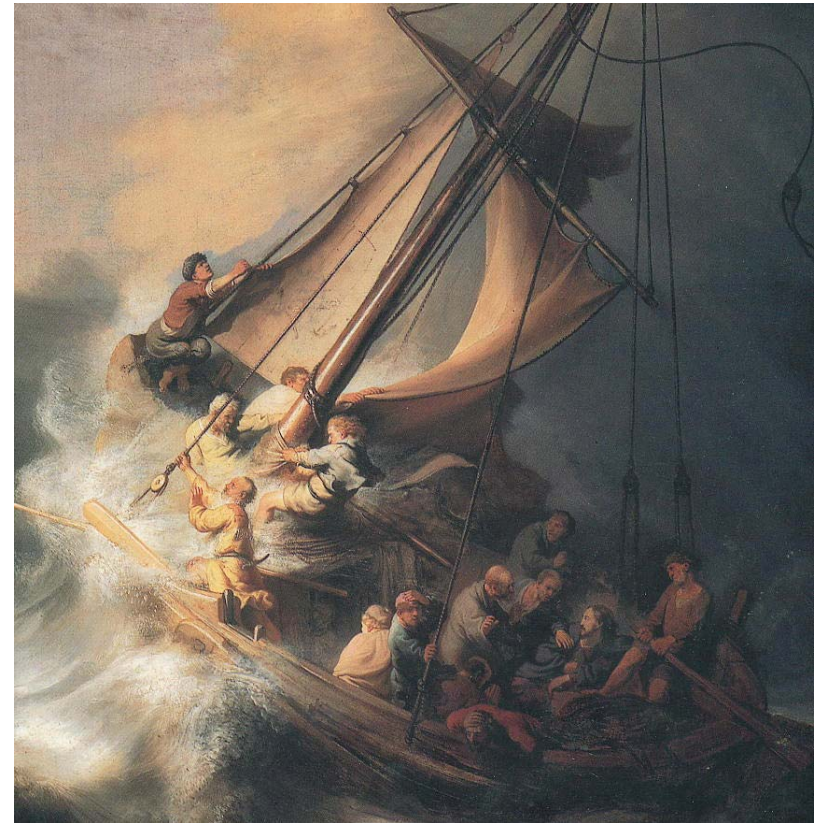
- Some hedge fund strategies earn their returns through some form of risk transfer.
- A relative-value bond fund, for example, takes on illiquid assets and hedges this risk by shorting liquid assets.





## II. Risk-Transfer Function (Continued)

- **An investor in these funds assumes the risk of systematic financial distress.**
- **The investor is providing other investors with the flexibility of being able to readily liquidate their investments.**



## II. Risk-Transfer Function (Continued)

- **A relative-value bond fund is providing real options to other investors.**



### **III. Manager Incentives**

- **The incentive clause in hedge fund contracts gives managers a call-option-type structure.**
- **A manager collects a performance fee if his or her fund is profitable (or above a high-water mark).**
- **The manager is not penalized if the fund loses money.**



### III. Manager Incentives (Continued)

- **Hari Krishnan of Morgan Stanley and Izzy Nelken of Super Computer Consulting extend this call option analogy.**
- **They note that a manager's incentive fee is more like a *convertible bond*.**
- **As long as the hedge fund stays in business, the firm collects a management fee or *coupon*.**



### III. Manager Incentives (Continued)

- If the hedge fund does well, it collects an incentive fee, which is an increasing payment related to the performance of the fund, *the equity participation*.
- If the fund does poorly, investors will liquidate, resulting in a *default*, in which the manager loses all future coupon payments.



### III. Manager Incentives (Continued)

- They create this framework in order to solve for what the *illiquidity premium* should be for investing in hedge funds.
- The researchers hypothesize that a hedge fund will alter its leverage level according to what would maximize the value of its implicit convertible bond.



### **III. Manager Incentives (Continued)**

- **On the other hand, investors would prefer to rebalance according to the likelihood of the fund performing very poorly.**
- **Since investors can't rebalance, they should be paid a premium for this lack of flexibility.**



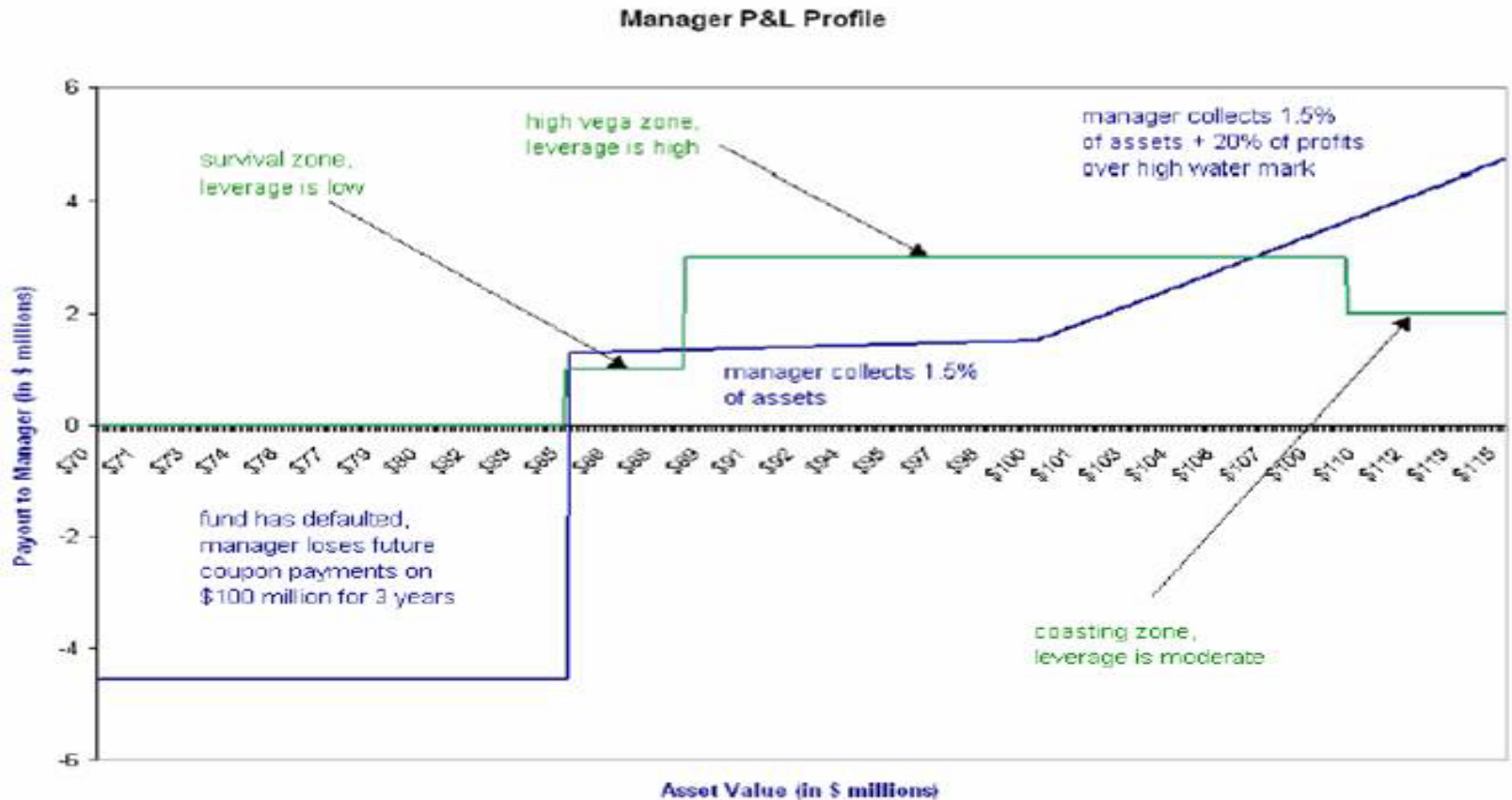
### III. Manager Incentives (Continued)

- **In Krishnan and Nelken's specific numerical example, investors should apply a haircut of 10% to an illiquid investment's returns.**





### III. Manager Incentives (Continued)



- Krishnan, Hari (Morgan Stanley) and Izzy Nelken (Super Computer Consulting),  
 “A Liquidity Haircut for Hedge Funds,” Working Paper, 2003.



## Conclusion

- **Arguably, some hedge fund strategies create option-like profiles that are a good match for the preferences of certain classes of investors.**
- **Also, some hedge fund strategies may be providing superior returns due to either their illiquidity or due to taking on the risk of rare, but large losses.**

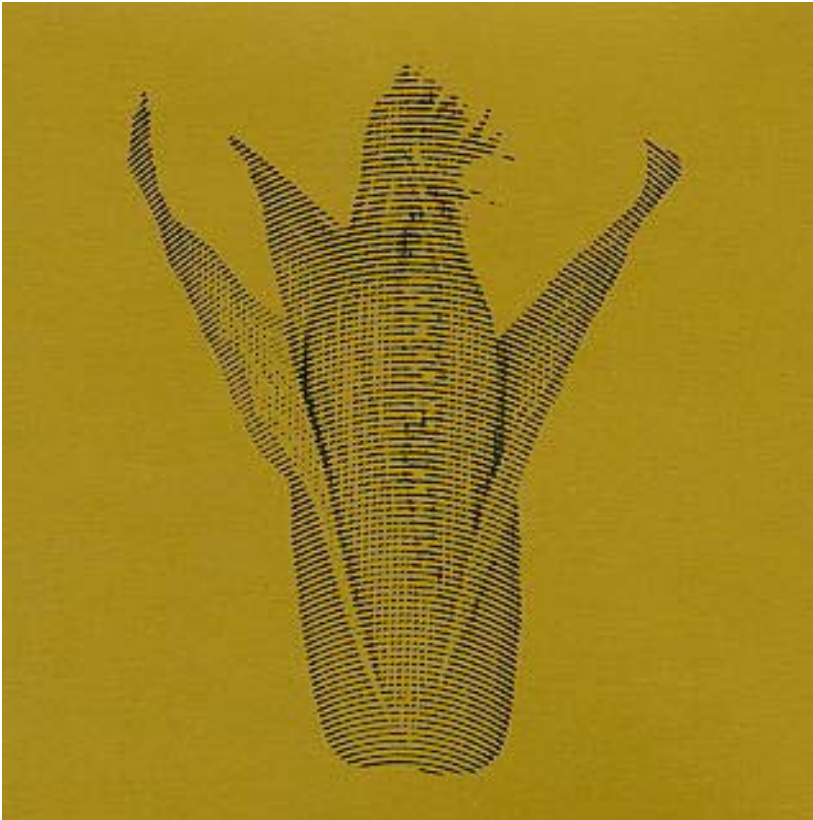


## **Source of Graphics** (not directly credited in presentation)

- Slide 1, Statue of Ceres, ancient Roman goddess of the harvest, Chicago Board of Trade.
- Slide 5, Graphic from “Grow Your Own Way,” Wilmott magazine, January 2003, p. 27.
- Slide 14, “Top 20 CTA Performers Past Five Years,” *Barclay Managed Funds Report*, 1<sup>st</sup> Quarter 2001, p. 6.
- Slide 16, Cover of Fooled By Randomness: The Hidden Role of Chance in the Markets and Life by Nassim Nicholas Taleb, Texere LLC, 2001.
- Slide 17, Cover of Against the Gods: The Remarkable Story of Risk by Peter Bernstein, John Wiley & Sons, Inc., 1996.



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