

Federal Reserve Bank of Atlanta  
Financial Markets Conference 2006

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**Hedge Fund:  
An Industry in its Adolescence**

Presented by  
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# Theme: Hedge Fund Business Model

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“Consider the problem confronting a money manager who believes that he has a set of *skills that could earn above average risk adjusted returns*. We are not advocating the existence of such strategies, but merely the hypothesis that the manager believes this to be so. Let us assume that the manager has a limited amount of personal wealth. In order to meet the fixed costs of a trading operation, the manager must leverage his skills and beliefs by attracting external capital. *Basically, he is financing a new venture*. The choice is either equity financing, in the form of a fund, or debt financing, in the form of putting up personal assets as collateral against borrowed capital. In most cases, the manager’s personal wealth is insufficient to secure sizeable debt financing. That leaves the formation of a fund as the only practical financing option.” - Fung & Hsieh (*JEF*, 1999, p. 317)

# Implication & Fundamental Issue

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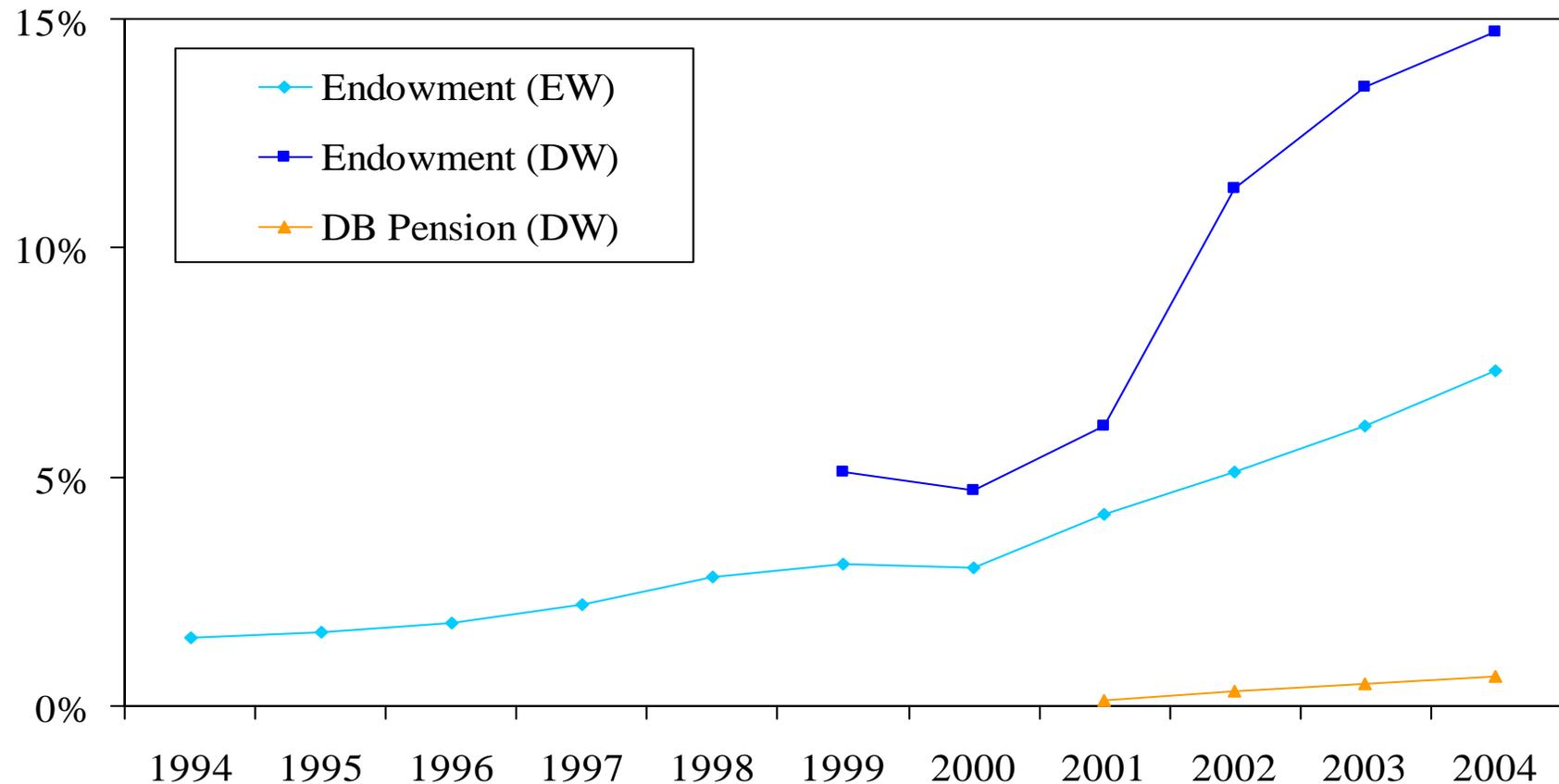
- Hedge funds are more like new ventures (IPOs) than mutual funds (high failure rates & idiosyncratic risk)
- **Fundamental issue: What are the systematic risks of hedge funds?**
- Investors: hedge funds + other investments; alpha/beta
- Counterparties: capital at risk (all hedge fund business)
- Regulators: concentrated positions, liquidity squeezes, market instability

# Outline

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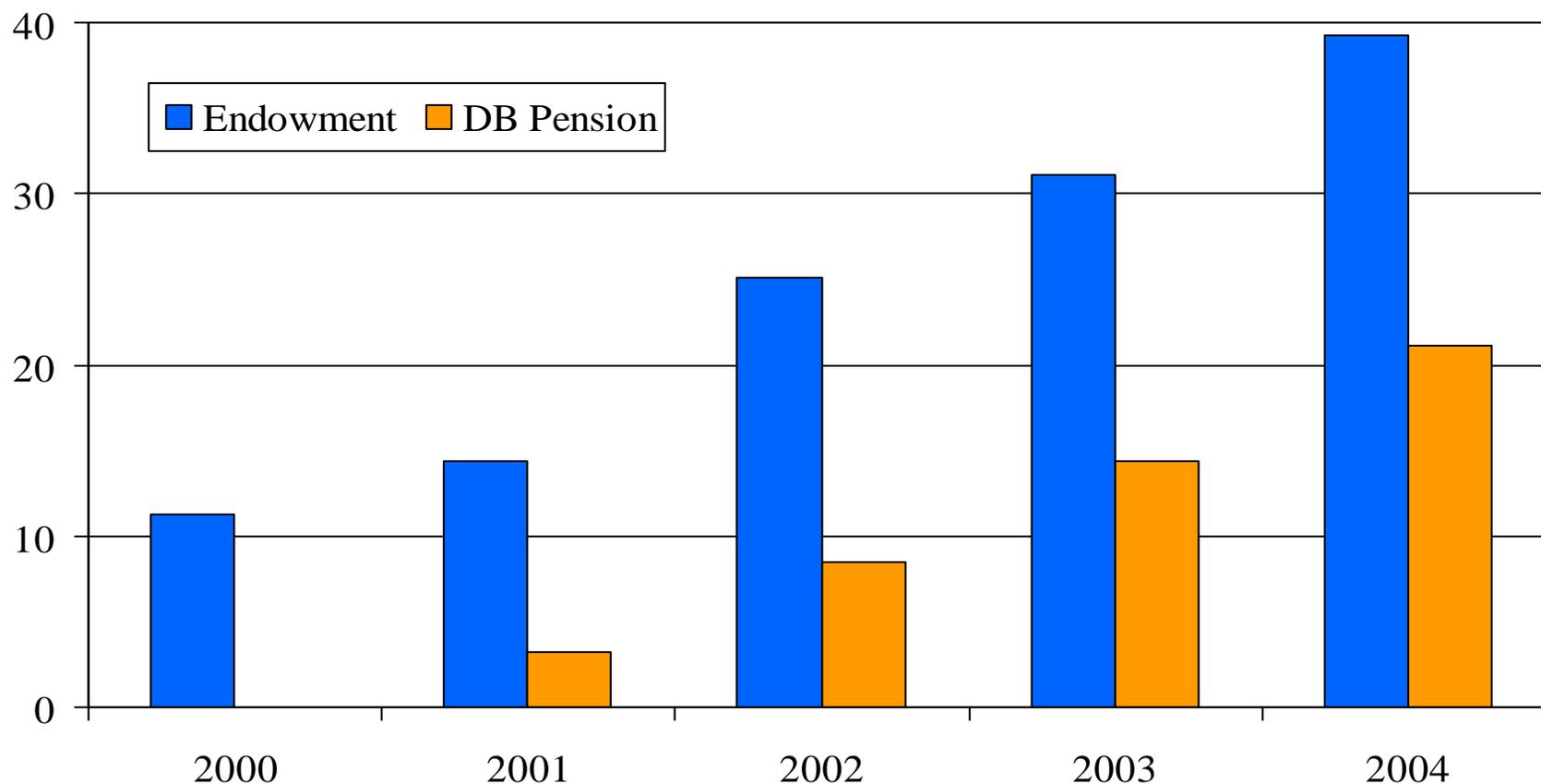
- Growth of the Hedge Fund Industry
- Style, Fund Age and Size
- Performance & Data Biases
- Understanding Risk Factors
- Increasing Influence of Hedge Funds in Markets
- Alphas, Incentives, and Future Research

# I. % of Assets Invested in Hedge Funds: Endowments & Defined Benefit Plans



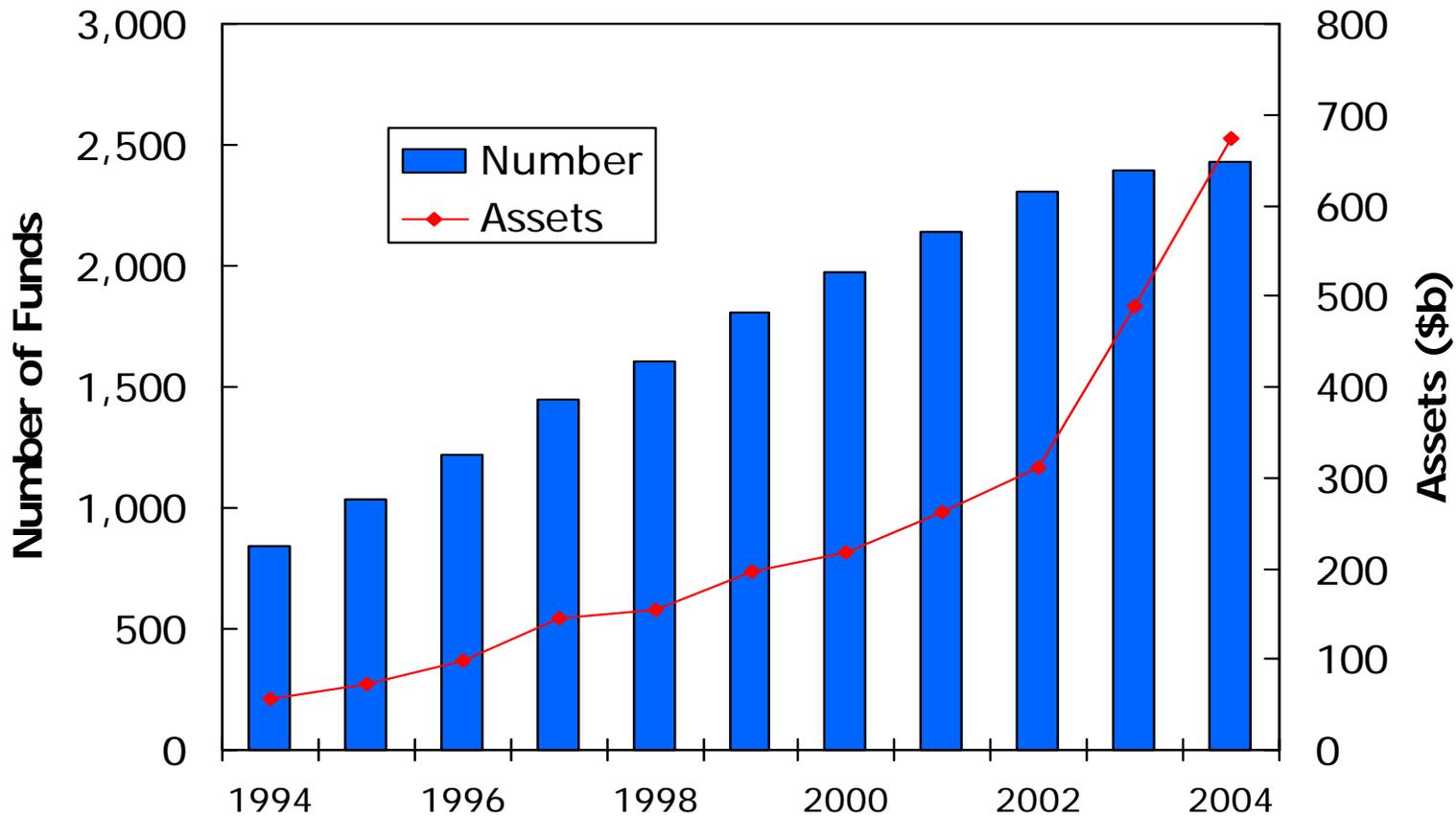
Source: NACUBO and P&I

# Amount of Assets Invested in Hedge Funds: Endowments & Defined Benefit Plans (\$b)



Source: NACUBO and P&I

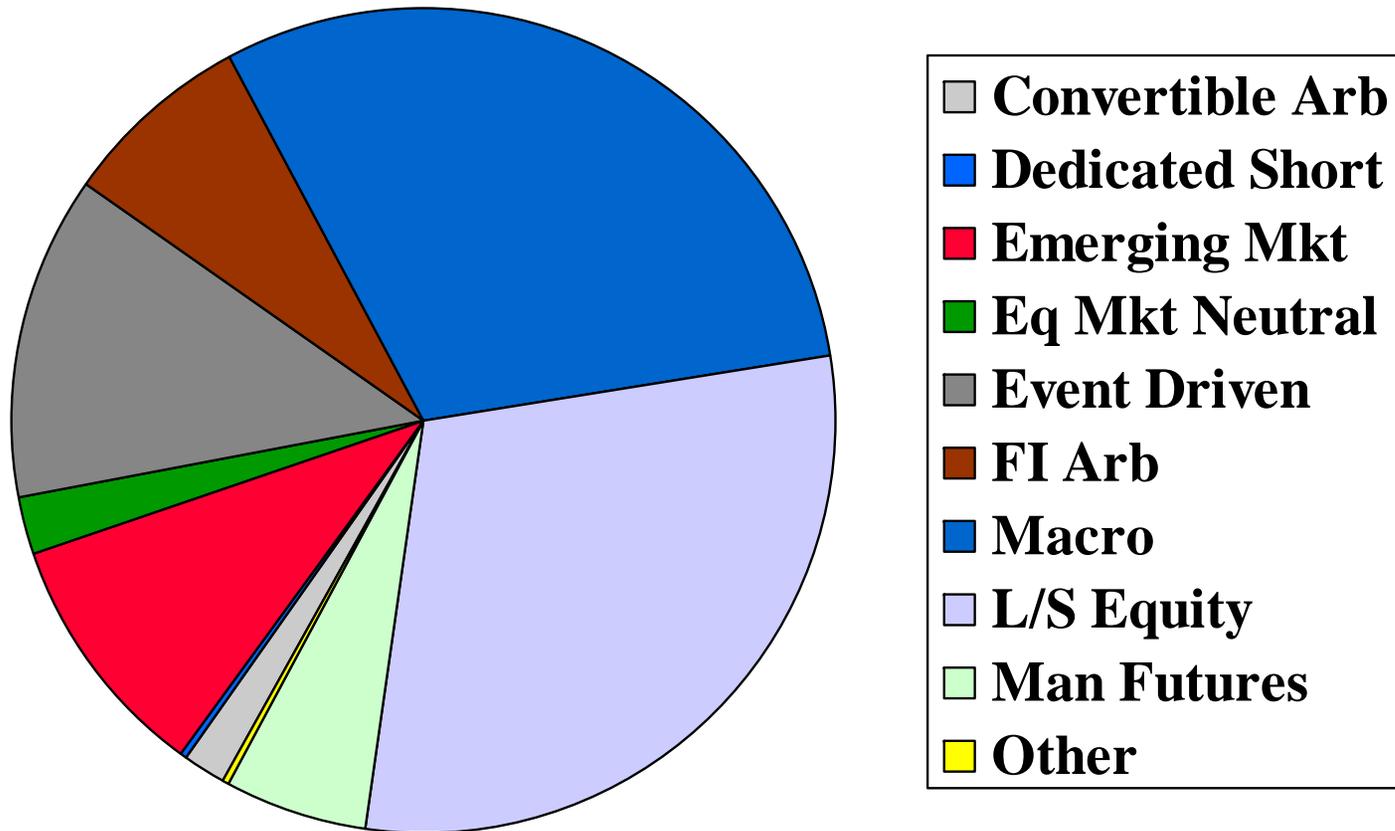
# Size of Industry: Number of Funds & Assets Under Management (TASS)



## II. Style, Age, Size

### Style Composition: 1995

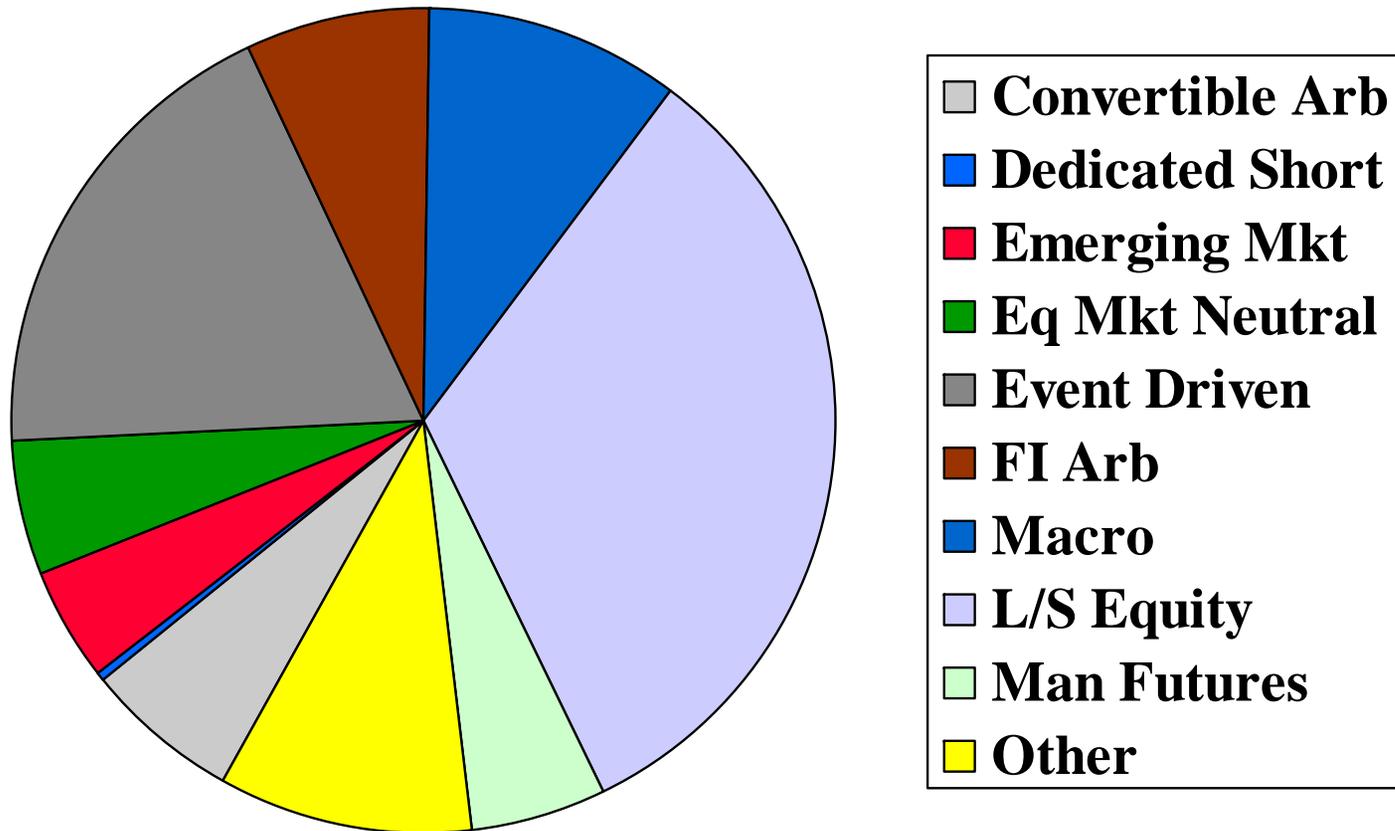
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Source: TASS

## Style Composition: 2004

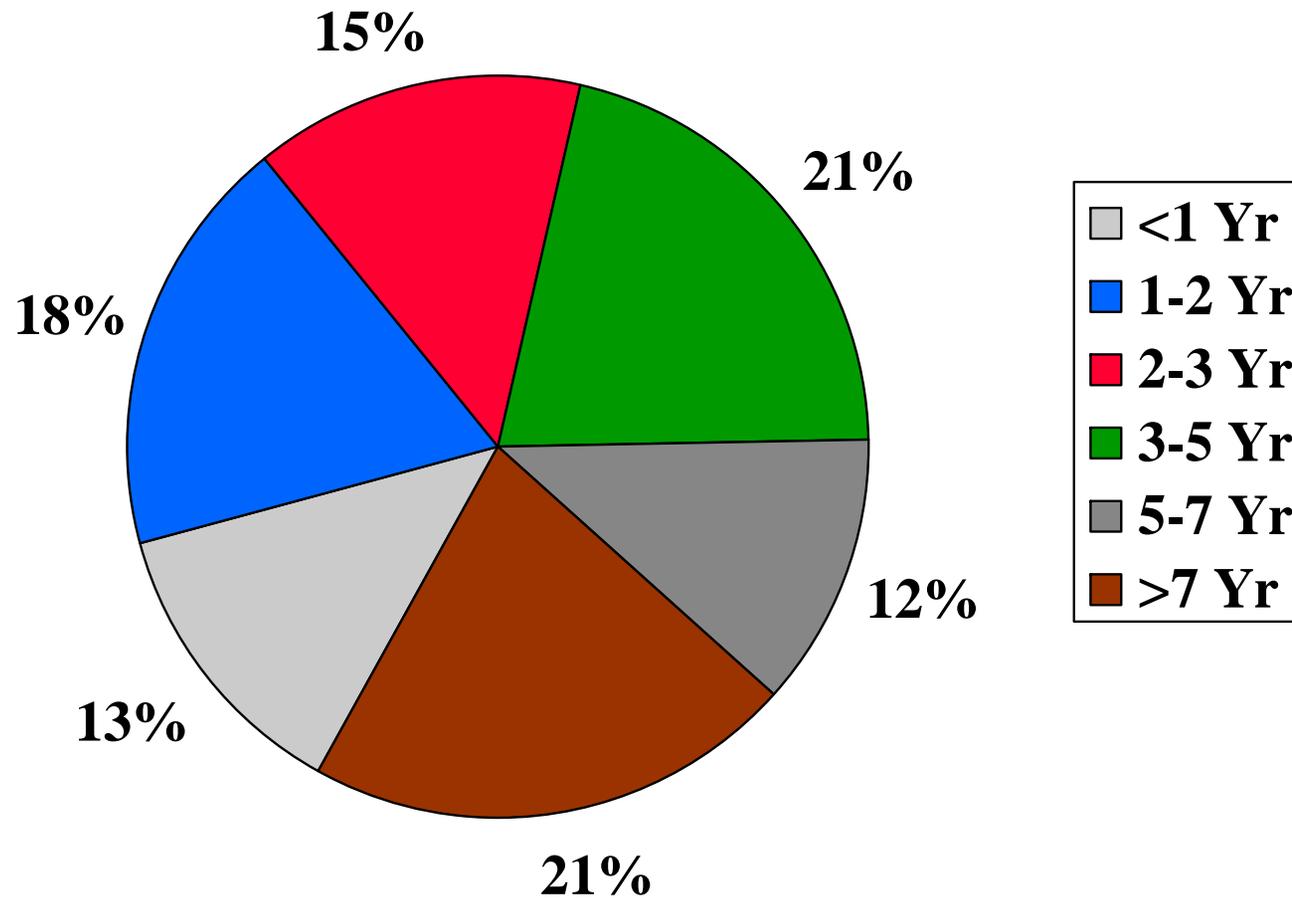
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Source: TASS

## Distribution of Fund Age: 2005 Q3

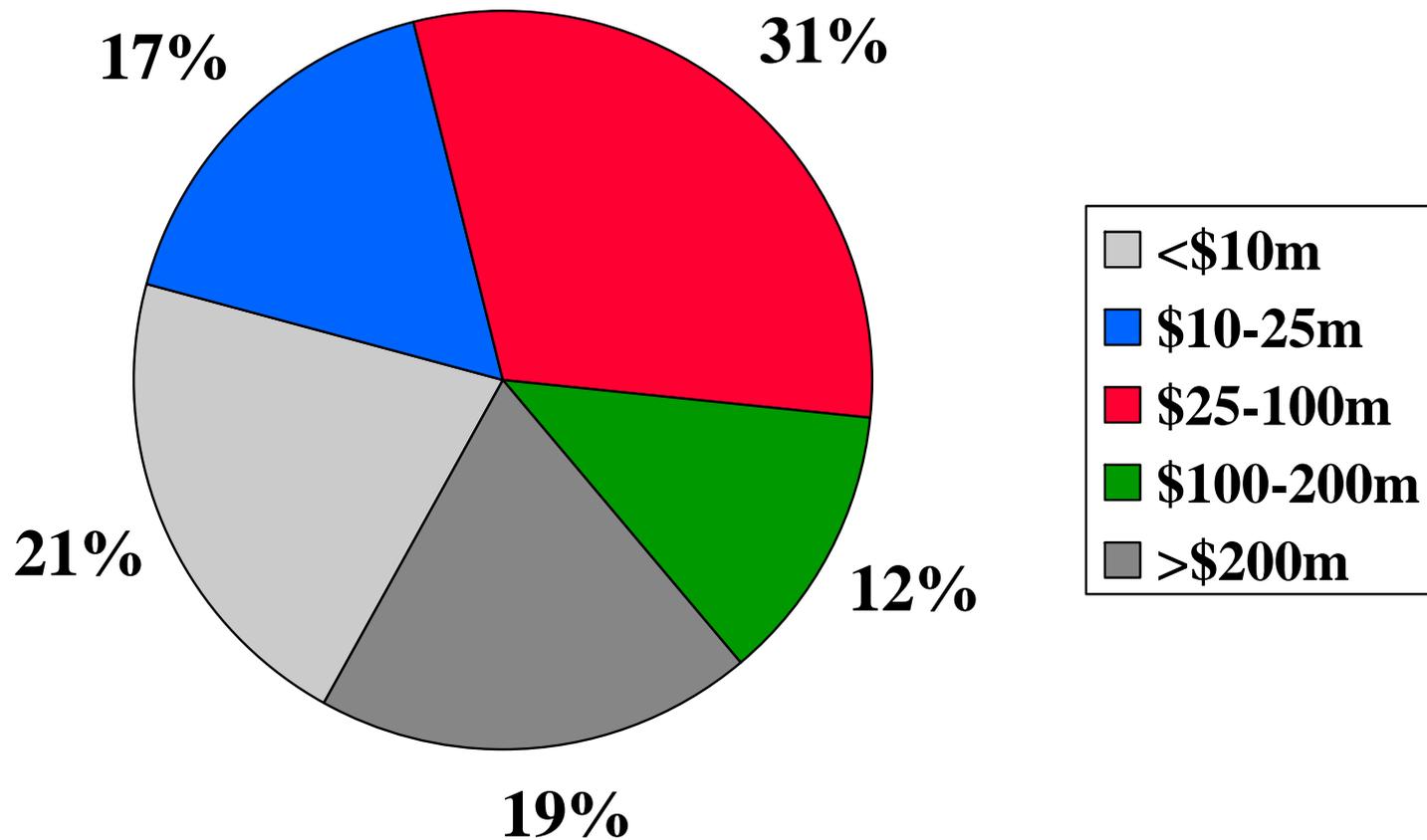
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Source: HFR

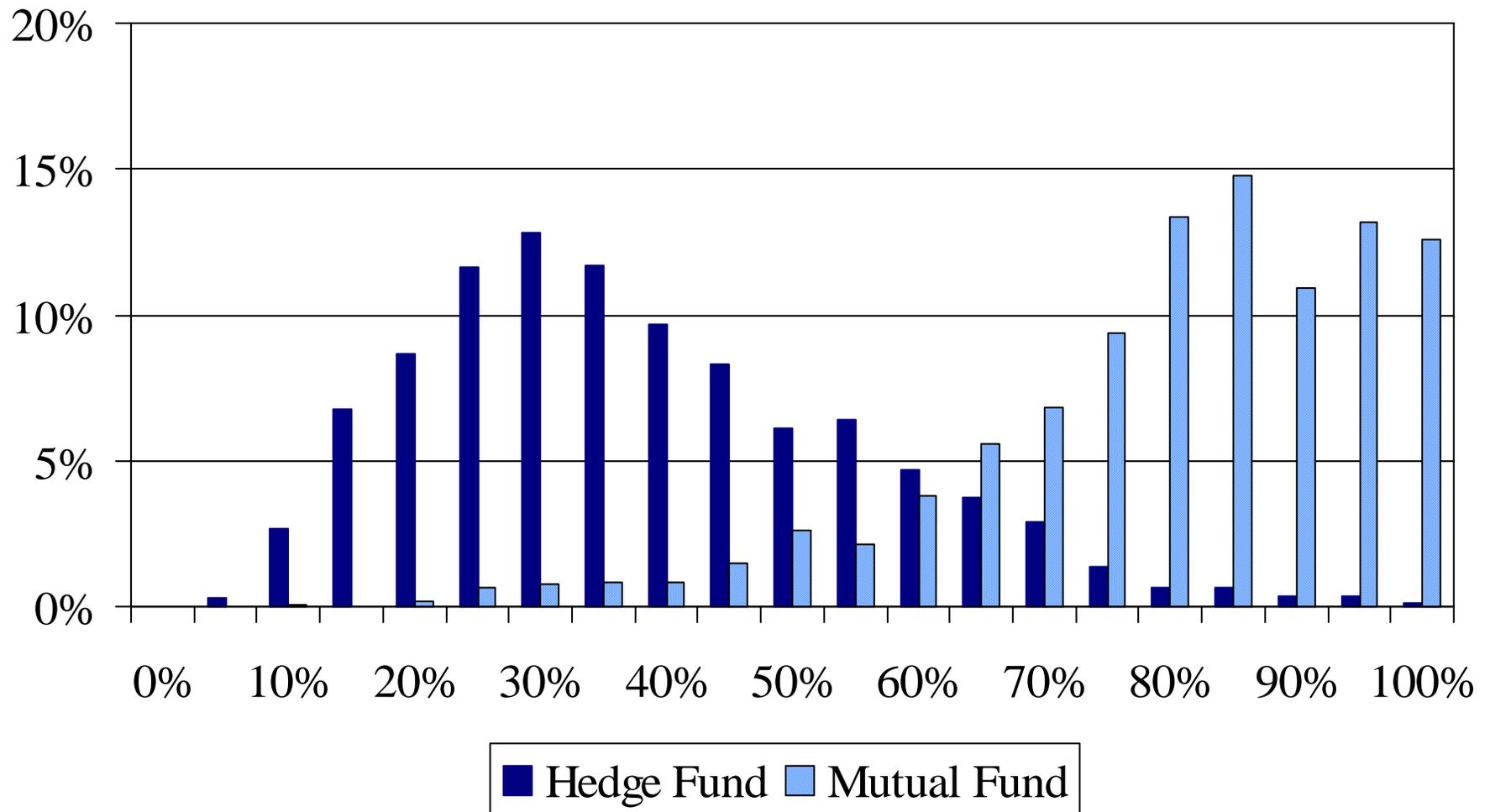
## Distribution of Fund Size: 2005 Q3

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Source: HFR

## Distribution of R<sup>2</sup> vs Asset Classes



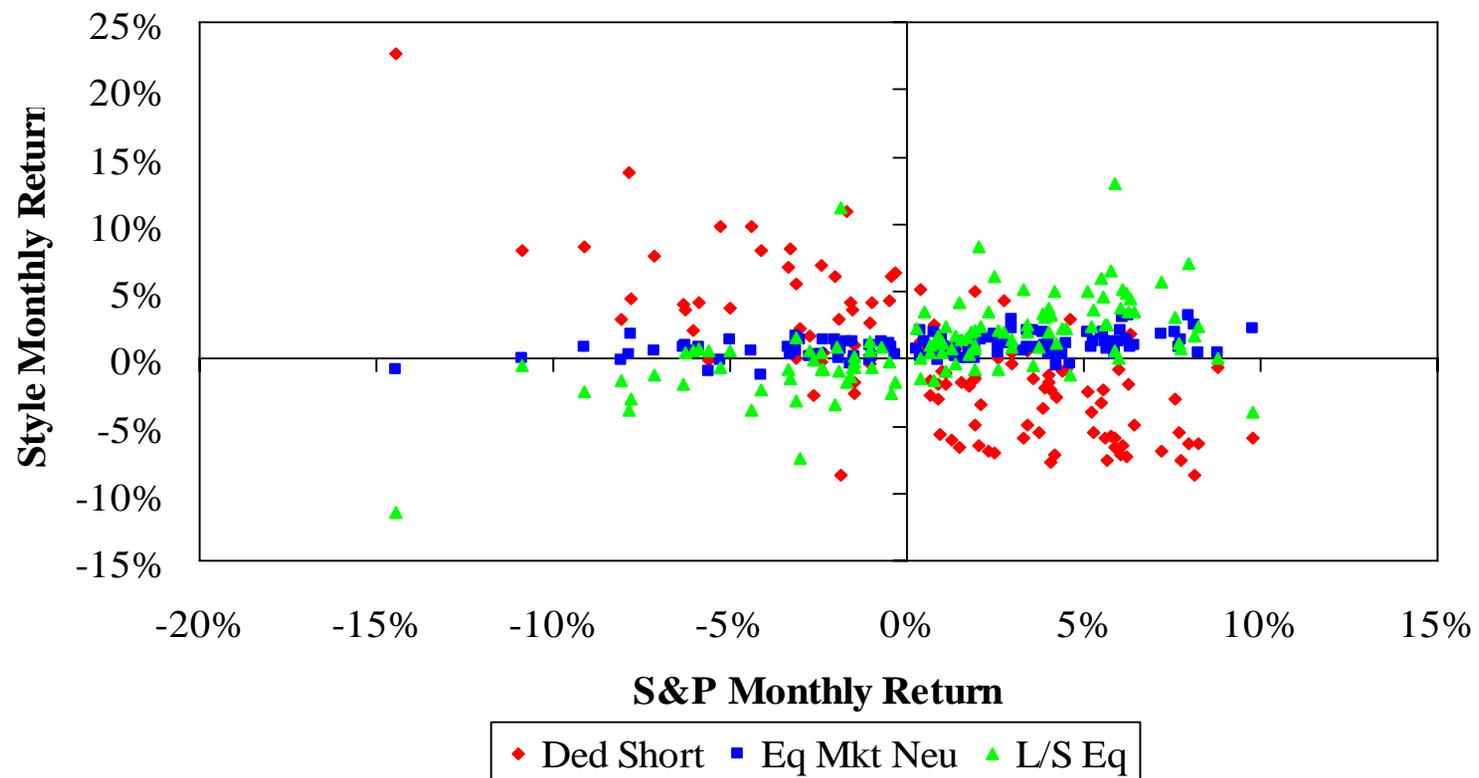
## III. Data Biases

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- Departing Funds:
  - Survivorship (Live vs Defunct)
  - Liquidation vs Non-Reporting
- Entering Funds:
  - Selection
  - Incubation / Backfill
- Serial correlation of Returns – Illiquidity vs Smoothing

## IV. Hedge Fund Risk Factors

- Different styles have different return characters:



# 1. Trend-Following Strategy

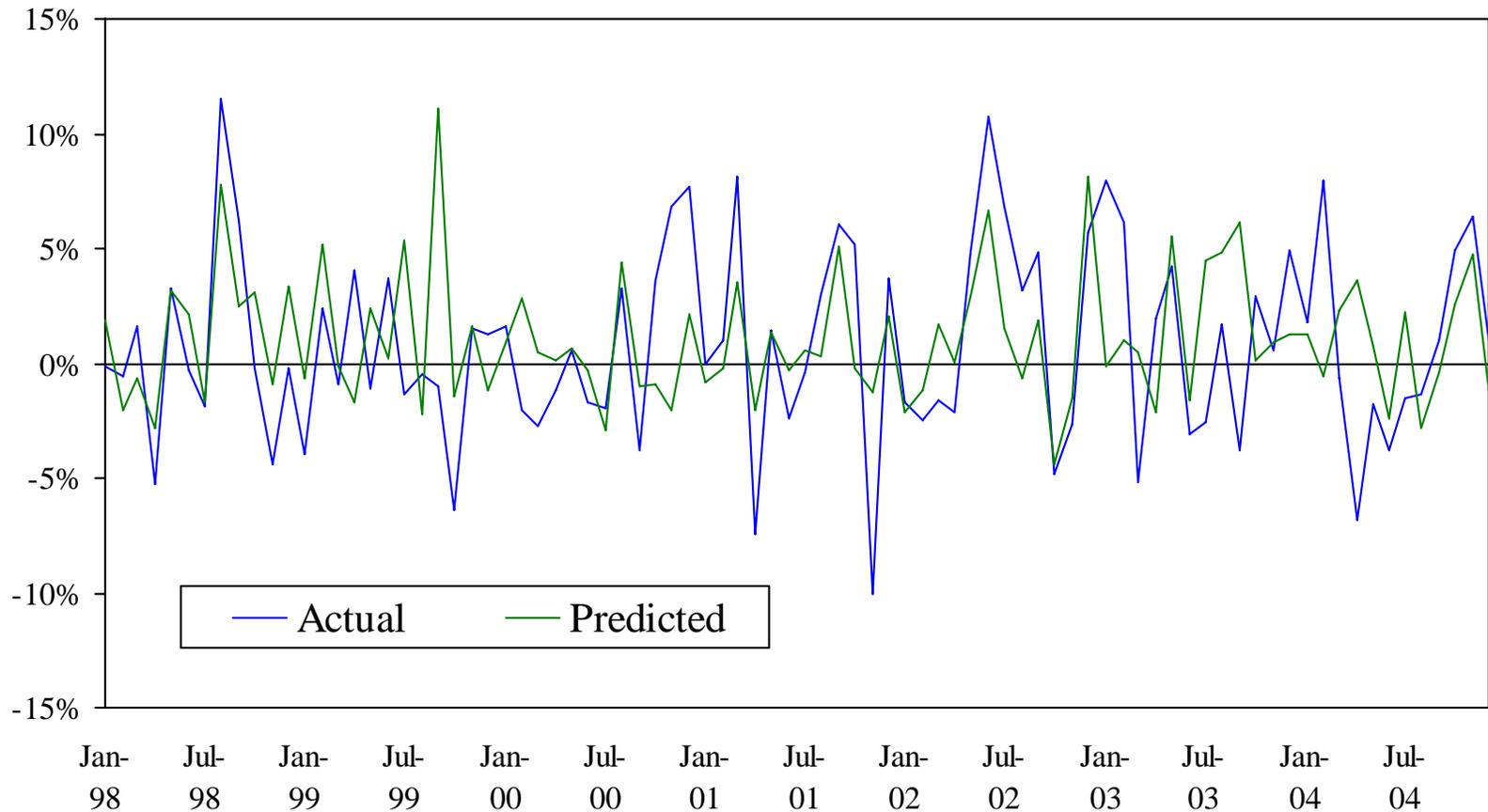
## Fung & Hsieh (*RFS*, 2001)

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- Trend followers (Managed Futures) = volatility buyers.
- Key risk factors:
  - Straddles of exchange-traded futures options (in currencies, bonds, commodities)
- Alpha: 7.3% against straddles

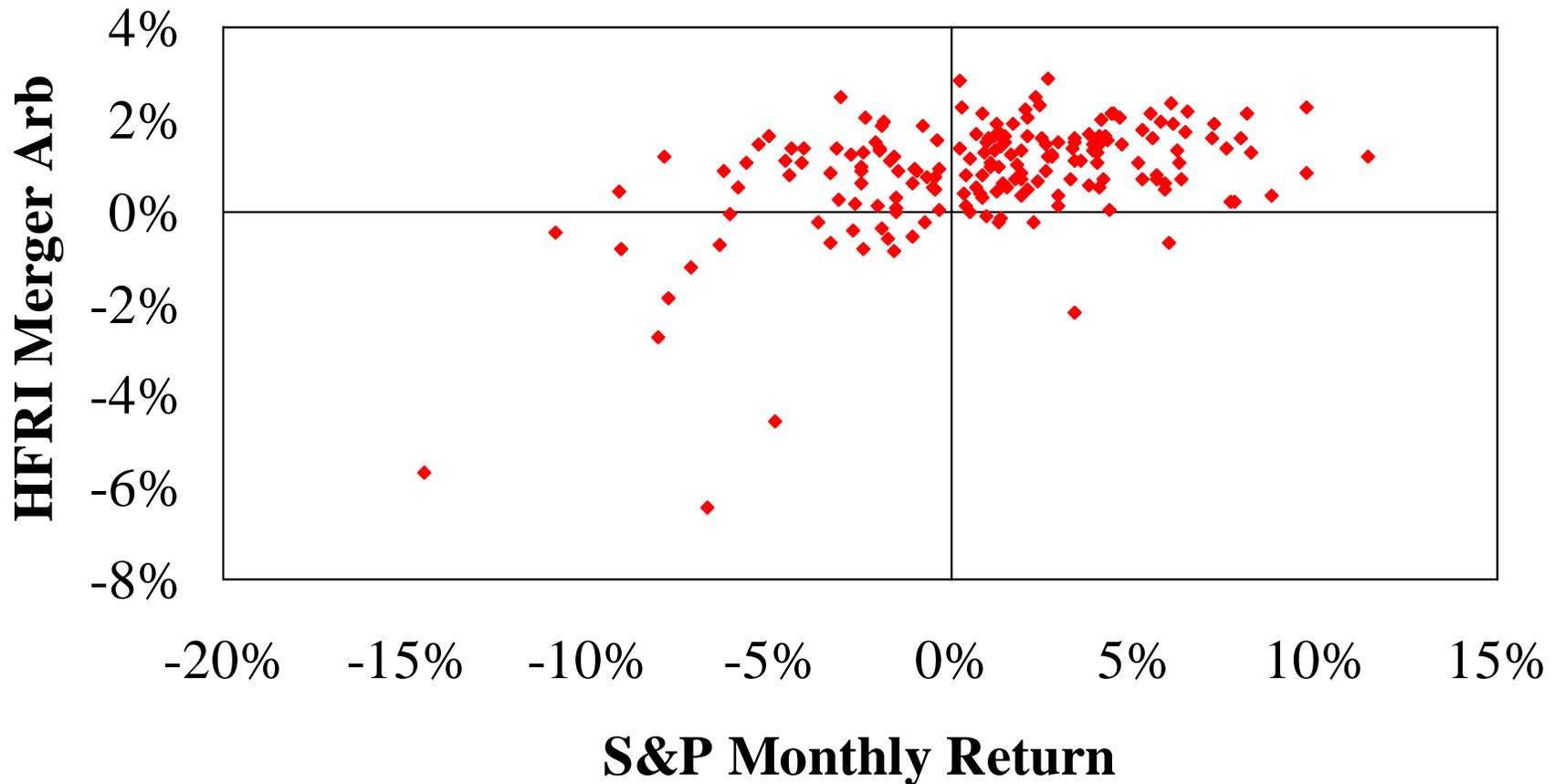
# Trend Followers

## *Out-of-sample Prediction*



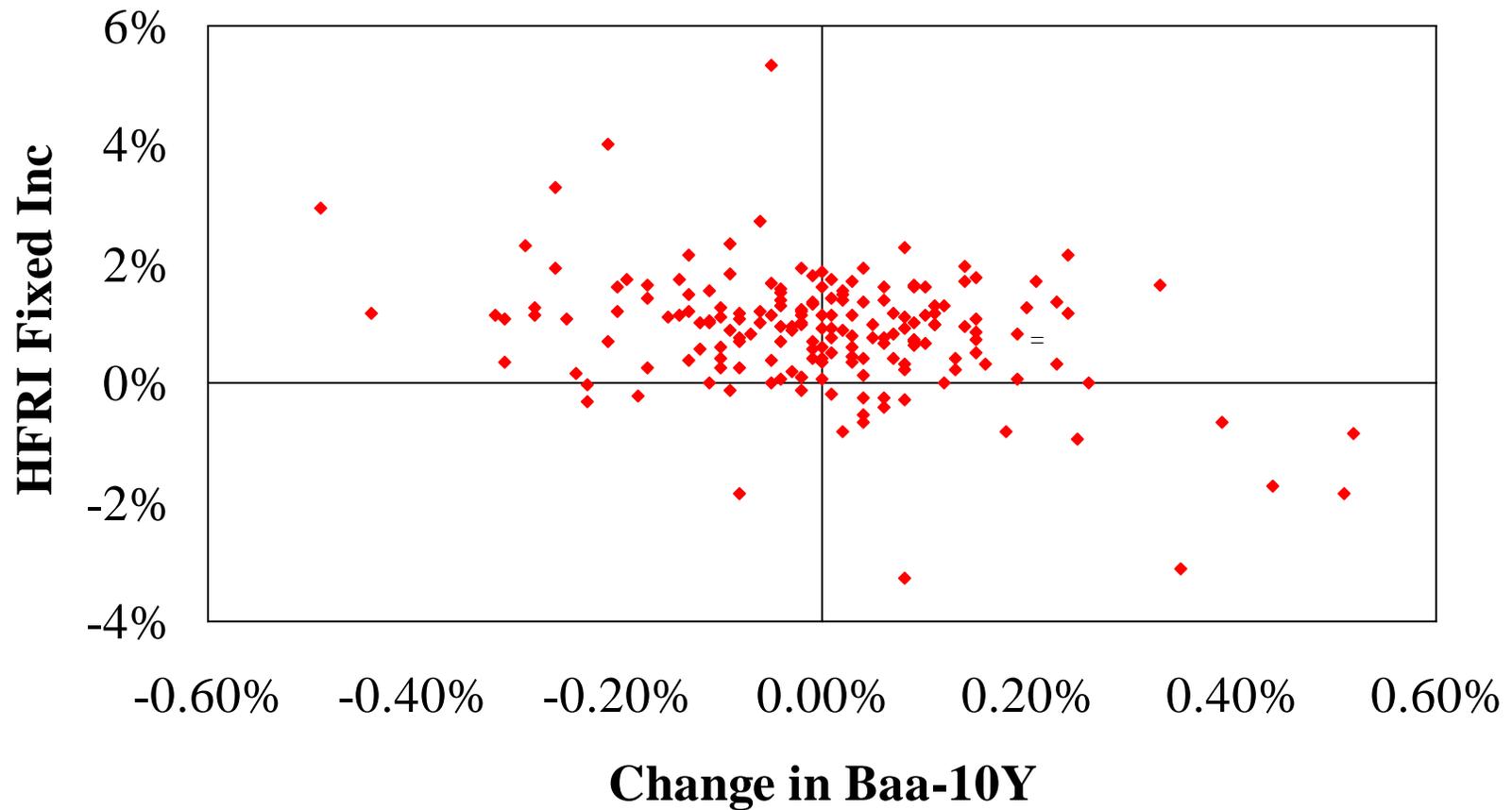
## 2. Merger Arbitrage

Mitchell & Pulvino (*JF*, 2001)

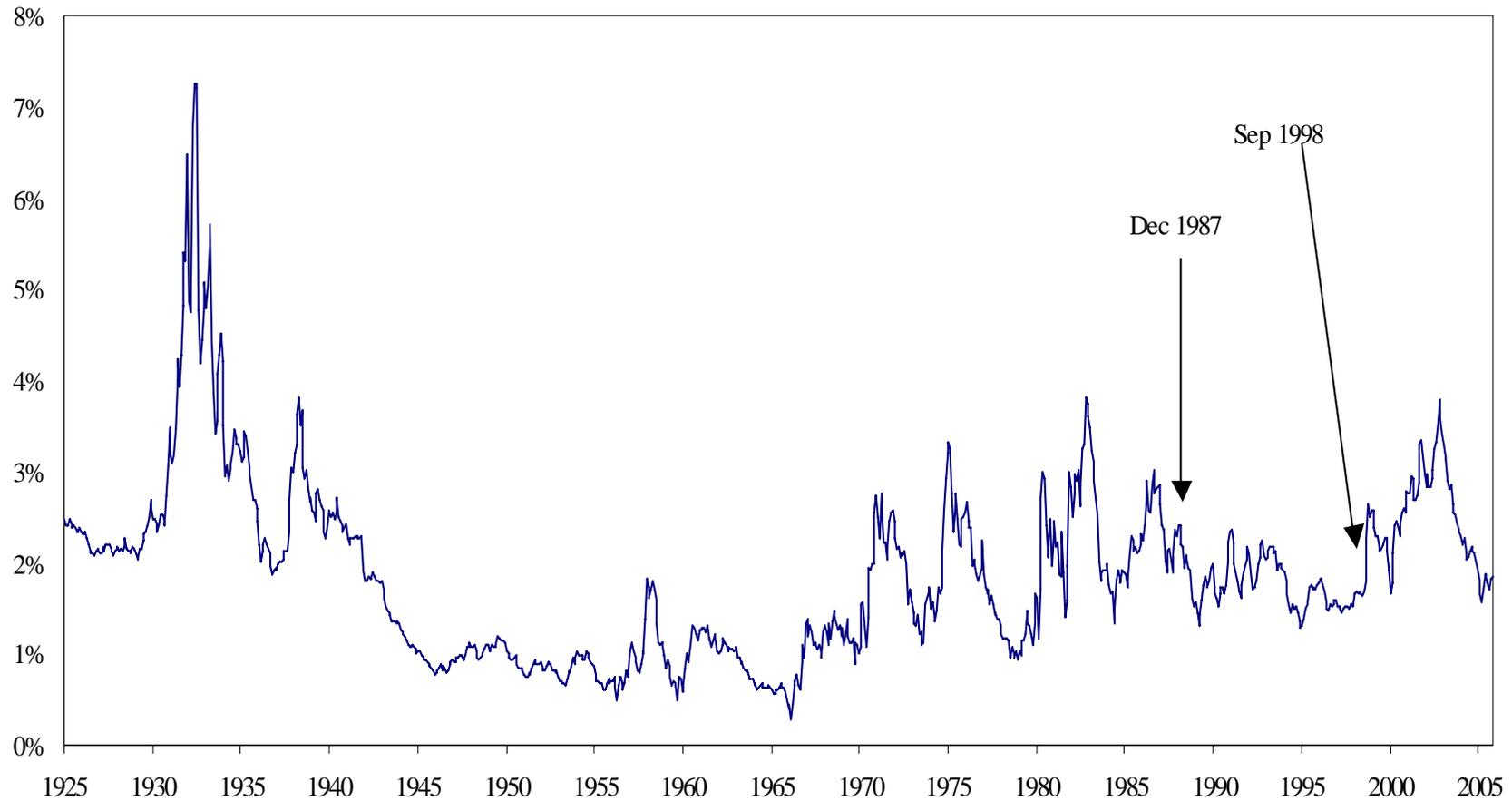


Source: BARRA, HFR

### 3. Fixed Income Strategies Fung & Hsieh (*JFI*, 2002)



# Long History of the Credit Spread



(c) David A. Hsieh 2006

Source: Federal Reserve

## 4. Long/Short Equity

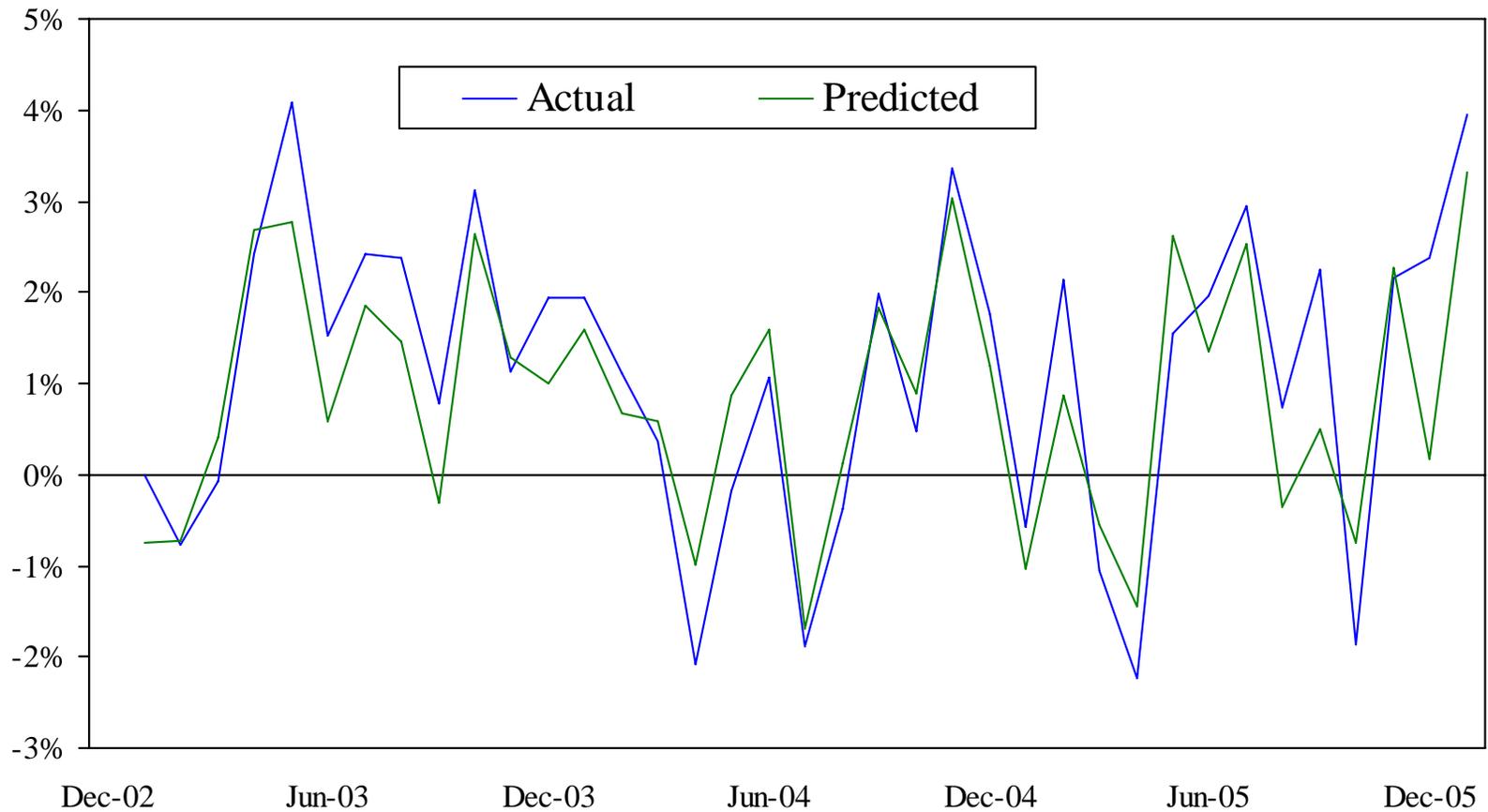
### Fung and Hsieh (WP, 2005)

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- Major risk factors:
  - Market: S&P 500 – riskfree
  - Size: Russell 2000 – S&P 500
- Alpha 4.9%

# Long/Short Equity: Actual Vs Predicted

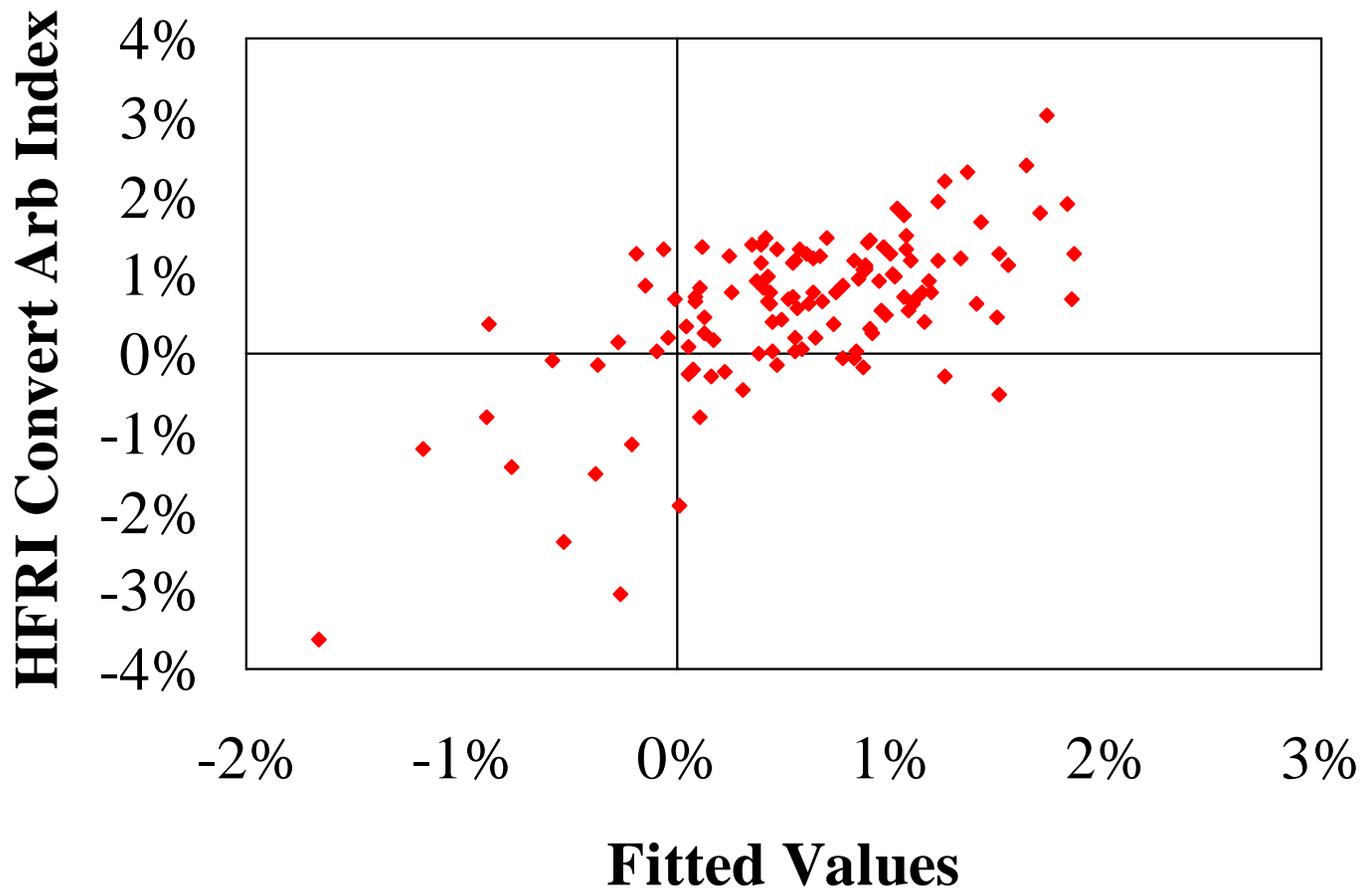
## Jan 2003-Jan 2006



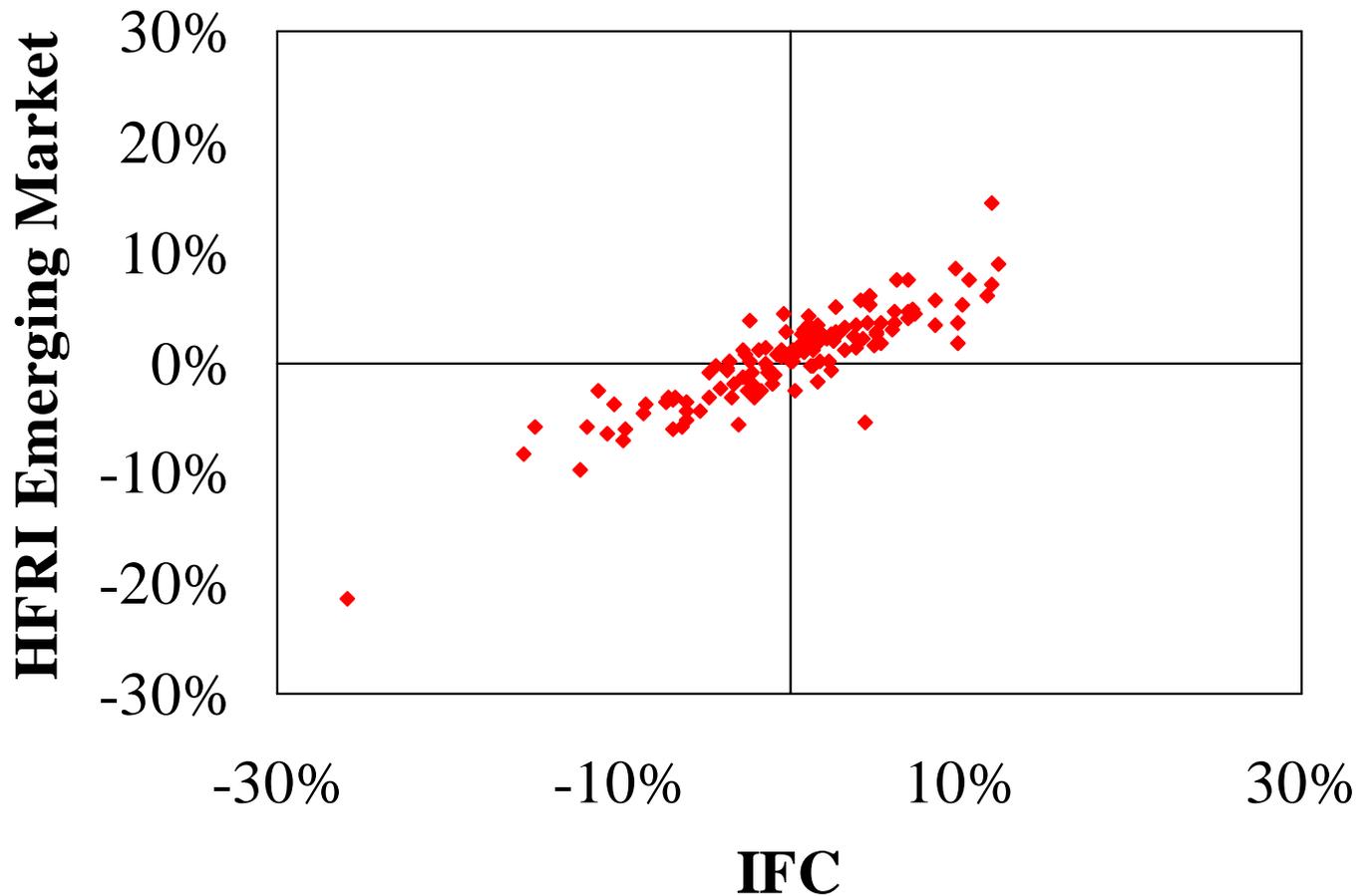
## 5. Convertible Arbitrage

Agarwal et al (WP, 2005)

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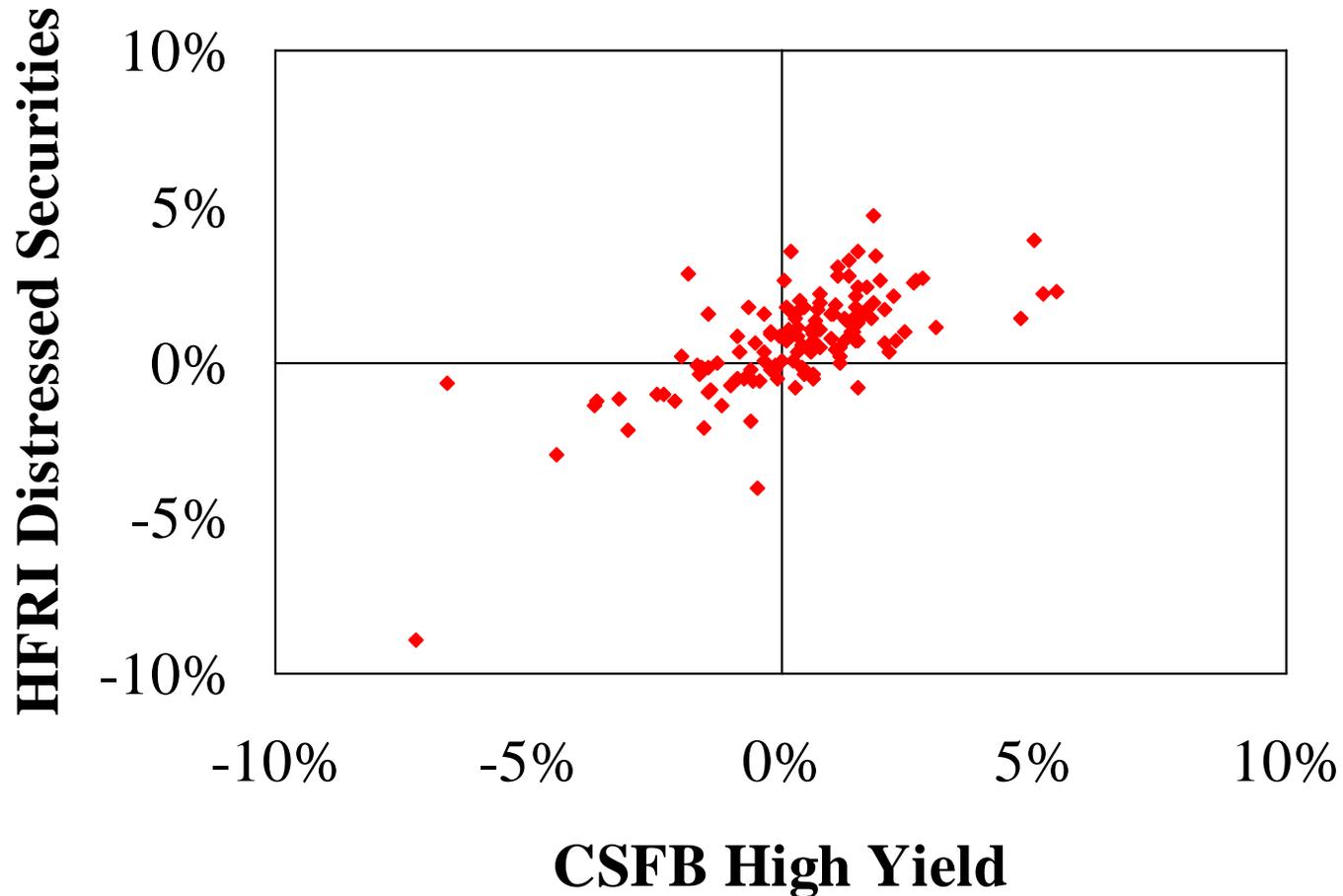


## 6. Emerging Market Hedge Funds Vs IFC (1994-2004)



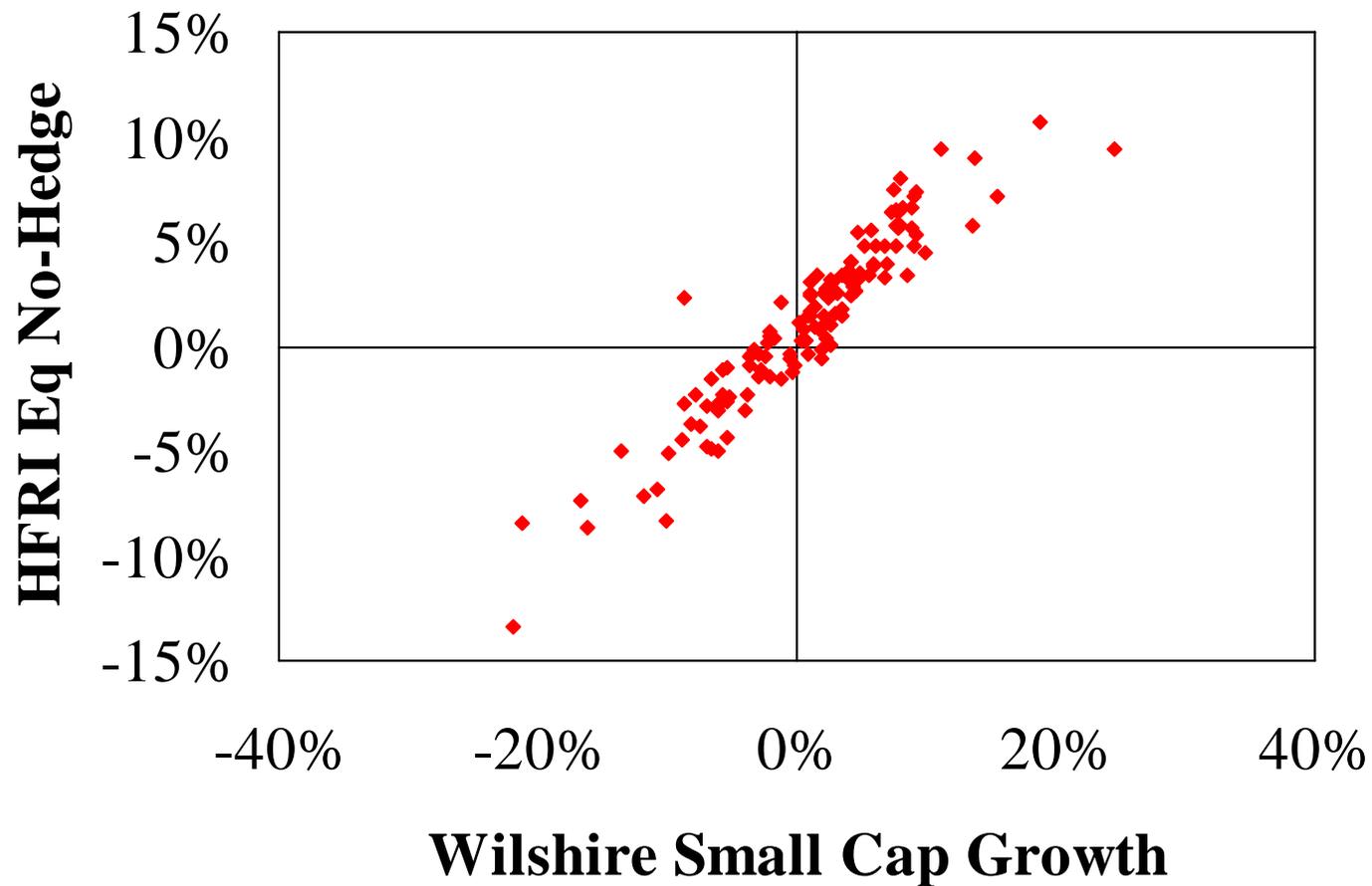
Source: Datastream, HFR

## 7. Distressed Securities Hedge Funds Vs High Yield Bonds (1994-2004)



Source: Morningstar CD, HFR

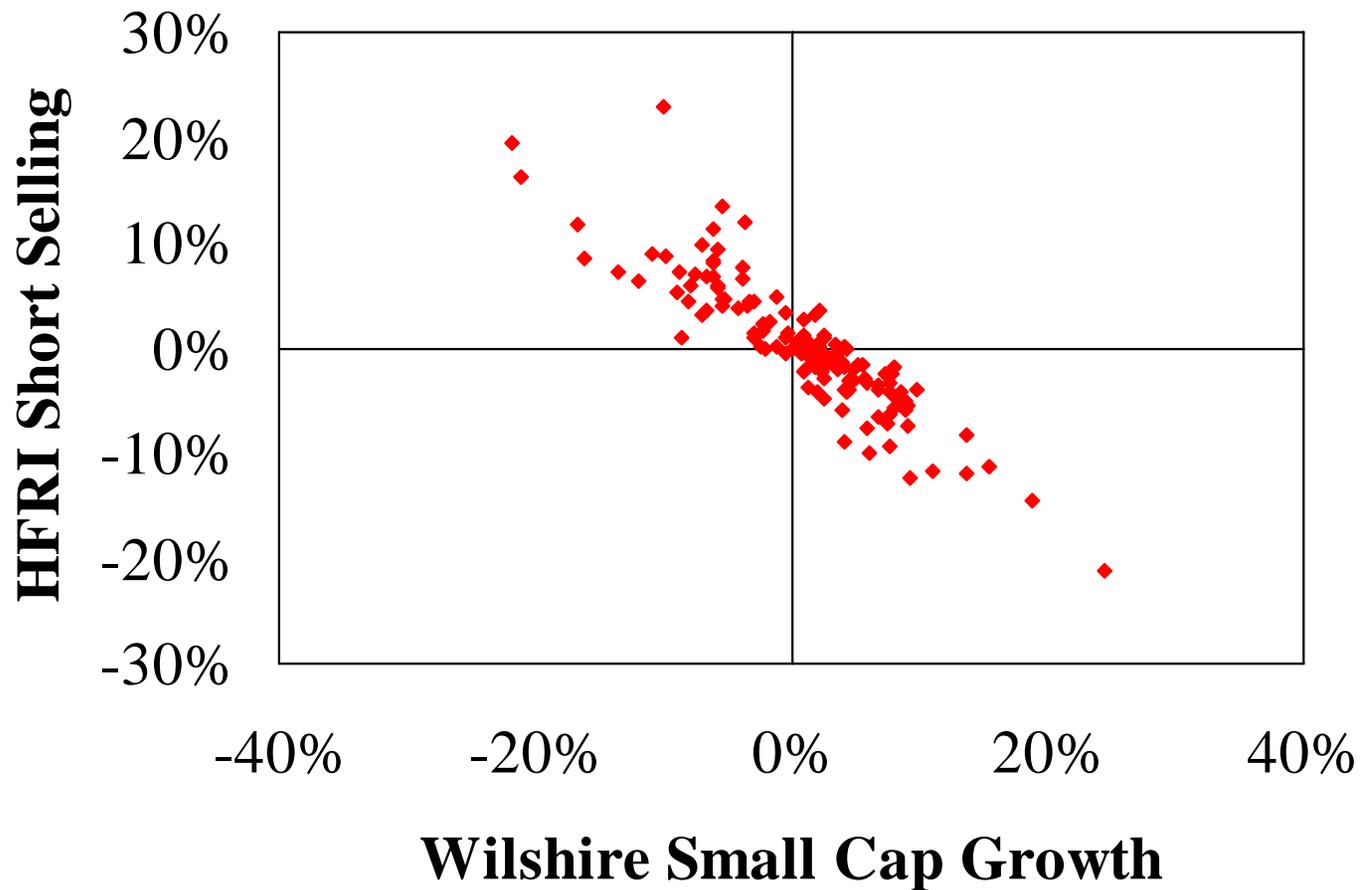
## 8. Equity Long-Biased Funds Vs Wilshire Small Growth (1994-2004)



Source: Wilshire, HFR

## 9. Short Sellers

### Vs Wilshire Small Growth (1994-2004)



Source: Wilshire, HFR

# A Hedge Fund Risk Factor Model

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- Fung & Hsieh (RFS, 1997):

$$r = \alpha + \sum \beta_i F_i + e$$

Hedge Fund Returns

↑

↑

↑

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Extra return  
or “alpha”

betas

risk factors

diversifiable risk

Common Risk

# Hedge Fund Risk Factors

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- Seven risk factors can account for risk of average hedge fund (*FAJ*, 2004):
  - SNPMRF: S&P -  $R_f$
  - SCMLC: Small Cap – Large Cap
  - BD10RET: 10Y bond return -  $R_f$
  - BAAMTSY: Baa return - 10Y bond return
  - PFTSBD: Straddle on bond futures –  $R_f$
  - PFTSFX: Straddle on currency futures -  $R_f$
  - PTFSCOM: Straddle on commodity futures -  $R_f$

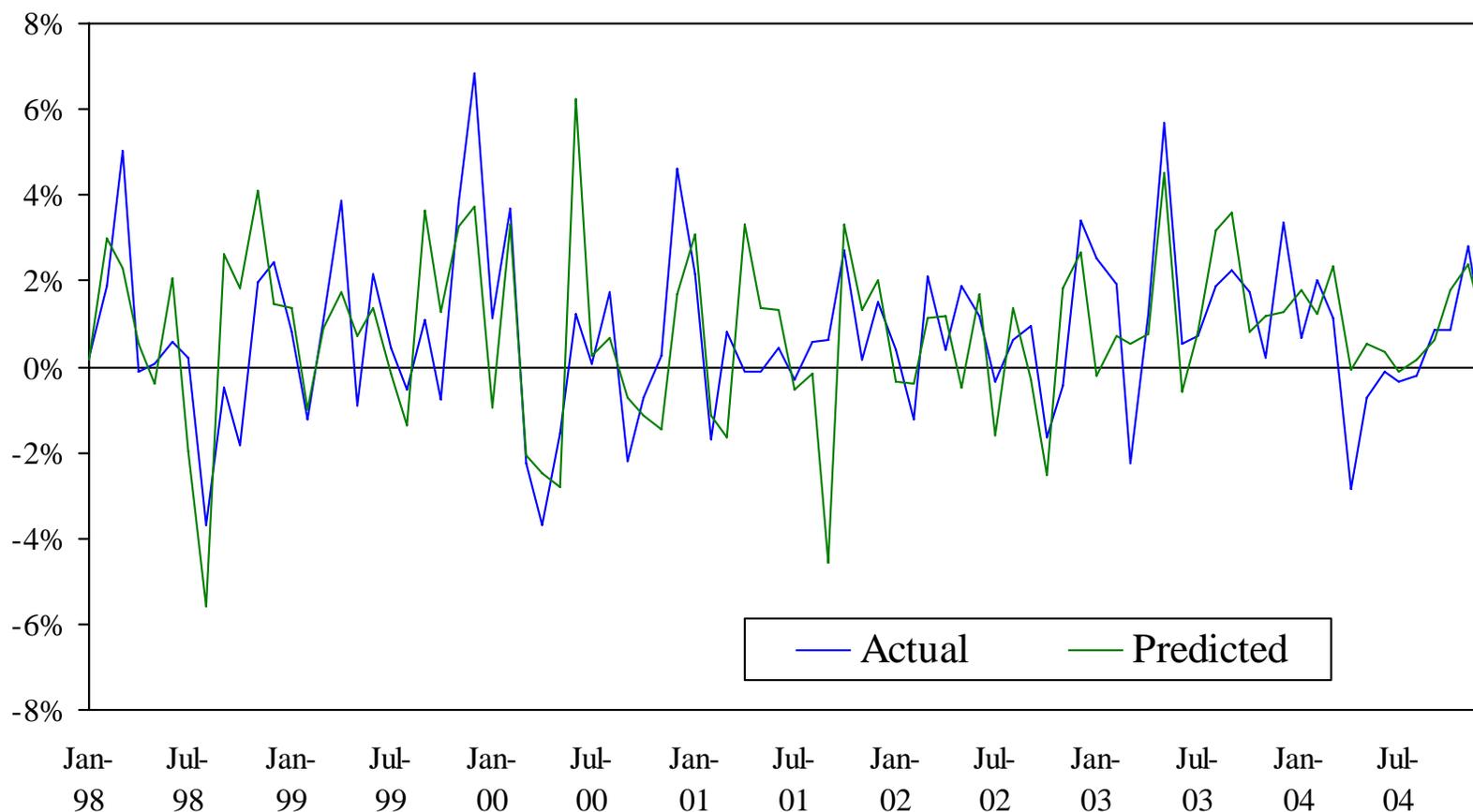
## Average Risk Exposure of Various Hedge Fund Benchmarks

2000/4 - 2004/12	<b>HFRI</b>	<b>CTI</b>	<b>MSCI</b>	<b>SPHI</b>
Constant	<b>0.0011</b>	0.0017	<b>0.0027</b>	<b>0.0027</b>
SPMRF	<b>0.3126</b>	<b>0.1837</b>	<b>0.1653</b>	0.0393
SCMLC	<b>0.2292</b>	<b>0.1650</b>	<b>0.1654</b>	<b>0.0905</b>
BD10RET	<b>0.1661</b>	<b>0.2314</b>	<b>0.1794</b>	<b>0.0957</b>
BAAMTSY	0.1656	0.1103	0.0697	0.1131
PTFSBD	-0.0002	-0.0043	0.0020	-0.0027
PTFSFX	<b>0.0108</b>	<b>0.0150</b>	<b>0.0187</b>	0.0107
PTFSCOM	<b>0.0218</b>	0.0186	0.0083	-0.0027
R <sup>2</sup>	0.876	0.612	0.763	0.356

Mostly factor bets! Not much alpha.

# 10. Global Macro Funds: Actual vs Predicted

## Jan 1998 – Dec 2004



# Investors Behavior

## Fung et al (WP, 2006)

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- Apply risk factors to FOFs
- About 25% of FOFs have alpha; alphas are persistence
- Investors Behavior:
  - Alpha investors do not chase returns
  - Beta investors chase returns
- Implication - Optimal Incentive Contract?

# Issues for Regulators: Investor Protection

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- Can SEC registration help to reduce fraud?
- Would regulation drive hedge funds offshore?
- Raise requirement for accredited investor status?

# Issues for Regulators: Systemic Risk

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- Episodes of illiquidity → forced sales by highly leveraged funds, taking down lenders and brokers
- Potential conflict of interest:
  - Lender/brokers may want a nearly bankrupt firm to continue to operate, to earn fees & commissions, and to protect their loans
  - Such a firm has incentive to make big bets
- Not just one fund (LTCM) but many funds:  
diversification implosion

# Issues for Regulators: Market Integrity

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- Monitor Diversification Implosion: Convergence on the *best trade(s)* across many styles and funds.
- Require aggregation and disclosure (to regulators) of hedge fund exposures?
- Encourage a coherent set of risk factors and measures?
- Disclose concentration, to discourage overcrowding in niche markets

# Conclusion

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- Hedge fund returns have significant identifiable risks;
  - Risks different from those in mutual funds
  - Diversity among hedge funds
  - Potential diversification to investors
- Identifiable risk factors can be used
  - By investors to understand alpha/beta, and risk
  - By counterparties to understand exposure to all hedge funds
  - By regulators to aggregate exposure for systemic risk, market integrity