

~~*Hedge Funds.*~~
~~*Hedge Fund of Funds.*~~
~~*Hedge Fund Replication.*~~
Hedge Fund Beta: A Better Mousetrap

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CAPITAL
MANAGEMENT

Today's Discussion

Hedge Funds: Promise and Peril

Alpha Becomes Beta (Even in Hedge Funds)

Hedge Fund Beta In Depth

Implications for Investors

Why Hedge Funds?

- What are investors looking for in hedge funds?
 - **Make money** (Positive expected returns)
 - **Diversification** (Low correlation to traditional assets)
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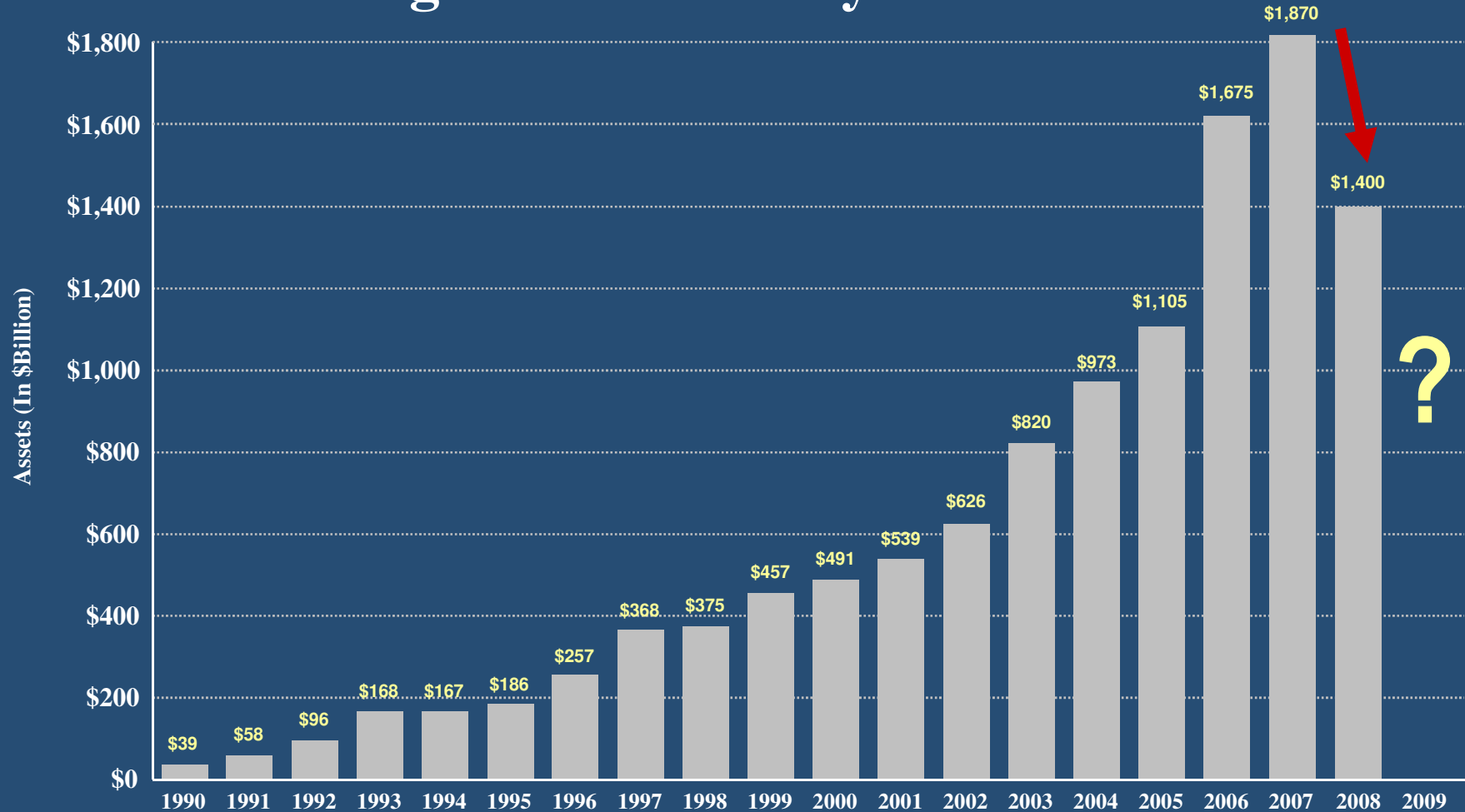
Why Not Hedge Funds?

➤ What has held investors back?

- Fees
 - Lack of Transparency
 - Lockups / Liquidity
 - Headline Risk
 - Questionable Diversification
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The Rise of Hedge Funds

Hedge Fund Industry 1990 – 2008



Source: HFR Industry Reports © HFR, Inc. 2009, www.hedgefundresearch.com

Real Challenges for Hedge Funds

- Spectacular growth in assets
- Scaling up a non-scalable strategy
 - Load up on beta (no longer “alternative”)
 - Load up on leverage (no longer “investment”?)
 - Reduce liquidity (no redemptions allowed!)
- Structural Challenges
 - Investment horizons, lockups, business models
- Common risk factors
 - Bad news: we just had a massive deleveraging
 - Good news: this might be good for (new) investors (!)

It's Not All Alpha

- Hedge Funds have provided high and increasing levels of passive market exposure

Popular Hedge Fund Indices' Correlations with MSCI World Index

(Rolling quarterly hedge fund index returns)

	Since Inception	Last 10 Years	Last 7 Years	Last 5 Years	Last 3 Years
CS Tremont Hedge Fund Index	0.65	0.74	0.86	0.91	0.90
HFRI Hedge Fund Index	0.76	0.84	0.93	0.94	0.94

Source: DataStream, CS Tremont Hedge Fund Index (data from January 1994 – March 2009) and HFRI Hedge Fund Index (data from January 1990 – March 2009)

Lots of Beta in Hedge Funds

An update of the 2001 study “Do Hedge Funds Hedge?” (Asness, et al)

1. CS HF Total = alpha + beta * market

Portfolio	Monthly Regressions		
	Alpha (Annualized %)	Beta vs. S&P 500 (t)	Adjusted R-Squared
Aggregate HF Index	4.01% (2.36)	0.27 (8.37)	27.81%

2. CS HF Total = alpha + beta * market + lagged beta * market

Portfolio	Monthly Regressions			
	Alpha (Annualized %)	Beta vs. S&P 500 (t)	Lagged Beta vs. S&P 500 (t)	Adjusted R-Squared
Aggregate HF Index	3.58% (2.15)	0.26 (8.30)	0.17 (3.26)	31.81%

3. CS HF Total = alpha + beta * market + lagged beta * market + portfolio insurance + lagged portfolio insurance

Portfolio	Monthly Regressions					
	Alpha (Annualized %)	Beta vs. S&P 500 (t)	Lagged Beta vs. S&P 500 (t)	Portfolio Insurance	Lagged Portfolio Insurance	Adjusted R-Squared
Aggregate HF Index	1.31% (0.76)	0.29 (9.51)	0.21 (4.03)	0.53 (4.05)	0.18 (2.11)	38.68%

➤ *Concepts adopted by others*

Hedge fund alphas and betas – lags and stale prices

Style	ER (%/mo)	a	b	a3	b3
Index	0.64	0.46	0.28	0.36	0.44
Std. errors	0.20	0.17	0.04		
Short	-0.53	0.10	-0.94	0.13	-0.99
Emerg mkts	0.39	0.00	0.58	-0.07	0.69
Event	0.61	0.46	0.22	0.38	0.37
Global Macro	0.93	0.82	0.17	0.74	0.31
Long/Short Eqty	0.73	0.42	0.47	0.32	0.65

Not zero!

Bigger with lags

Smaller with lags

Really not zero.
“Alternative asset?”

Long-short doesn't
mean zero beta!

$$r_t^i = a + br_t^{s\&p500} + \epsilon_t^i$$

$$r_t^i = a3 + b_1 r_t^{sp} + b_2 r_{t-1}^{sp} + b_3 r_{t-2}^{sp} + b_4 r_{t-3}^{sp} + \epsilon_t^i$$

$$b3 = b_1 + b_2 + b_3 + b_4$$

- Lags are important – stale prices or lookback option
- Betas are big!

Source: my regressions using CFSB/Tremont indices at hedgeindex.com, idea from Asness et al JPM

Slide from John Cochrane's website (<http://faculty.chicagobooth.edu/john.cochrane/research/Papers/>)

A Closer Look



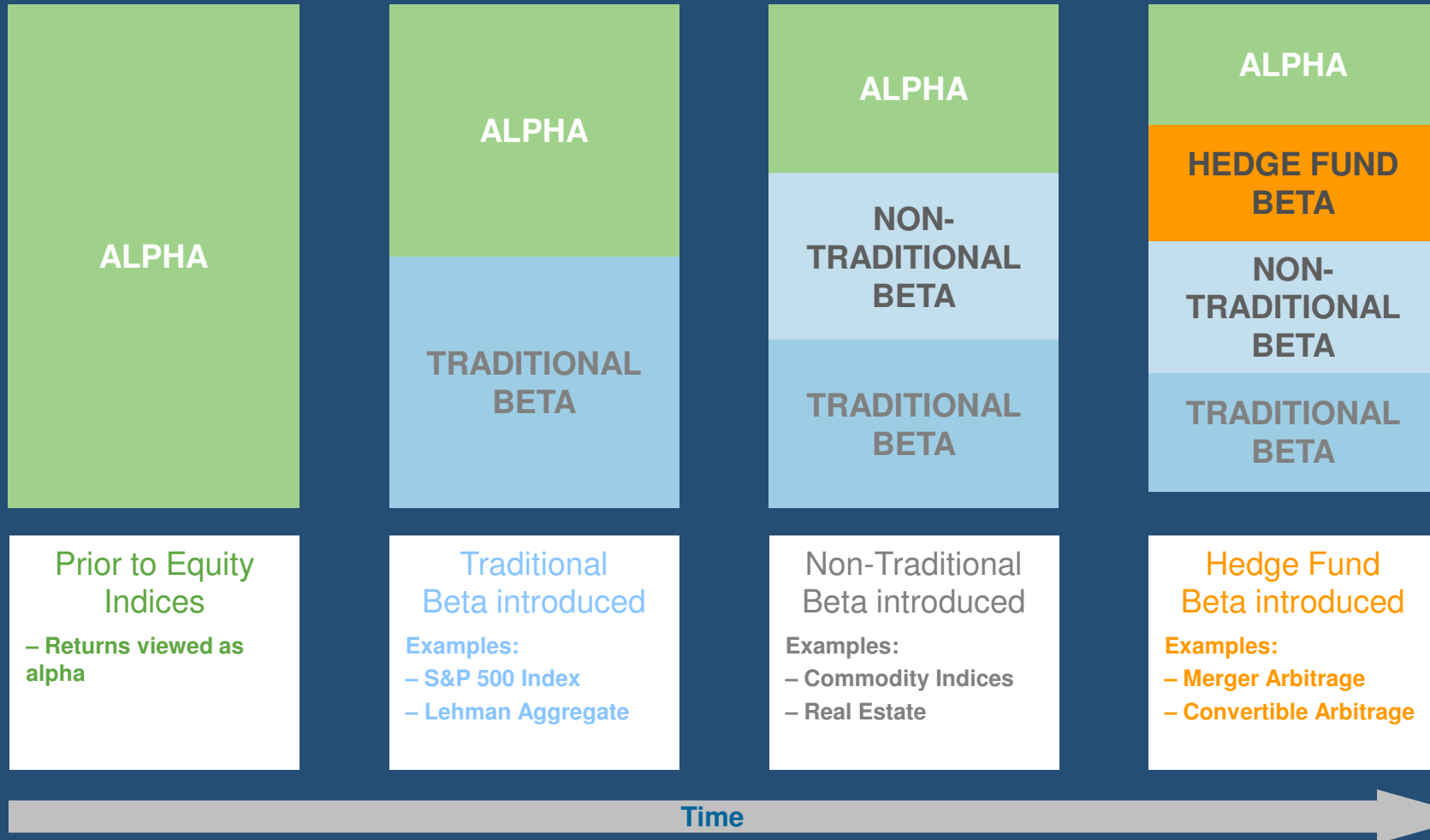
Hedge Fund Betas:

The common risk exposures shared by hedge fund managers pursuing similar strategies.

Case Study: Merger Arbitrage

- Basic Merger Arbitrage Strategy
 - Go long the target and short the acquirer
 - Allows managers to offer insurance and provide liquidity to those who held target's stock prior to deal announcement
- AQR/CNH Proprietary Dataset
 - ~15,000 mergers (going back to 1963)
 - We have actively managed merger arb strategy (since 2001)
 - Control for survivorship and timing biases
- Can create portfolio by holding some exposure to each announced merger deal (or try to do a little better 😊)

How Alpha Becomes Beta



Hedge Fund Beta Everywhere

**Event
Driven**

**Convertible
Arbitrage**

**Global
Macro**

**Fixed
Income
Arbitrage**

**Equity
Market
Neutral**

**Long/Short
Equity**

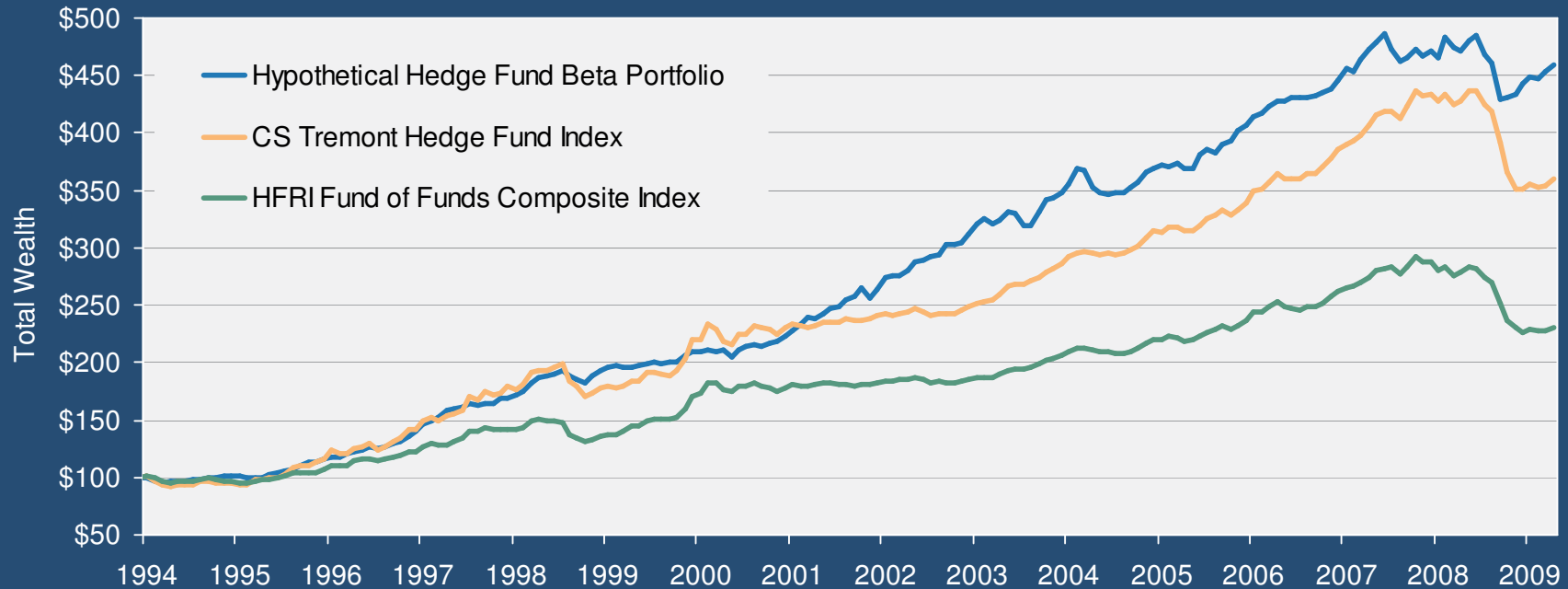
**Dedicated
Short Bias**

**Emerging
Markets**

**Managed
Futures**

... And It Seems To Work

Hypothetical Net Returns of a Hedge Fund Beta Portfolio and Hedge Fund Indexes



	Annualized Net Return	Annualized Volatility	Sharpe Ratio	Max Drawdown (Peak-Trough)
Hypothetical HF Beta Portfolio	10.5%	5.8%	1.1	-12%
CS Tremont Hedge Fund Index	8.7%	7.9%	0.6	-20%
HFRI Funds of Funds Composite Index	5.6%	6.3%	0.3	-22%

Data updated through 4/30/09. Source: AQR proprietary data. Returns, volatility and correlations are annualized net figures based on quarterly data. The hypothetical hedge fund beta portfolio performance is for illustration purposes only and not the returns to an actual fund or account. We use a 1.00% annualized fixed fee and no performance fee for the hypothetical hedge fund beta portfolio. (We believe this is a reasonable assumption.) Importantly, the HFRI Fund of Funds Composite Index and the CS Tremont Hedge Fund Index are non-investable indices. Please see important disclosures relating to the hypothetical portfolio details, performance and risks at the end of this presentation.

Restoring Diversification Attributes

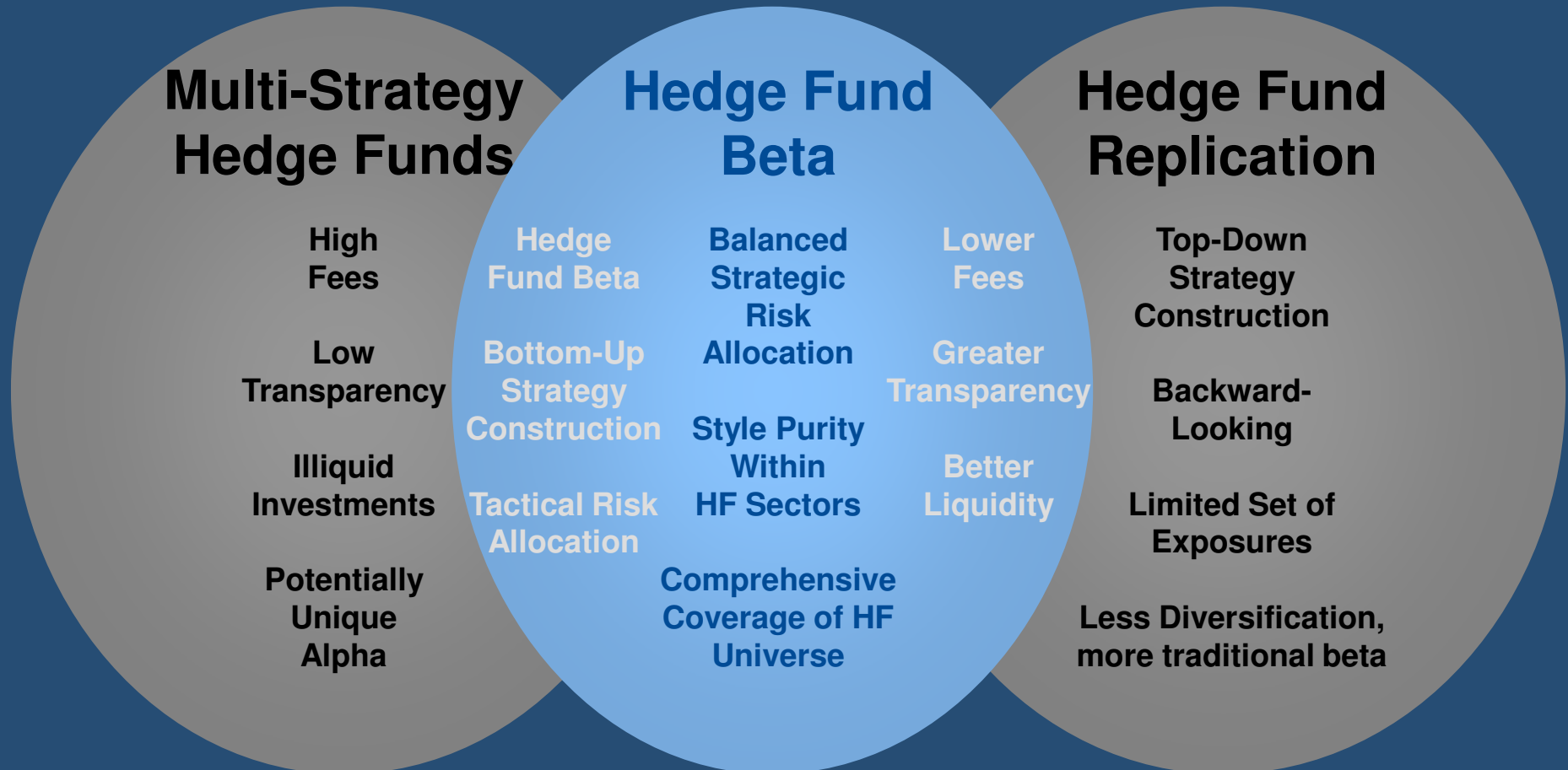
Quarterly Correlations of a Hypothetical Hedge Fund Beta Portfolio

	Hypothetical Hedge Fund Beta Portfolio (1990 - Present)	The S&P 500 Index (1990 - Present)	The S&P 500 Index (Last 5 Years)
Hypothetical Hedge Fund Beta Portfolio	1.0	0.2	0.2
CS Tremont Hedge Fund Index	0.6	0.7	0.8
HFRI Funds of Funds Composite Index	0.5	0.6	0.8
HFRI Hedge Fund Composite Index	0.3	0.8	0.8
MSCI World Index	0.2	0.9	1.0
S&P 500 Index	0.2	1.0	1.0

Correlations are annualized net figures based on hypothetical quarterly data from previous page and use a 1.00% management fee and no performance fee. The hypothetical hedge fund beta portfolio performance is for illustration purposes only and not the returns to an actual fund or account. Importantly, the HFRI Composite and the CS Tremont Index are non-investable indices. Please see important disclosures relating to the hypothetical portfolio details, performance and risks at the end of this presentation.

A Comparison Of Alternatives

- Hedge Fund Betas seek to capture “good parts” of Hedge Funds



Hedge Fund Beta is Different

	Market Beta	Hedge Fund Beta
Investment Process	Single asset class, generally cap-weighted	Multiple strategies, each with a unique weighting system; cap-weighting does not apply
Implementation	Buy-and-hold strategy, long-only	Dynamic strategies trading a range of asset classes and instruments, long and short; infrastructure is critical
Rebalancing	Infrequent trading, holdings change slowly	Frequent adjustment to positions as market conditions change; must manage t-costs

What Do Today's Investors Want?

Investors Want To Add Return Sources That:

- Are positive over the long-term
- Have low correlation to their existing portfolio exposures

3 Potential Sources for These Returns:

Alpha (α) – returns uncorrelated with any common risk factor

Hedge Fund Beta ($HF\beta$) – returns from common risk factors associated with HF strategies

Beta (β) – returns from market exposures not already in the portfolio (e.g., commodities, emerging markets)

A Tale of Two Months

September 2008

- Repricing of risk
- Global deleveraging
- Markets suffer
- Active strategies suffer
- HF indices down
- Hedge fund beta down

October 2008

- Repricing of growth
- Global sell-off
- Markets suffer
- Active strats mixed
- HF indices down
- Hedge Fund beta *up*

Conclusions

- Hedge funds have great promise – they lead to more diversified portfolios – but also many drawbacks
- Hedge funds = alpha + beta + hedge fund beta
- Hedge fund betas provide what investors want from HFs - positive expected returns, low correlation
- If HF betas can avoid some of the hurdles that hold people back from hedge funds, they offer a new model for thinking about alternative investment

Disclosures

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Hypothetical Portfolio Details (Slide 13 and 14) – The Hypothetical Hedge Fund Beta Portfolio backtest is based on AQR proprietary datasets and run to target an annualized volatility of 6% and employs, on average, leverage of 2 per side (i.e., for \$100 investment, the fund will purchase roughly \$225 securities long and sell short \$175 worth of securities). The underlying 10 hedge fund strategies are roughly equal riskweighted, and the backtest accounts for transaction costs by incorporating estimates of both commissions and potential market impact. Importantly, the backtest does not include the use of hedging, overlays or tactical strategy allocation. Returns, volatilities and correlations are annualized figures based on quarterly data. In addition, the HFRI and CS Tremont Indices are non-investable.