

Merrill Lynch Global Investment Strategy



Nature, Nurture & Economic Growth

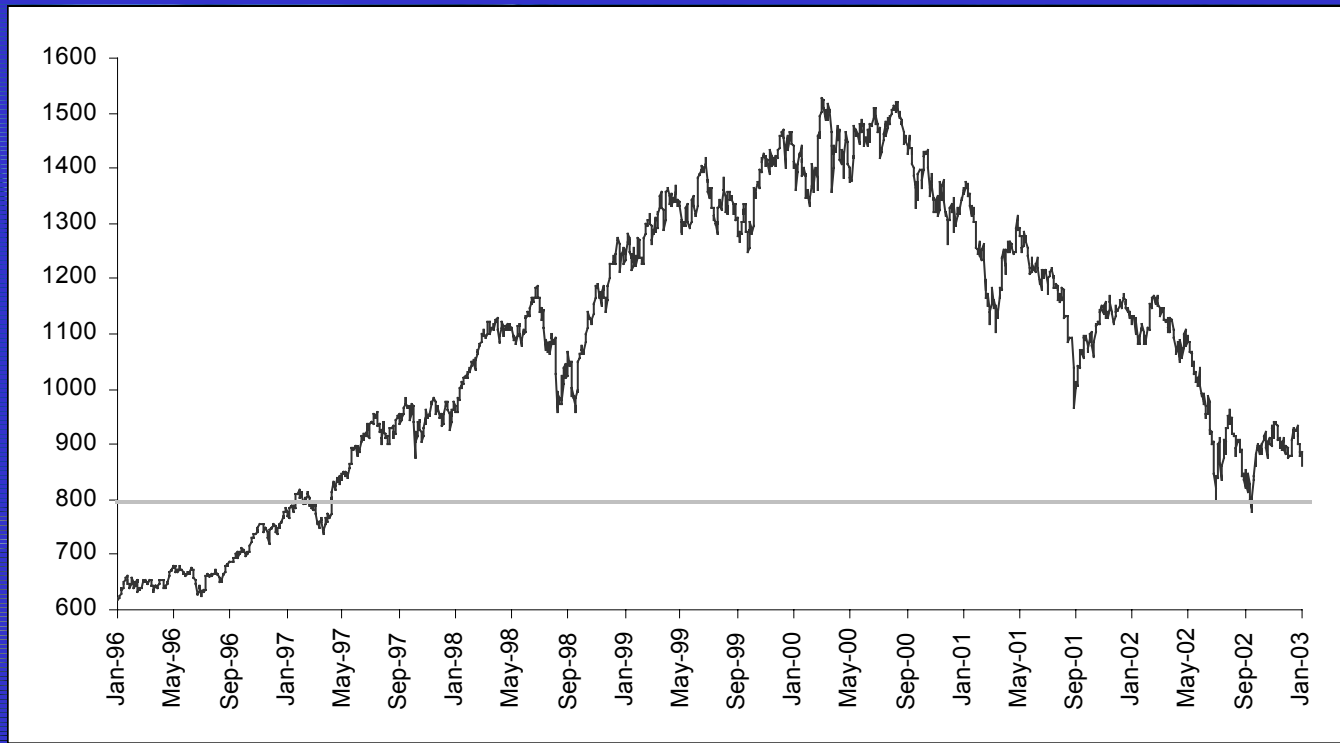
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Centre for Financial
Research Seminar
Judge Institute of
Management
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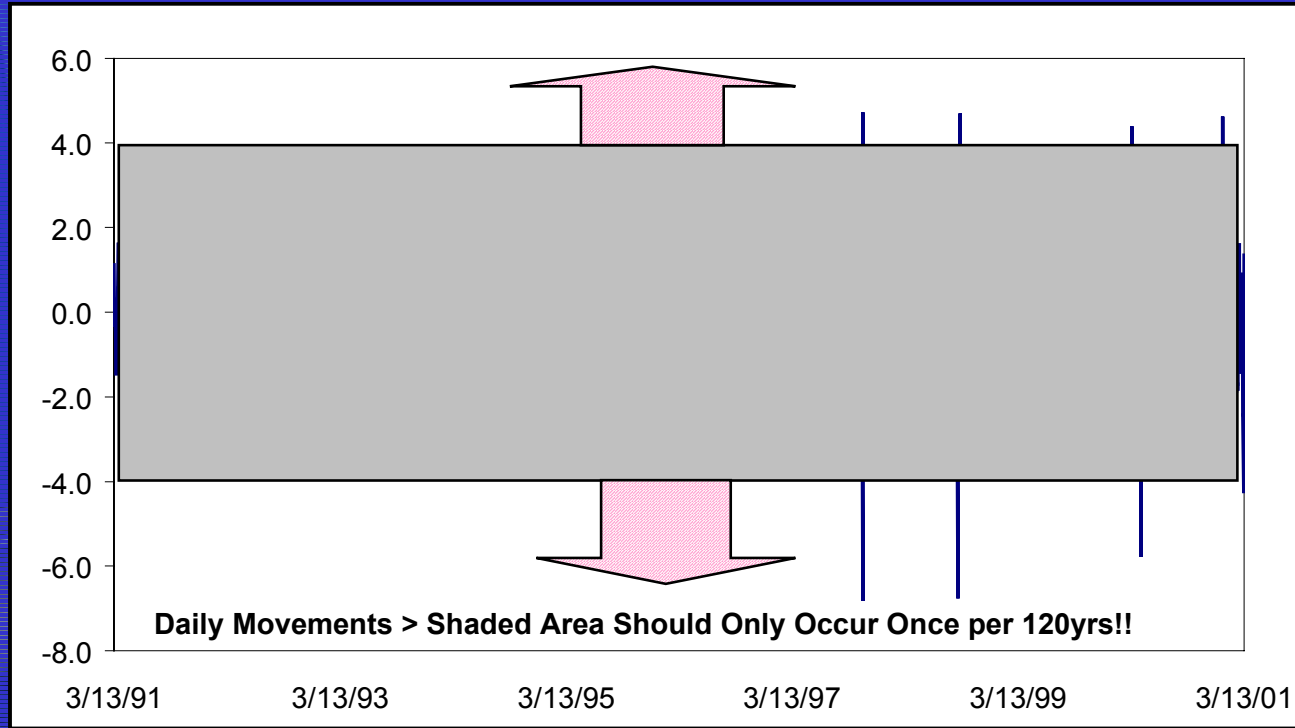
**An Unpleasant
Recent Past for the
US Equity Market**

Creative Destruction or Just Destruction???



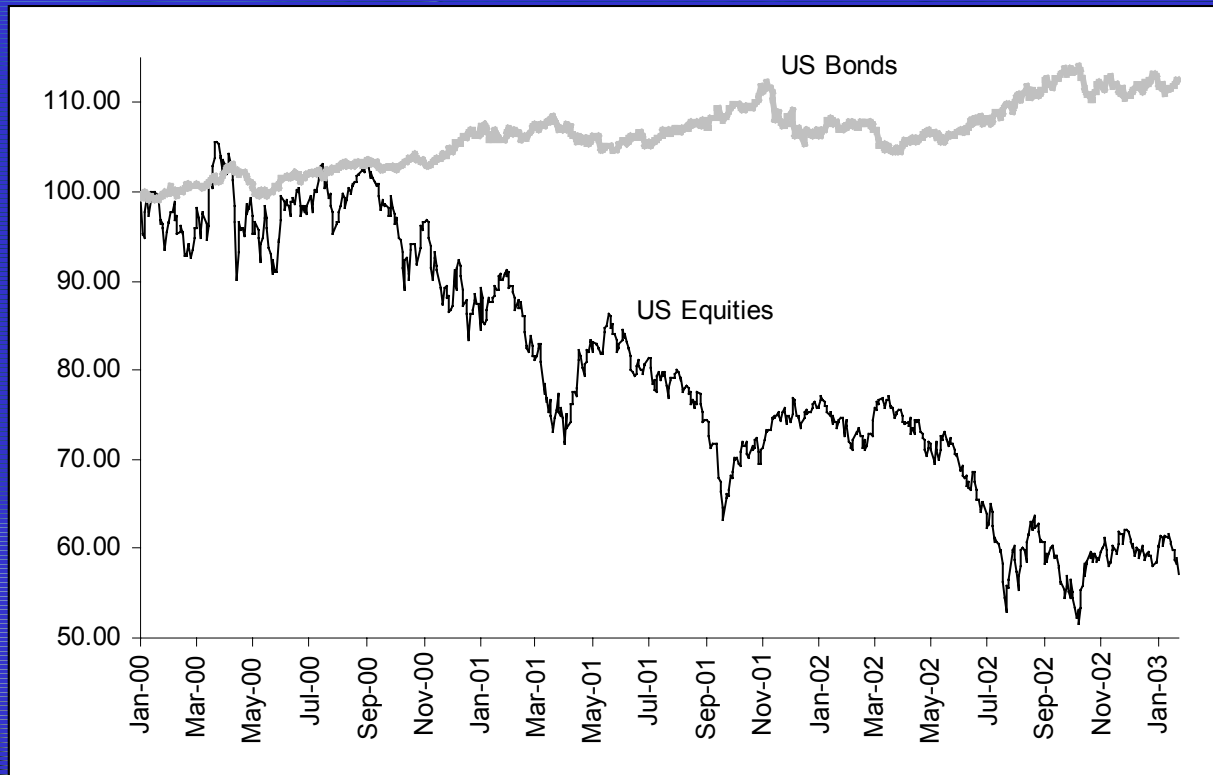
**‘Head & Shoulders’ above the rest,
6 yrs & back to the old S&P 500 levels**

From a Financial Engineering Standpoint the Process of Adjustment has been Difficult



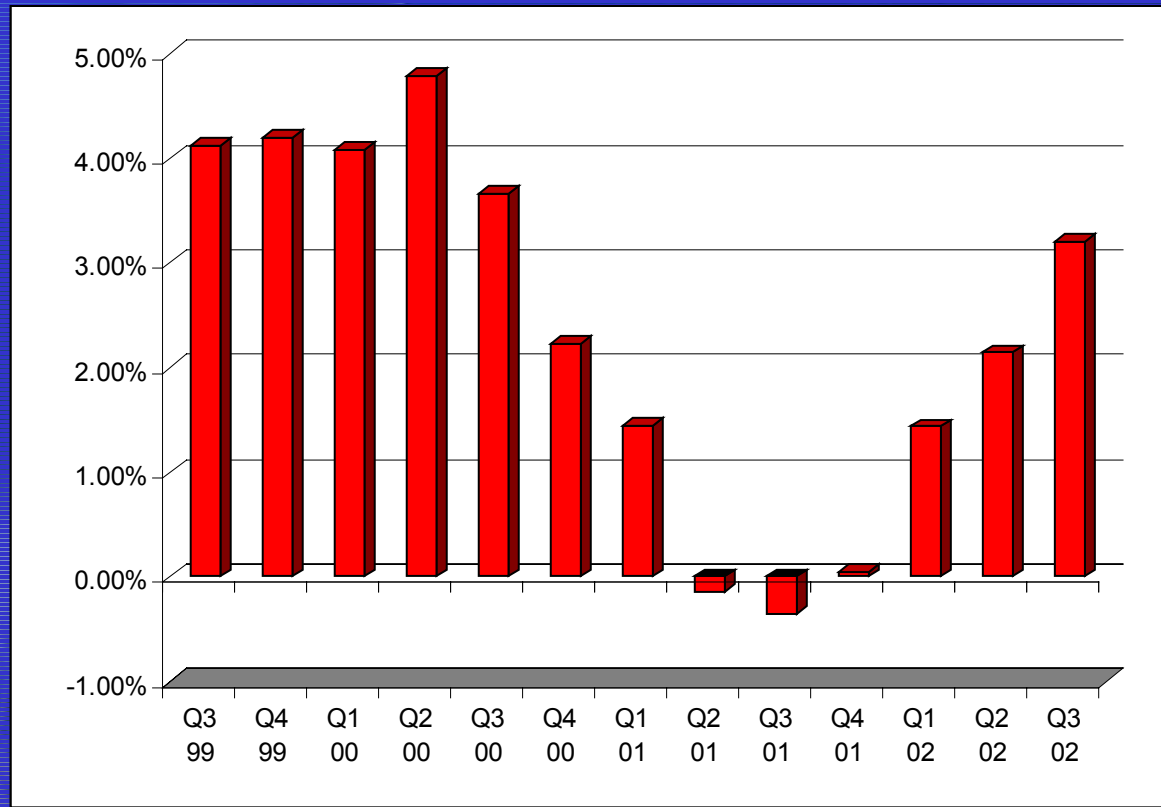
**'Fat-Tails' in S&P 500 Distribution
Implies Standard VaR is Misleading**

And Asset Allocation is Back in Vogue.....



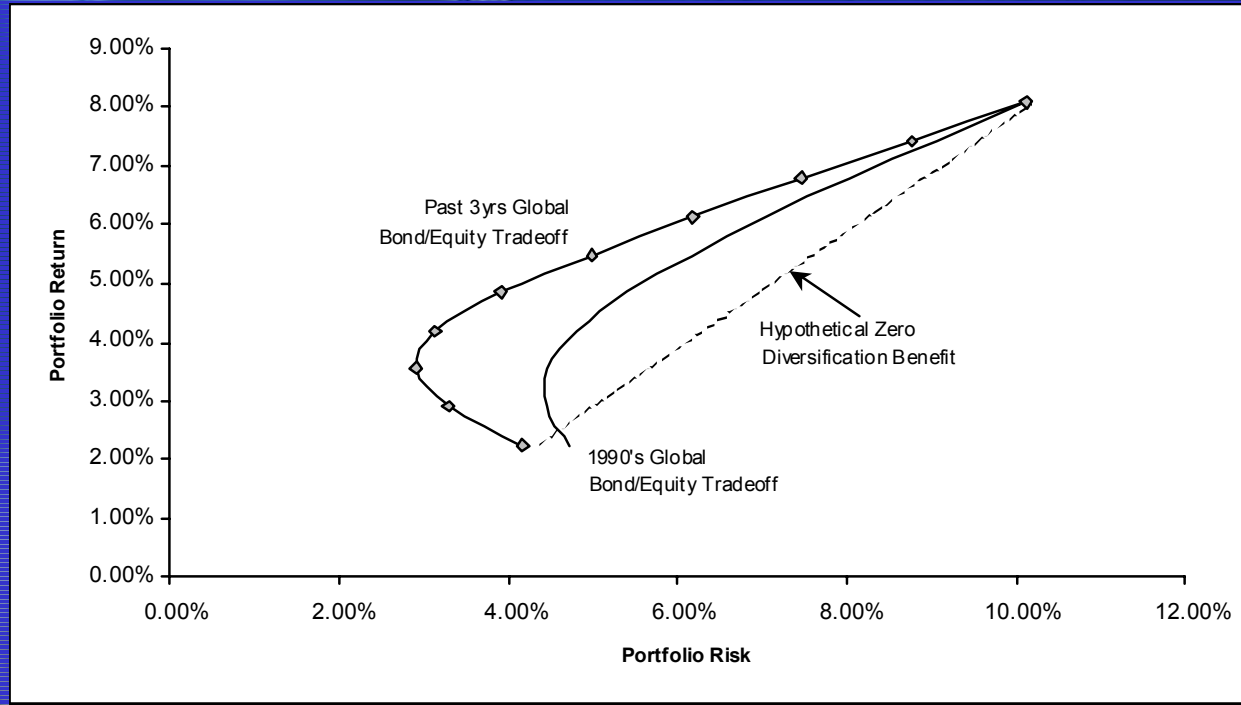
Value dichotomy Implies that Bonds vs Equity Call has been Crucial for 3yrs

This is Little Wonder Given the Recent Pattern of Economic Growth.....



YoY % US GDP Performance through the Dip

And now the Traditional Bond/Equity tradeoff has once more reasserted itself.....

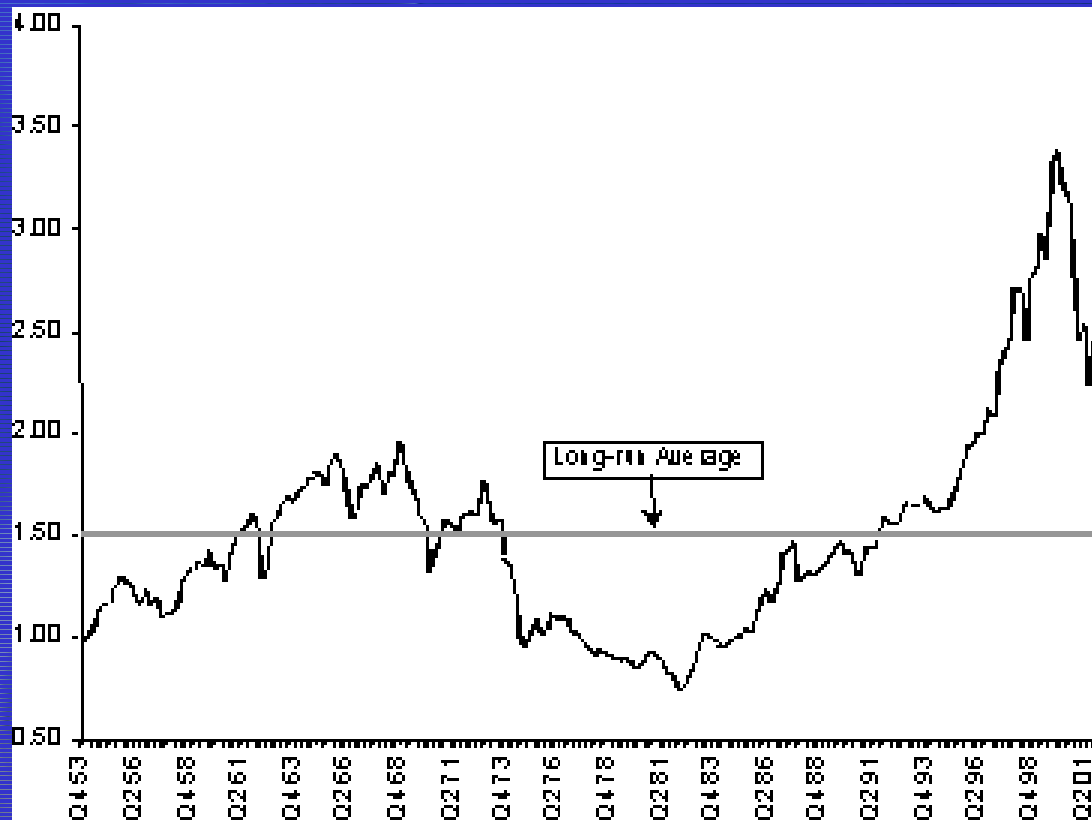


Curvature on Bond/Equity Efficient Frontier has once more Started to Appear

The image features a large, vibrant red oval centered on a dark blue background. The background is a blurred photograph of a road, with a white road sign visible in the lower-left corner. The text inside the oval is white, bold, and has a black drop shadow, making it stand out prominently.

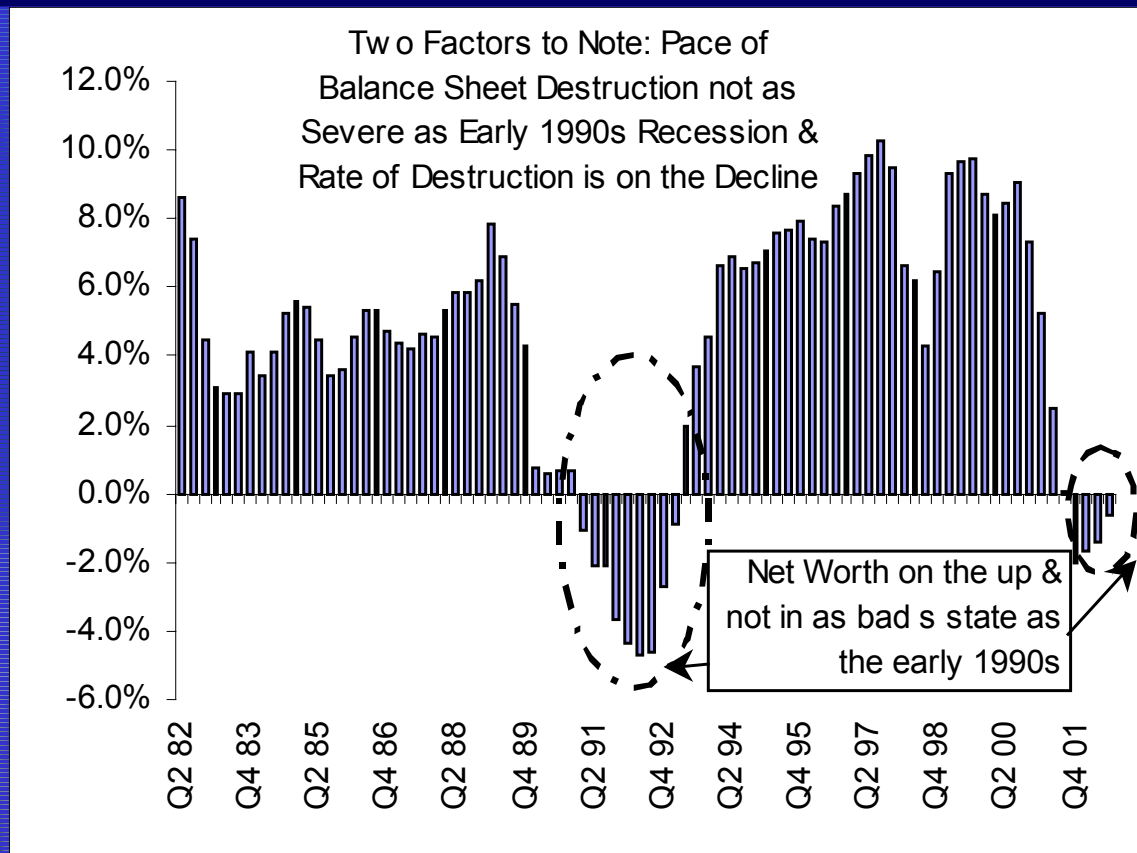
**Is the turnaround
Just Down the
Road?**

Tobin's q - the traditional GEM link between the Finance Sector & the Real Economy.....



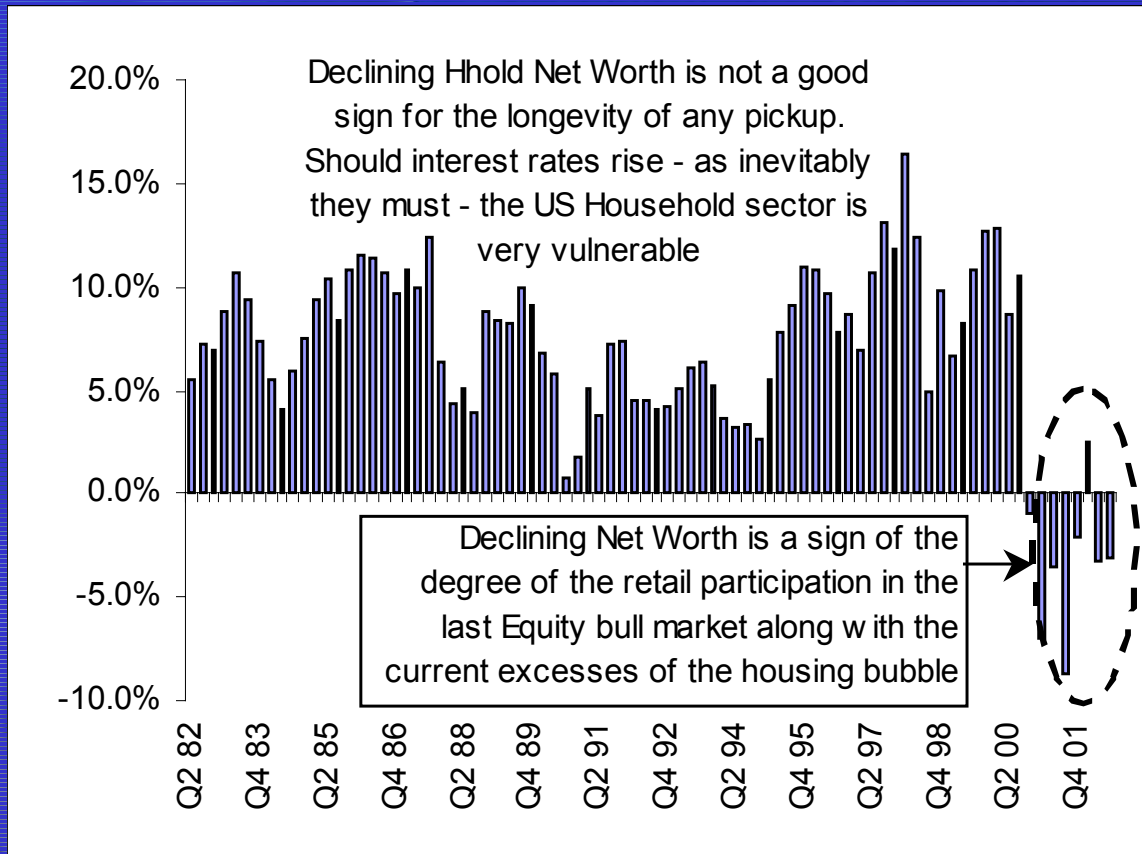
**Still Signaling an Investment Turn
But averages don't equal marginals**

The Good News is that the US Business Sector Balance Sheet is under an Advanced State of Repair



3rd Quarter Flow of Funds Data are Encouraging

The Bad News is that the US Housing Sector Balance Sheet has gone from Bad to Worse



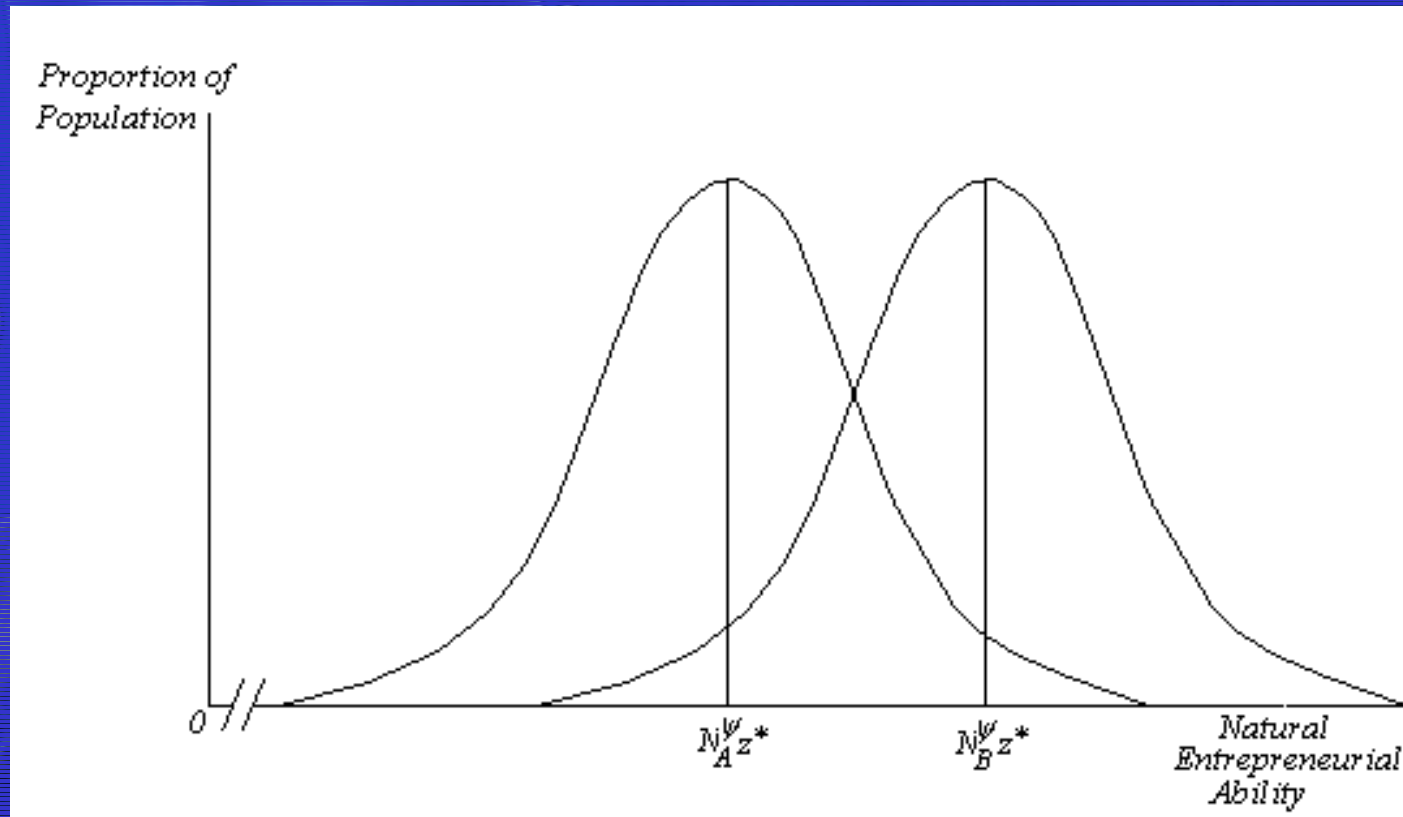
Eventually, these 'chickens' must come home to 'roost'

**History illustrates
that not all the
Recent Bubble
Experience is
Necessarily
Exceptional**

But What's all the fuss About? Kindleberger (1978) illustrates that Market Bubbles are Not Uncommon

- **Kindleberger labeled financial crises ' A Hardy Perennial.**
- **Periodicity: in the 1st half of the 19th century about every 10yrs - 1816, 1826, 1837, 1847, 1857, & 1866.**
- **Objects of Desire: Metallic Coins (1618-23), tulips (1636-40), Gilts (1763), Sth Sea Bubble (1720), British East India Company (1772), Dutch East India Company (1772, 1783), Various Commodities (1799, 1836, 1847, 1857, 1861), English Country Banks (1750s, 1793, 1824), Canals (1793, 1820s, 1823), Foreign Bonds (1825, 1888, 1924), Foreign Mines (1825, 1850), Building Sites (1825, 1830-42, 1843-62, 1853-77, 1878-1933, 1872-3, 1925, 1970, 1980).....**

I argue that such Bubbles occur because of Difficulties in Judging true Entrepreneurial Ability



For the Financier the Problem remains where on the Distribution lies Entrepreneur

How to Endogenize the Entrepreneur within a Model of Economic Growth?

Start with the Ubiquitous Intertemporal Utility function

$$U_t = \int_t^{t+T} e^{-\rho(\tau-t)} \log D(\tau) d\tau$$

Solve for Increasing Product Diversity

$$r(t) = \rho$$

Have some pretty simple Conditions for the Production and R&D Sectors - Labor only

$$p(j) = \frac{w}{\alpha}$$

$$\pi = l \gamma \alpha \xi$$

How to Endogenize the Entrepreneur within a Model of Economic Growth? - Part II

Model the emergence of Natural Entrepreneurial ability

$$b(k, N, z) = \binom{N}{k} z^k q^{N-k}$$

$$P\{Nz + e > Nz\} \rightarrow 0$$

Identify the Profit for Entrepreneurs from Innovation

$$\pi_A = \frac{1 - \alpha}{\eta}$$

And derive the stability conditions for financiers under perfect information

$$\pi_A + v = r v$$

$$v^R(t, \tau) = \pi_A + v = \int_t^{\infty} e^{-\rho(\tau-t)} \pi(\tau) d\tau$$

$$v = \frac{W}{\omega_1 \eta}$$

How to Endogenize the Entrepreneur within a Model of Economic Growth? - Part III

And derive the stability conditions for financiers under imperfect information (using a heuristic trading rule)

$$\pi_A = r v$$

$$v^e(t, \tau) = \int_t^{\infty} e^{-\rho(\tau-t)} \pi_A(t) d\tau = \frac{1-\alpha}{\rho n(t)} = v^e(t)$$

$$v = \frac{w}{\omega_i^e \eta}$$

Solve for the Labor market condition

$$\frac{\dot{n}}{\eta \omega_C} + \frac{1}{p} = L_S$$

Throw everything together and solve under conditions of perfect information and imperfect information

$$\dot{n} = L_S \eta \omega_C - \frac{\alpha}{v}$$

$$\dot{n} = L_S \eta \omega_C - \frac{\alpha \omega_C}{v \omega_C^e}$$

$$\dot{v} = \rho v - \frac{1-\alpha}{n}$$

$$v^e(t) = \frac{1-\alpha}{n \rho}$$

How to Endogenize the Entrepreneur within a Model of Economic Growth? - Part IV

Finally, Ensure transversality conditions are satisfied

$$e^{-\rho t} \lambda(t) = e^{-\rho t} \geq 0$$

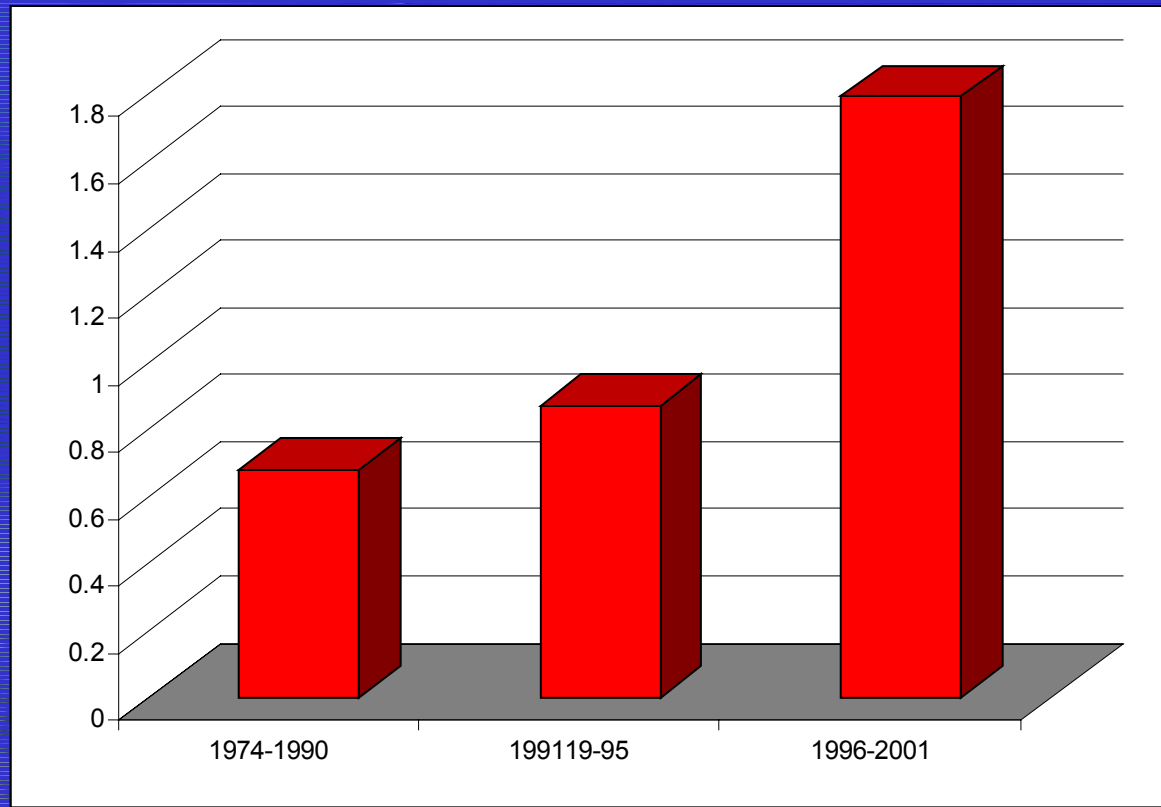
$$e^{-\rho t} \lambda(t) W^e(t, \tau) = e^{-\rho t} \frac{1-\alpha}{\rho} \rightarrow 0$$

And link the rate of entrepreneurial innovation to economic growth

$$G = p_D D + v \dot{N}$$

$$g_G = g \left[\frac{A(1-\alpha)}{\alpha} + (1-A) \right]$$

As a final word, it may be that there is a legacy of positive Externalities Flowing from Bubbles anyway



Oliner & Sichel (2002) FRB highlighted the Contribution to Labor Productivity from IT

Conclusions.....

- It appears as though the US Economy is on the mend but one should not expect a smooth linear trajectory - the weakness of the US household sector balance sheet remains a concern.
- Even though the order of magnitude of the present bubble (and its subsequent fallout) appears quite large, this needs to be placed within historical context.
- Undoubtedly, one should expect both bubbles and bear markets in the future. The problem with efficient resource allocation *ex-ante* versus what is appropriate *ex-post* remains a problem just so long as true entrepreneurial talent remains difficult to judge.

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