

# *The Human Element...*

*in Individual and Institutional Investing*

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With thanks to Prof. Meir Statman, Santa Clara University,  
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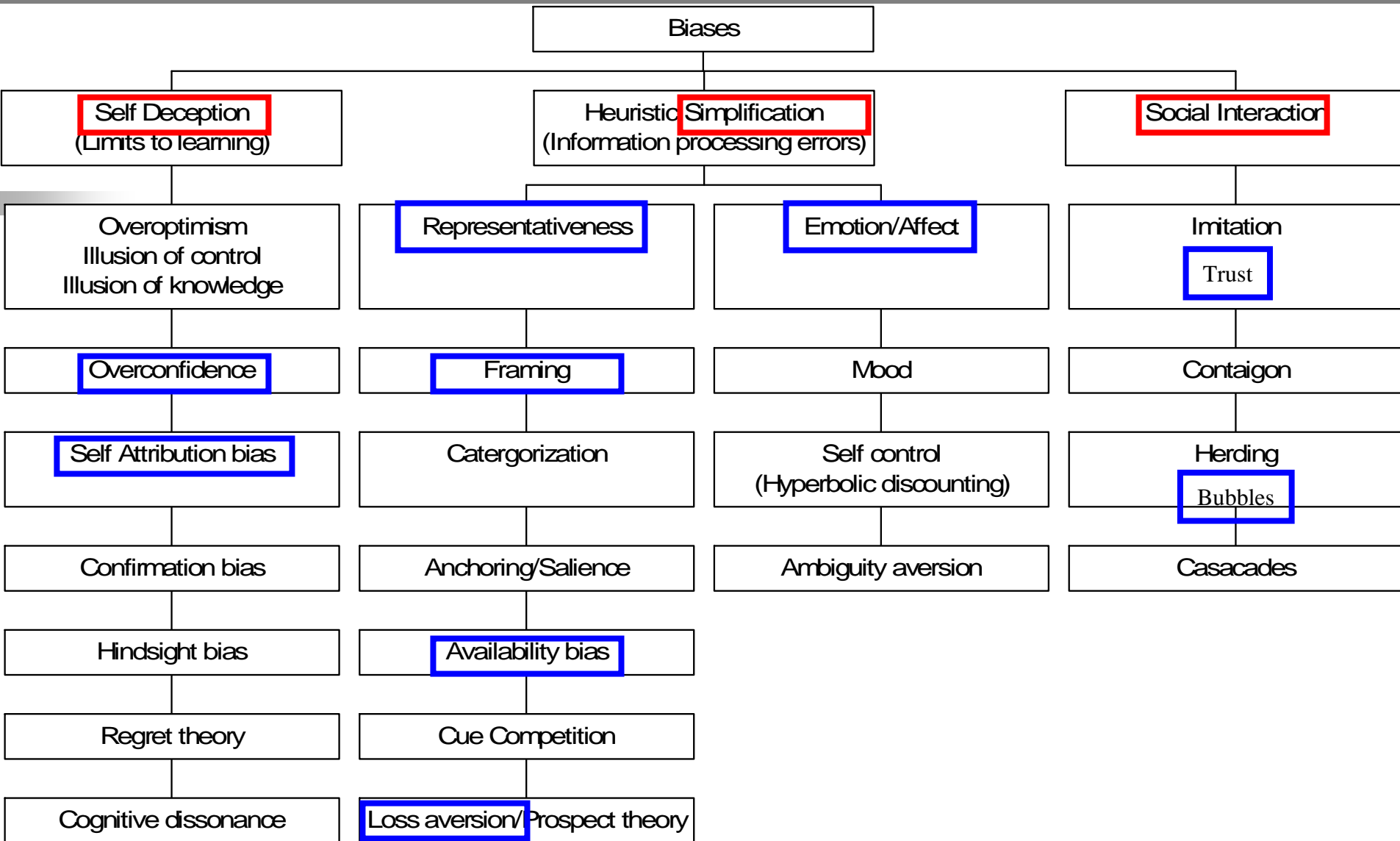


**LAFFER**  
**ASSOCIATES**

*"We have met the enemy...  
and he is us..." - Pogo*

- ***The Human Element in:***
  - 1) Individual Investors
  - 2) Institutional Investors
  - 3) Investment Committees

# Behavioral Finance Framework



# Behavioral Finance Buzzwords

- **Self-attribution Bias**
  - *Skill/Bad Luck versus Dumb Luck/Poetic Justice*
- **Representativeness Bias**
  - *Law of Small Numbers*
- **Familiarity Bias**
  - *Home Country vs Foreign, Employer Stock*
- **Loss Aversion**
- **Impact Bias**
  - *Over-reaction, under-reaction, anchoring*
  - *Desires & Fears > Reality*
- **Empathy Gap**
  - *Cool Analysis versus Hot Blood*

# *1) The Human Element in Individual Investors:*

## *The Story of Sharon and Russ*

- Sharon and Russ watch CNBC all the time.  
They have all their money in the stock market.
- They trade frequently.
- They concentrate their portfolio in a few stocks.



# *Sharon and Russ*

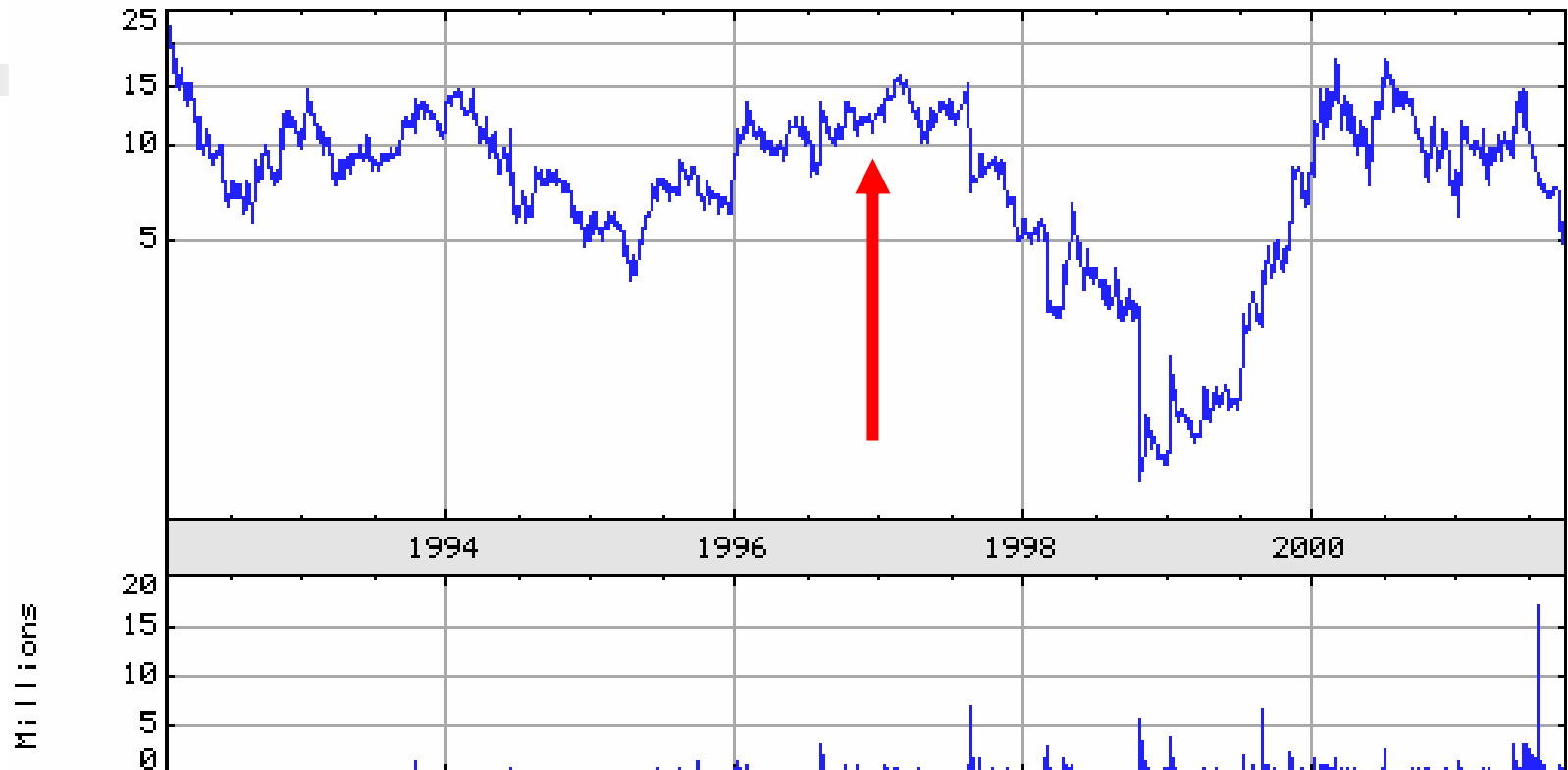
“Russ works hard, it’s almost demeaning that he works this physically hard. It should be more mental.”

“We are trying to make some aggressive money very quickly,”

# AMYLIN Pharmaceuticals

*(Familiarity Bias, Empathy Gap)*

Amylin Pharmaceuticals Inc  
as of 1-Oct-2001



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<http://finance.yahoo.com/>

# *The Story of Larry Ellison*

**Larry Ellison's quest for the perfect yacht began four year ago after a girlfriend slighted his 80-foot sailboat Sayonara.**

San Jose Mercury News  
July 22, 2000

**“That’s a yacht!” she exclaimed, pointing to a larger white luxury craft floating nearby.**

**“She made me feel terribly inadequate,”**

**“As a result, I went on a search to reclaim my adequacy.”**

# *The Story of Jim Clark*

**“I just want to have more money than Larry Ellison. I don't know why.”**

**Jim Clark of Silicon Graphics, Netscape and Healtheon in an interview with Michael Lewis, New York Times, October 10, 1999.**



**LAFFER  
ASSOCIATES**

# What do investors want?

*Investors want everything:*

**Highest returns**

**No risk**

**No taxes**

**No fees**



# 1) *The Human Element* *in Individual Investors:*

- Loss Aversion
- Over-confidence (Self-attribution Bias)
- Regret (Empathy Gap)
- Lottery & Insurance Portfolios

## Gamble A

- 1) You Receive \$1000
- 2) Now Choose Between
  - a) A sure gain of \$500
  - b) A 50% chance to win \$1000 and 50% chance of \$0

## **Gamble B**

- 1) You Receive \$2000
- 2) Now Choose Between
  - a) A sure loss of \$500
  - b) A 50% chance of no loss and 50% to lose \$1000

## a) *Loss Aversion...* Utility Function

### Gamblers' Results:

- **A)** 84% Choose the Sure Thing:
  - \$1000 + \$500 = \$1500, zero variance
- **B)** 69% Choose to Gamble:
  - \$2000 less either \$0 or \$1000 = \$2000 or \$1000
- **Conclusions:**
  - People hate losses more than they like gains
  - People do not frame portfolios as a whole

## a) *Loss Aversion* ... Utility Function

- **Coin toss: lose \$100.... Win ??**
- **Paul Samuelson's wager:**
  - Coin toss: win \$200, lose \$100
  - Colleague's response: "no" for one toss, "yes" for 100 x
- **Loss Aversion Factor ~ 2.5x**
- 1 toss Utility =  $50\% * 1 * 200 + 50\% * 2.5 * (-100) = \underline{-25}$
- 2 toss Utility =  
 $25\% * \text{win both} + 50\% * \text{split} + 25\% * \text{lose both} =$   
 $.25 * 400 + .5 * 100 + .25 * 2.5 * (-200) = \underline{+25}$

## *b) Over-confidence – Self-attribution Bias*

- 1) Some people will have accidents, but not us...
- 2) 88% of Drivers in the US “Above Average”\*
- 3) Some people will have stupid kids, but ours will be gifted.

\* *Traffic Safety*, Science Serving Society, 2004

## *b) Over-confidence – Self-attribution Bias*

*“Stubbornness we depreciate  
Firmness we condone*

*The Former is our neighbor’s Trait  
The Latter is our Own”*

*-James Wooden*

## *b) Over-confidence – Self-attribution Bias*

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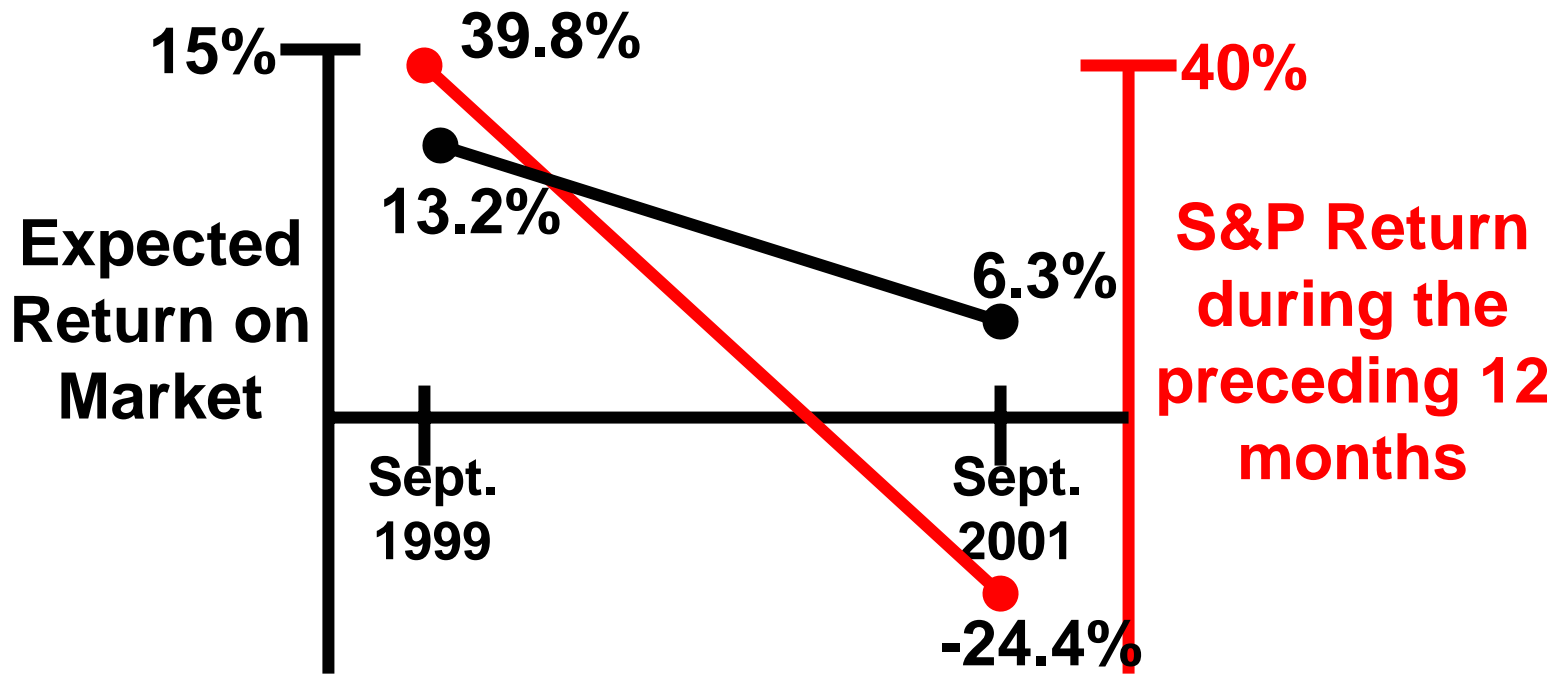
*“We must believe in luck. How else can  
we explain the success of those we  
don’t like.”*

*-Jean Cocturan*

## *b) Over-confidence – Representativeness Bias*

*“What is the Expected Return of Stocks?”*

(High expected returns follow high realized returns)

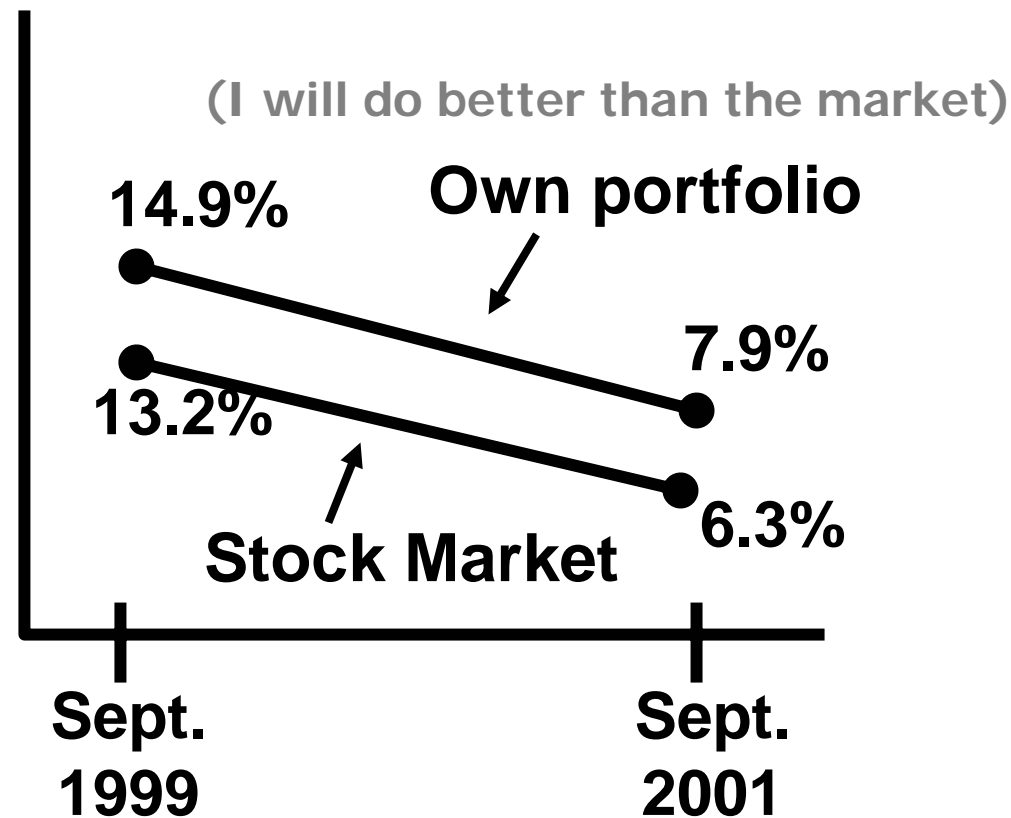


Source: Gallup

## *b) Over-confidence*

(Self-attribution & Familiarity Bias)

*“What is the Expected Return of YOUR Stocks?”*

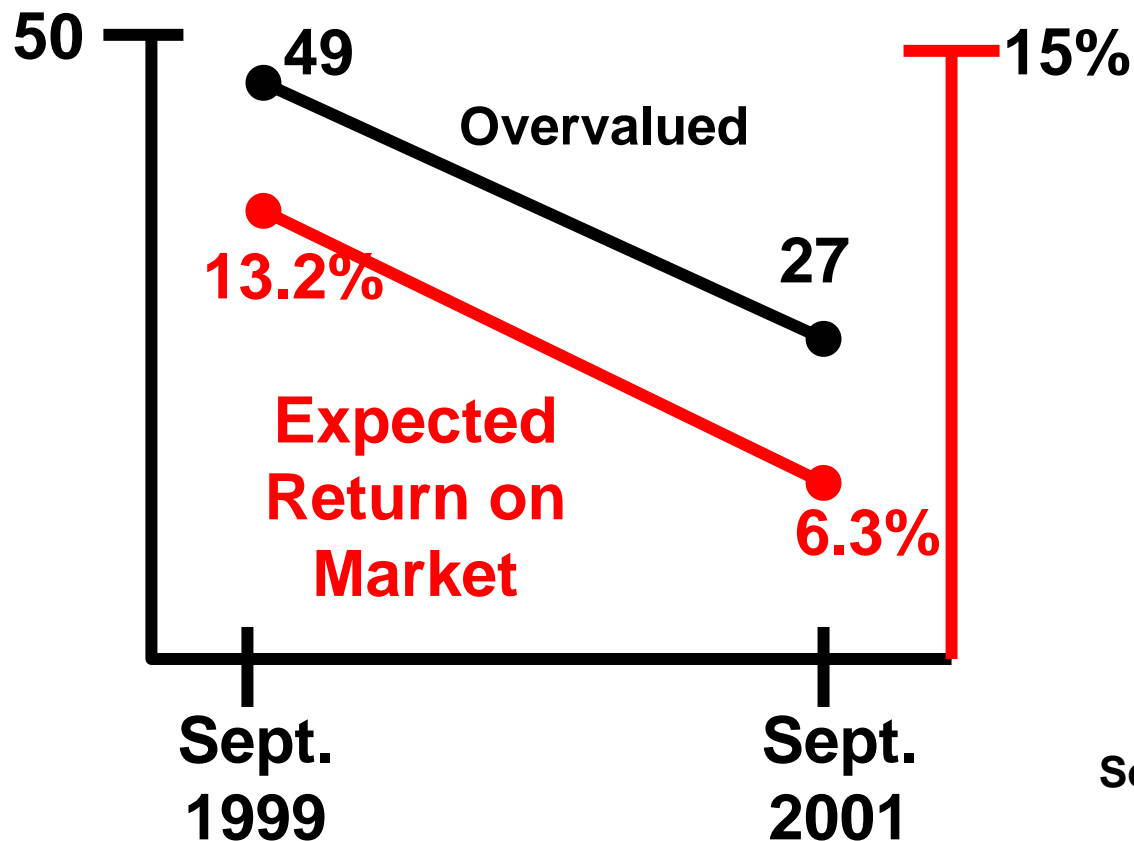


Source: Gallup

## *b) Over-confidence*

*"Is the market overvalued?"*

(An overvalued market offers higher expected returns....)

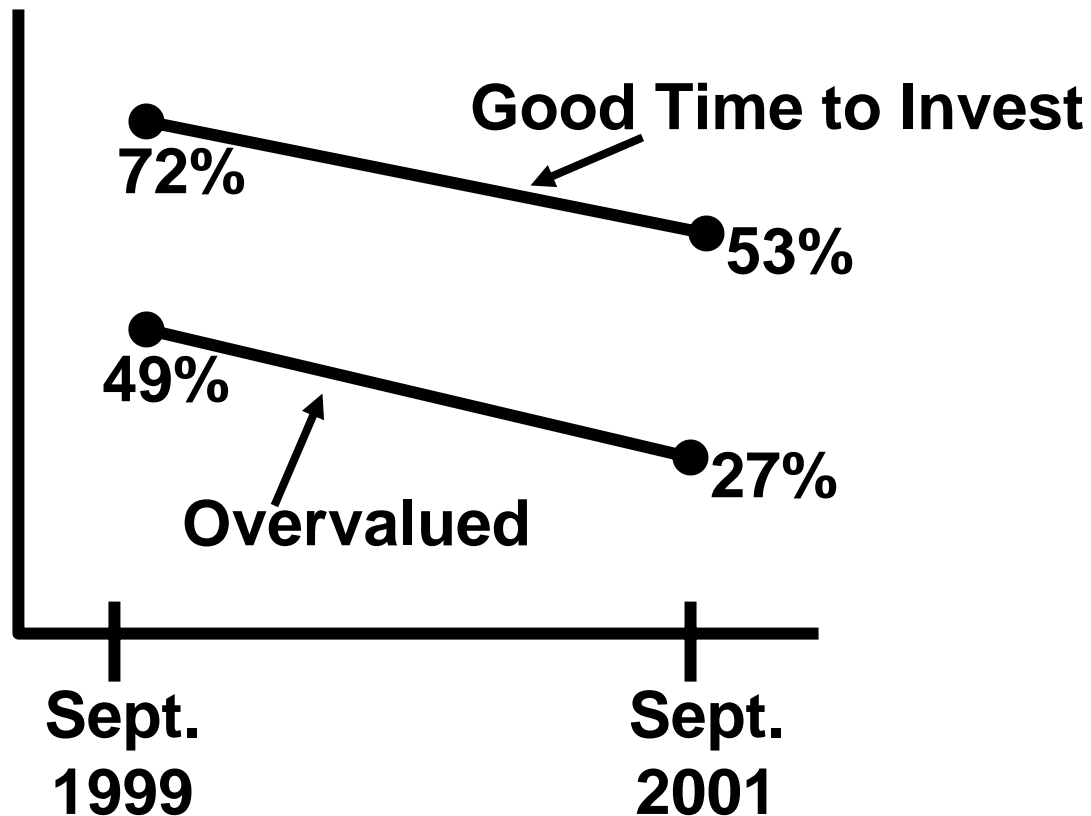


Source: Gallup

## *b) Over-confidence*

*"Is this a good time to invest?"*

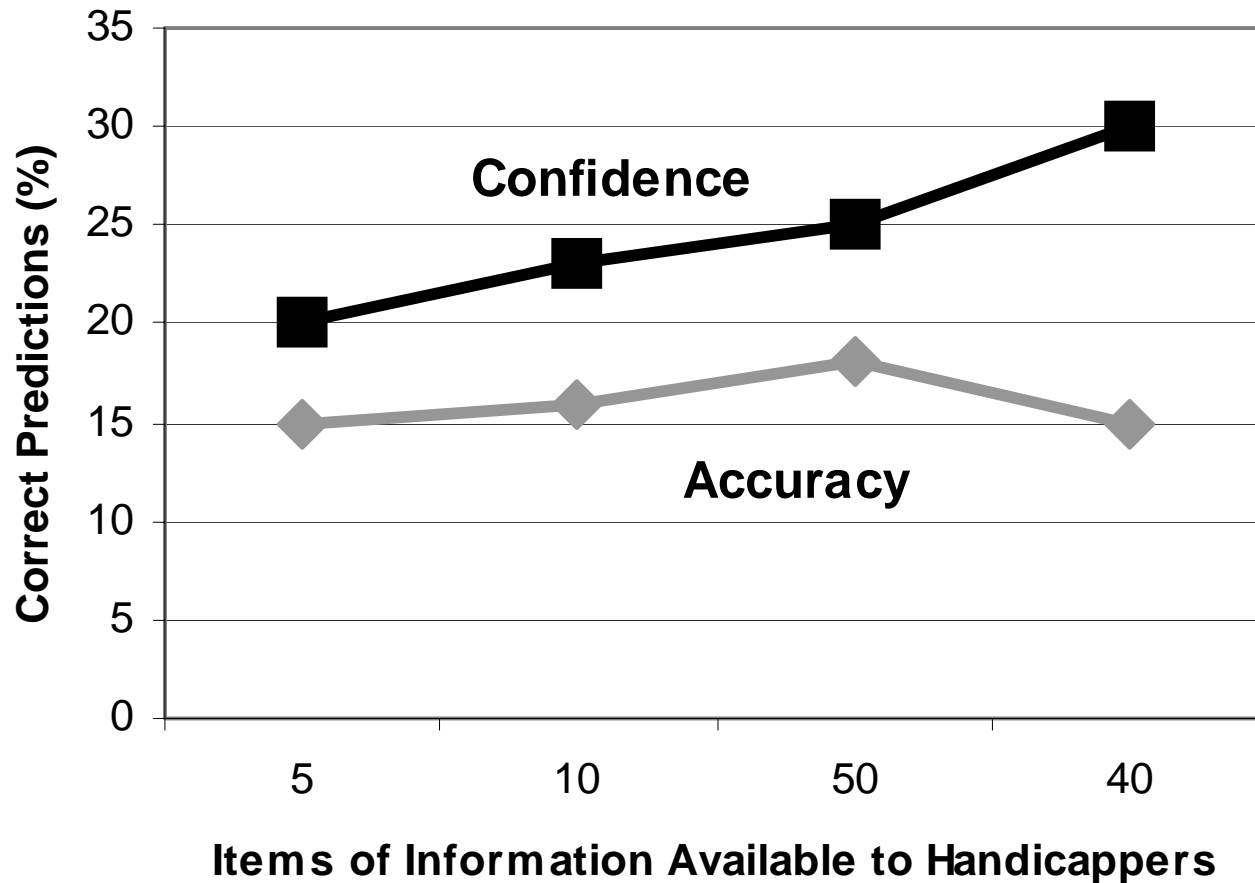
(Yes ...but the market is overvalued)



Source: Gallup

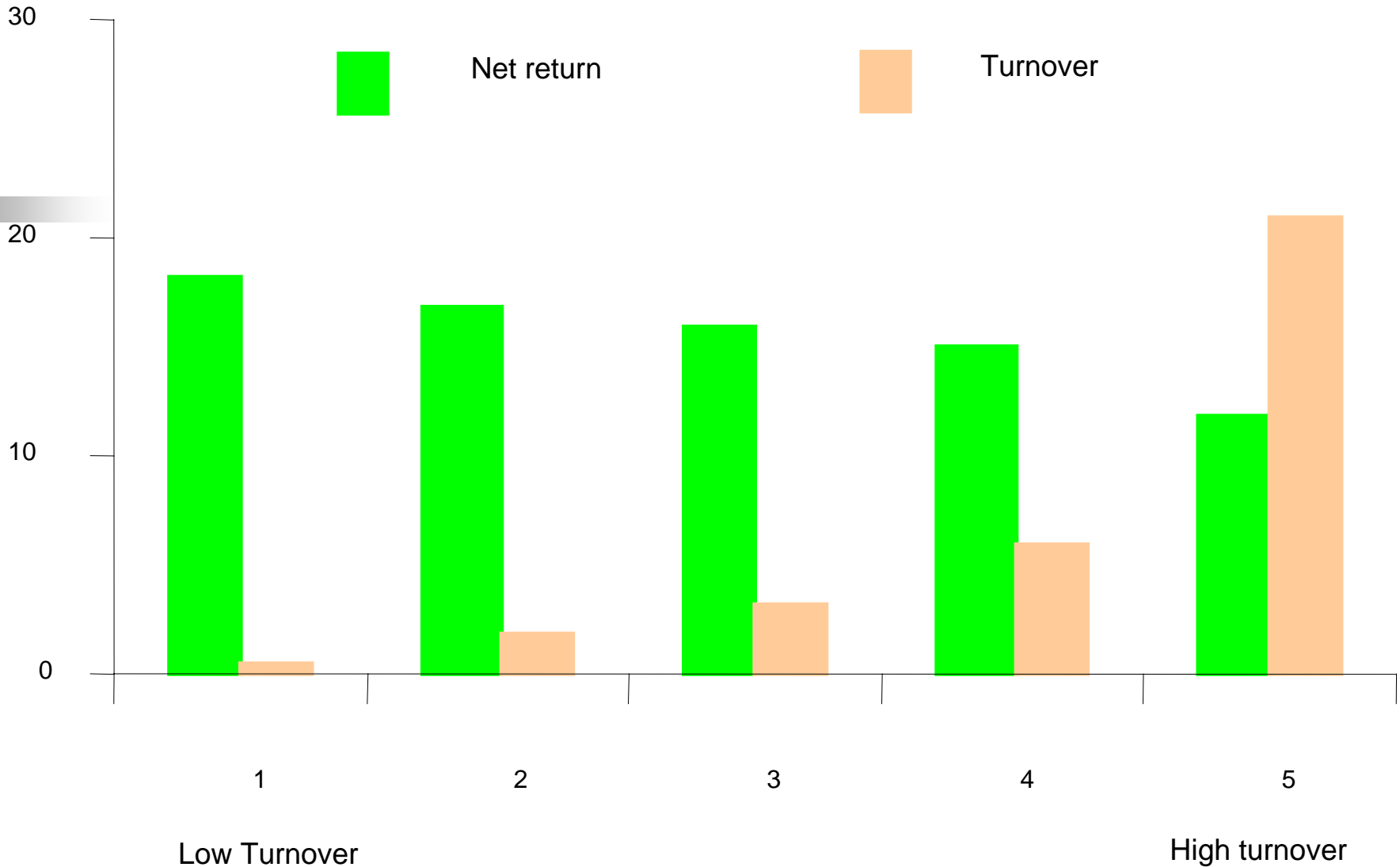
# Over-confidence – Self-attribution Bias

## Information versus Accuracy



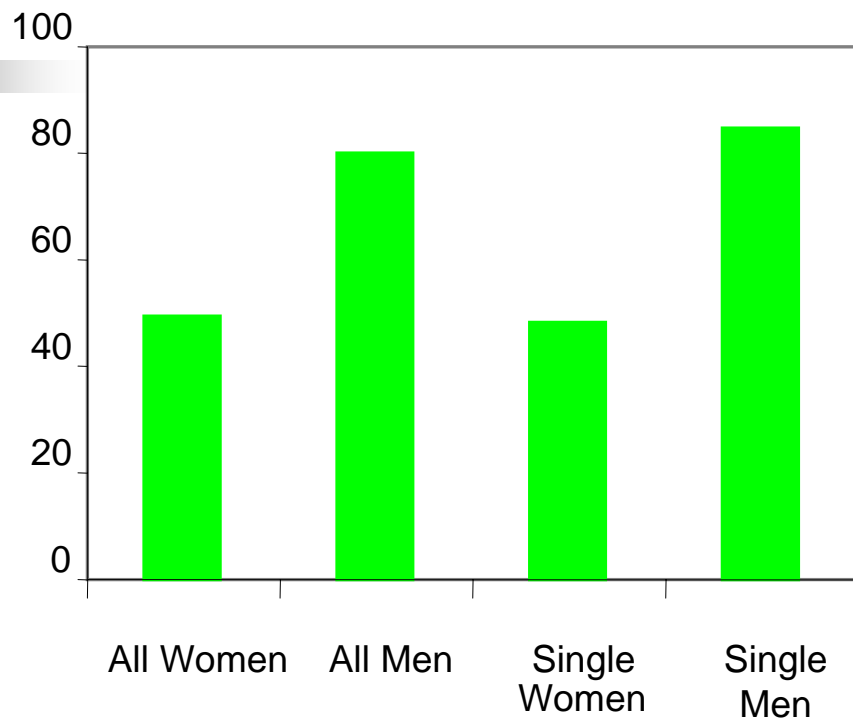
Winning Decisions, Russo & Schoemaker, 1994

# *Over-Confidence: Trading is hazardous to your wealth*

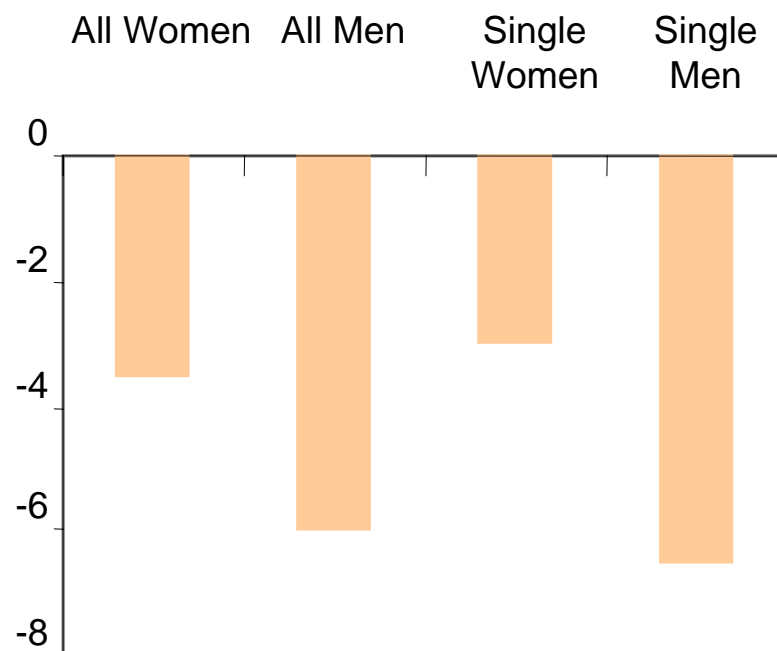


# *Over-confidence: Should traders be women?*

## *Turnover*



## *Trading Cost*



# Over-confidence: Availability

## Representativeness Bias

- 70% of lottery players in commercials are winners

What funds are at...

# The Center of Your Portfolio

### THE BLUE CHIP 100 FUND

Average Annual Total Returns

**37.00%**

1-year as of 3-31-00

**36.98%**

Since inception (6-30-97) as of 3-31-00

**30.37%**

1-year as of 4-30-00

### THE GROWTH AND INCOME FUND

Average Annual Total Returns

**33.68%**

1-year as of 3-31-00

**32.15%**

Since inception (12-29-95) as of 3-31-00

**23.99%**

1-year as of 4-30-00

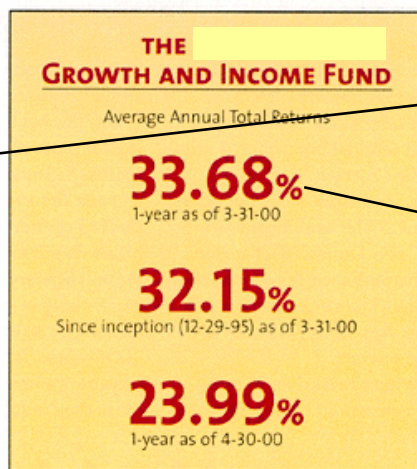
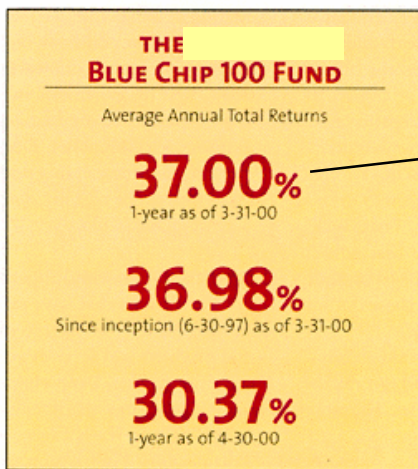
*Performance is historical and does not represent future results. Investment returns and principal value vary, and you may have a gain or loss when you sell shares. Recent stock market fluctuations emphasize that equity funds can be volatile investments. They should only be considered for long-term investment goals.*

# Over-confidence: Availability

## Representativeness Bias

What funds are at...

# The Center of Your Portfolio



## Growth & Income Fund Family

### One-year Returns as of 03/31/2000

12.05%

15.01%

**37.00%**

13.56%

14.51%

**33.68%**

17.42%

31.10%

1.30%

Performance is historical and does not represent future results. Investment returns and principal value vary, and you may have a gain or loss when you sell shares. Recent stock market fluctuations emphasize that equity funds can be volatile investments. They should only be considered for long-term investment goals.

## *c) Regret*

<u>Stock Price</u>	
<u>Yesterday</u>	<u>Today</u>
\$160	\$150

- **Investor A: Cost \$100**
- **Investor B: Cost \$200**
  
- **Who is more upset?**
  - (Loss Aversion)

# What do investors want?

Investors are:

Rational

-risk averse

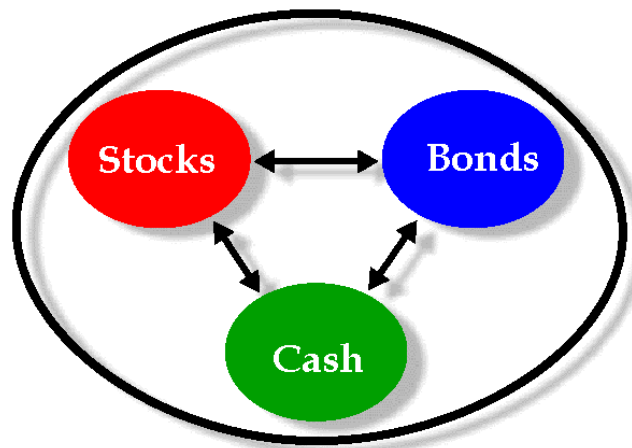
-maximize wealth

-consider portfolios as a whole

Standard (mean-variance)

Portfolio

Markowitz Portfolios



Investors are:

Emotional

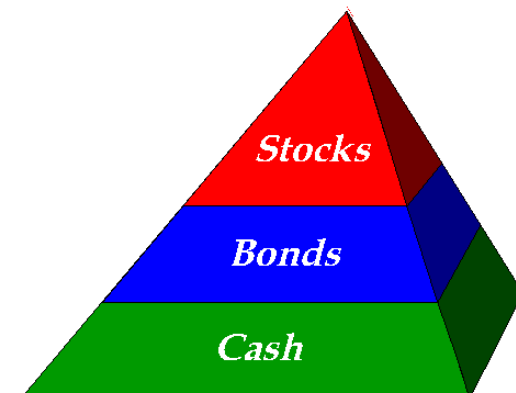
- risk-averse AND risk-seeking

-portfolios as mental accounts:

Behavioral (lottery-insurance)

Portfolios

Behavioral Portfolios

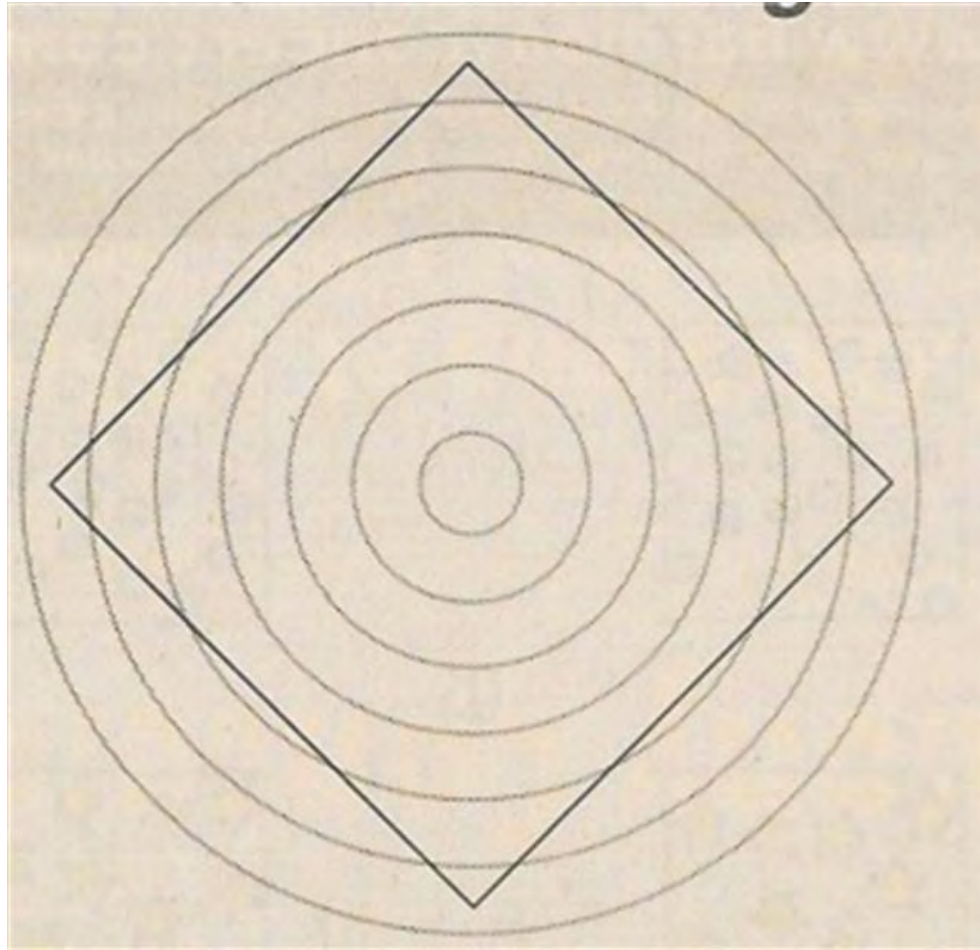


## *2) The Human Element in*

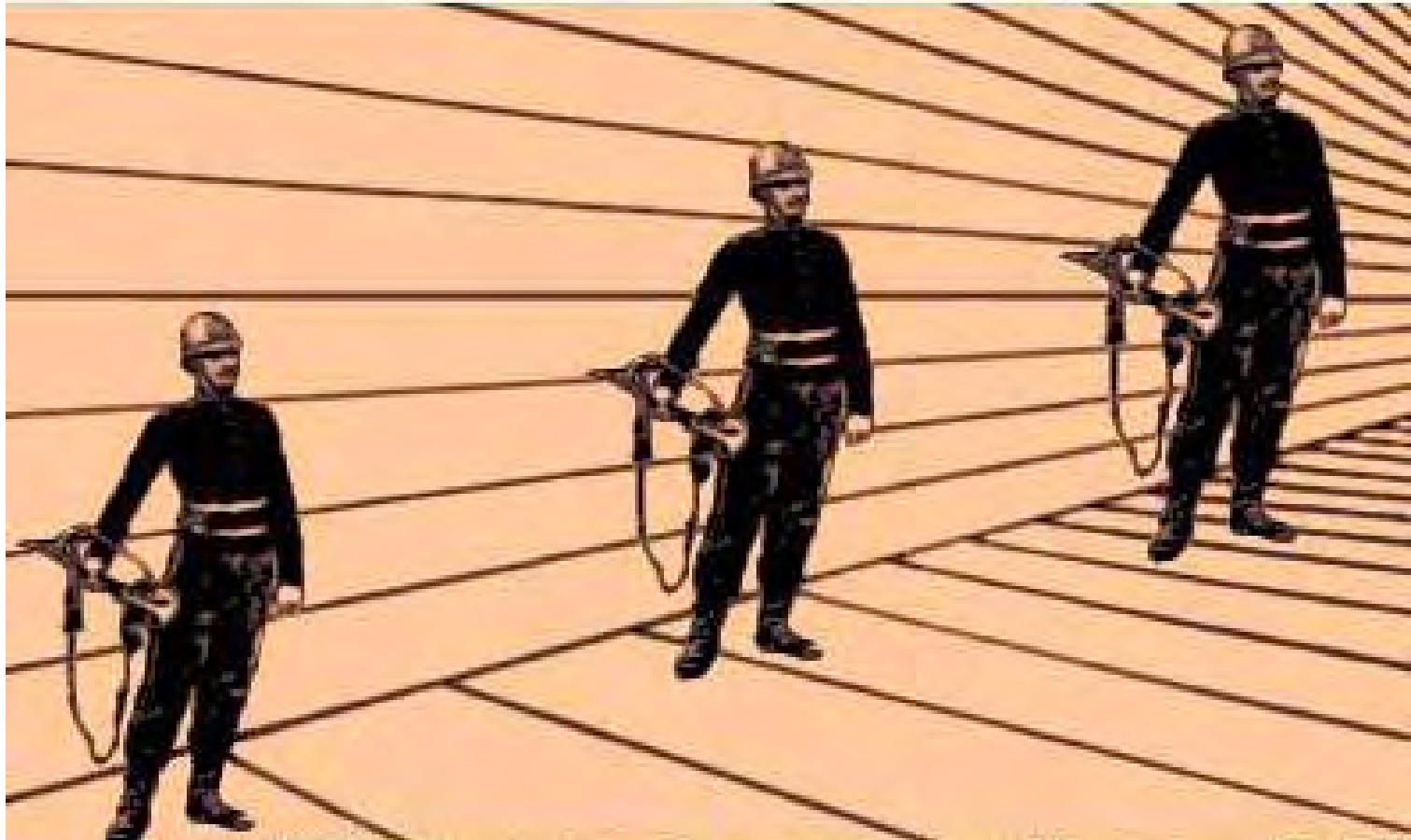
### *Institutional Investors:*

- Over-confidence
  - Pattern Recognition
- Growth & Value Traps
- Earnings Surprises
- Bubbles
- Temptation

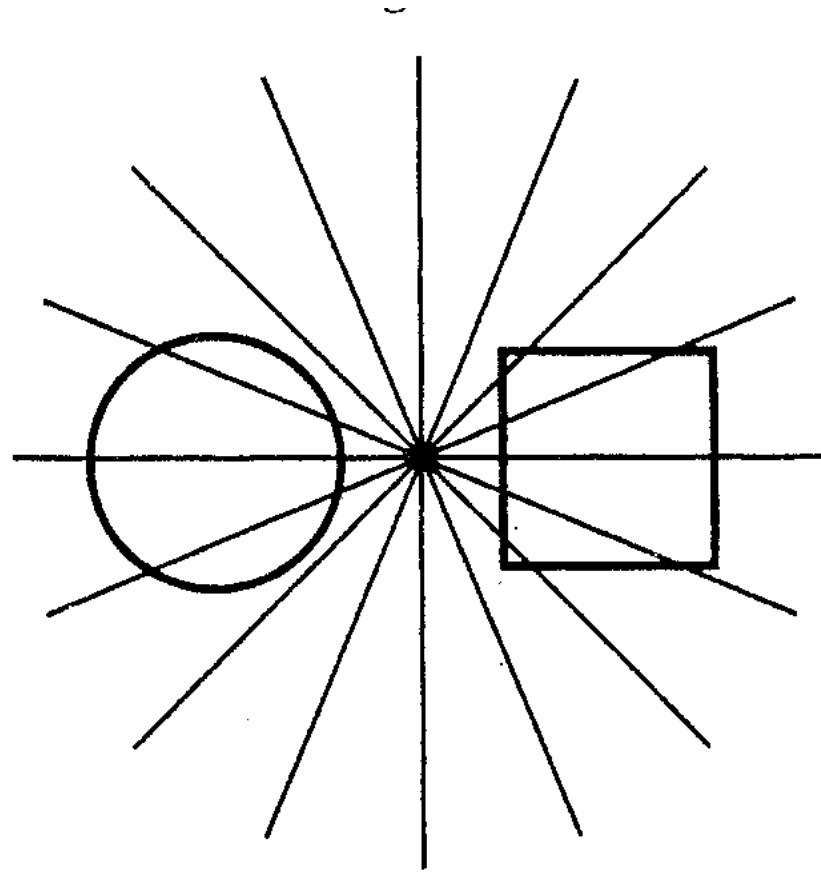
***a) Over-confidence: Pattern Recognition***  
**Are the lines straight?**



***a) Over-confidence: Pattern Recognition***  
**Are they the same height**

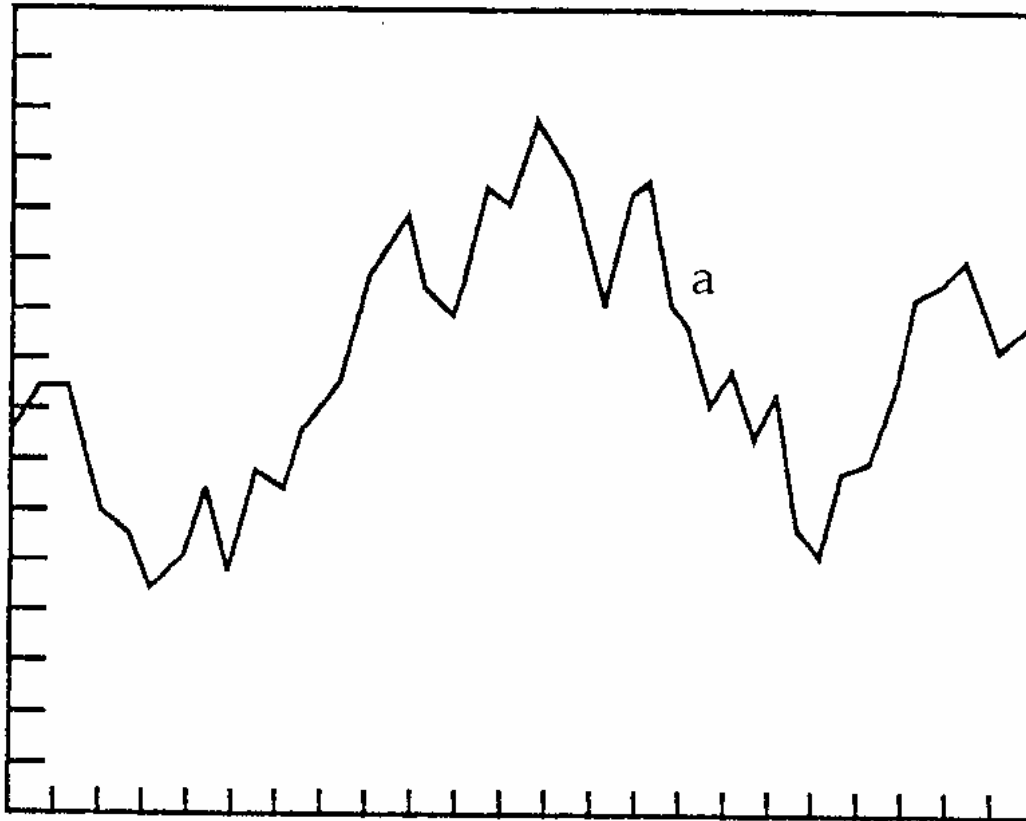


***Over-confidence: Pattern Recognition***  
**Are the lines straight...is the circle round?**



# *Over-confidence: Pattern Recognition*

## Is the ‘head-and-shoulder meaningful?

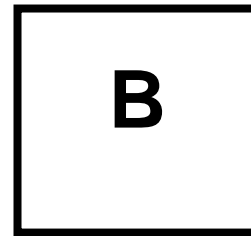
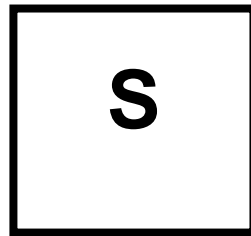


*The classic head-and-shoulder pattern tells you to sell when the right shoulder touches the neckline (a). The same pattern can be generated at random.*

# *Over-confidence:* *Pattern Recognition*

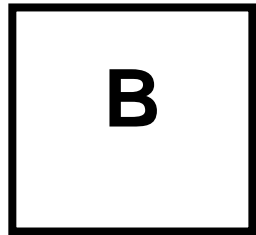
## Human vs Rat Intelligence:

Touch a button, S or B

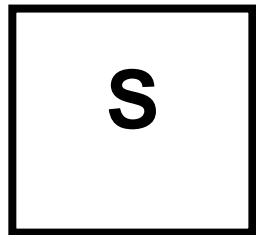


# *Over-confidence:* **Pattern Recognition**

Always

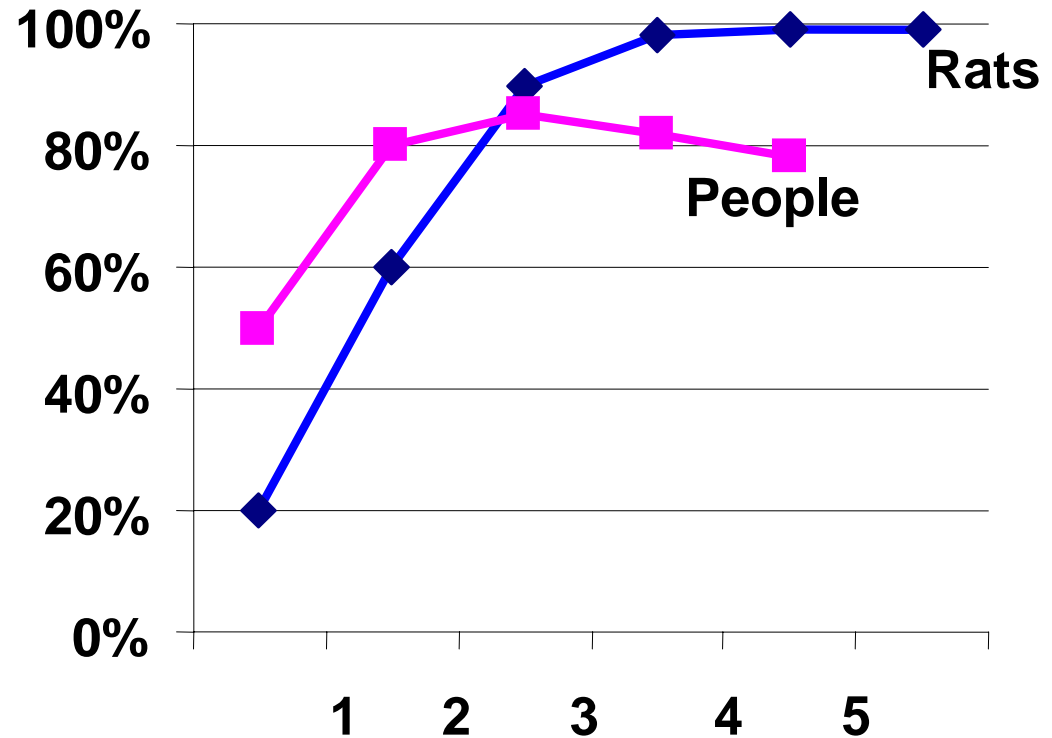


1/5 chance  
of winning



4/5 chance  
of winning

**Touching Button S**



# *Overconfidence*

## *Earnings Estimates: Expectations versus Reality*

- For Each Quarter, We Divided The Universe Into Three Groups:
  - Positive surprises
  - Negative surprises
  - In line
- We Then Looked At The Tendency Of These Companies To:
  - Repeat the surprise the next quarter
  - Earn subsequent excess returns
- Neither Should Occur If the Market Is Efficient...

- What Happens To Stocks That Beat Earnings Estimates (Analysts Underestimate) Versus Stocks That Miss Earnings Estimates (Analysts Overestimate)?

### Reality vs. Expectations: Last Quarter

**Last Quarter Negative Surprise**  
(reality lower than expectations)

**4 out of 5  
Miss Next Quarter**

**Last Quarter Positive Surprise**  
(reality higher than expectations)

**1 out of 2  
Beat Next Quarter**

- Do Analysts / Investors Quickly Adapt Their Expectations?

### Reality vs. Expectations: Last Quarter

**Last Quarter Negative Surprise**  
(reality lower than expectations)

**4 out of 5**  
**Miss Next Quarter**

**Return: -0.25 (1 mo)**

**Last Quarter Positive Surprise**  
(reality higher than expectations)

**1 out of 2**  
**Beat Next Quarter**

**Return: +0.34**

# Overconfidence

## Earnings Estimates : High Glamour / Low Glamour

### Earnings Surprises: Last Quarter

	<b>Negative Surprise</b> (reality lower than expectations)	<b>Positive Surprise</b> (reality higher than expectations)
<b>High Glamour</b>	1	3
<b>Low Glamour</b>	2	4

Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

# Overconfidence

## Earnings Estimates : High Glamour

# CheckFree

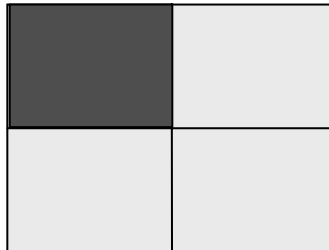
The Company that Powers Payment on the Web™

### CKFR:US Checkfree Corp.

### Quadrant 1

Expectation = Good

Reality = Bad



# Overconfidence

## Earnings Estimates : High Glamour

### Earnings Surprises: Last Quarter

	<b>Negative Surprise</b> (reality lower than expectations)	<b>Positive Surprise</b> (reality higher than expectations)
<b>High Glamour</b>	<b>1</b> <b>5 out of 6 Miss Next Quarter</b>  <b>Return: -0.61</b>  <b>Expectation: Good</b> <b>Reality: Bad</b>	<b>3</b>
<b>Low Glamour</b>	<b>2</b>	<b>4</b>

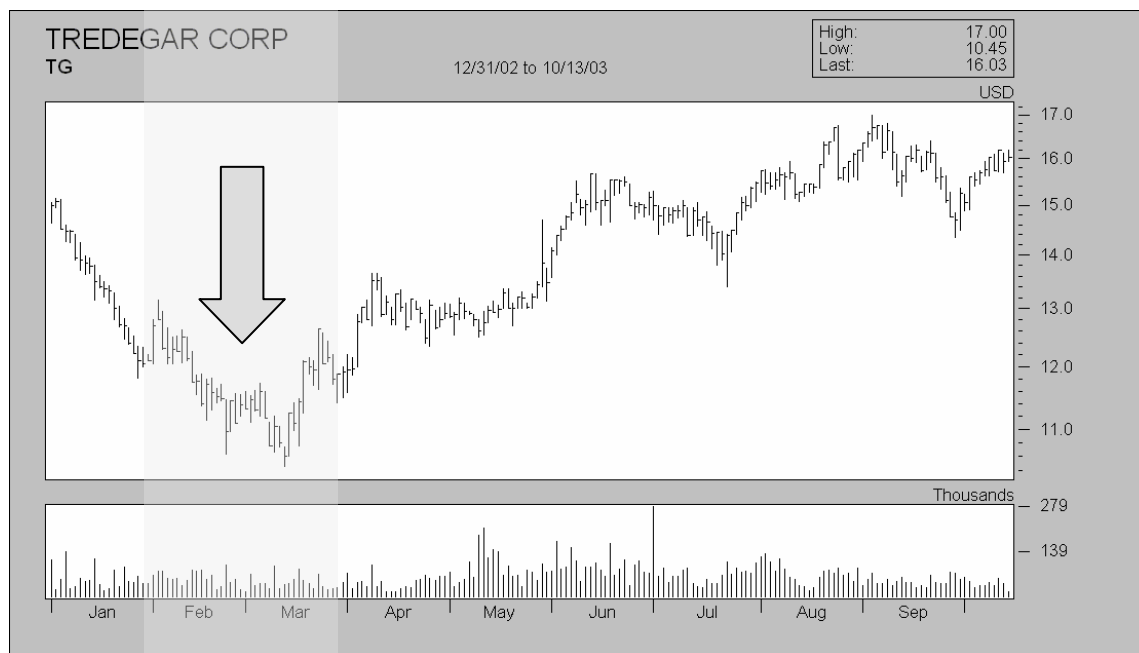
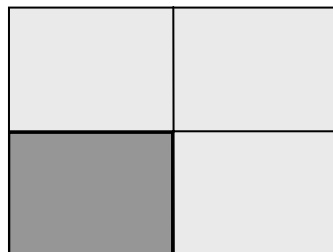
Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003



### TG:US Tredegar Corp

Tredegar Corporation manufactures plastic films and aluminum extrusions. Their customers include the disposables, packaging, agriculture, construction, and transportation, among others.

**Quadrant 2**  
**Expectation = Bad**  
**Reality = Bad**



# Overconfidence

## Earnings Estimates : Low Glamour

### Earnings Surprises: Last Quarter

	<b>Negative Surprise</b> (reality lower than expectations)	<b>Positive Surprise</b> (reality higher than expectations)
<b>High Glamour</b>	<b>1</b> <b>5 out of 6 Miss Next Quarter</b>  <b>Return: -0.61</b>  <b>Expectation: Good</b> <b>Reality: Bad</b>	<b>3</b>
<b>Low Glamour</b>	<b>2</b> <b>3 out of 4 Miss Next Quarter</b>  <b>Return: +0.12</b>  <b>Expectation: Bad</b> <b>Reality: Bad</b>	<b>4</b>

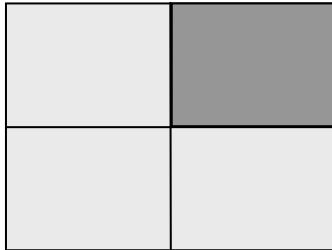
Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

# Overconfidence

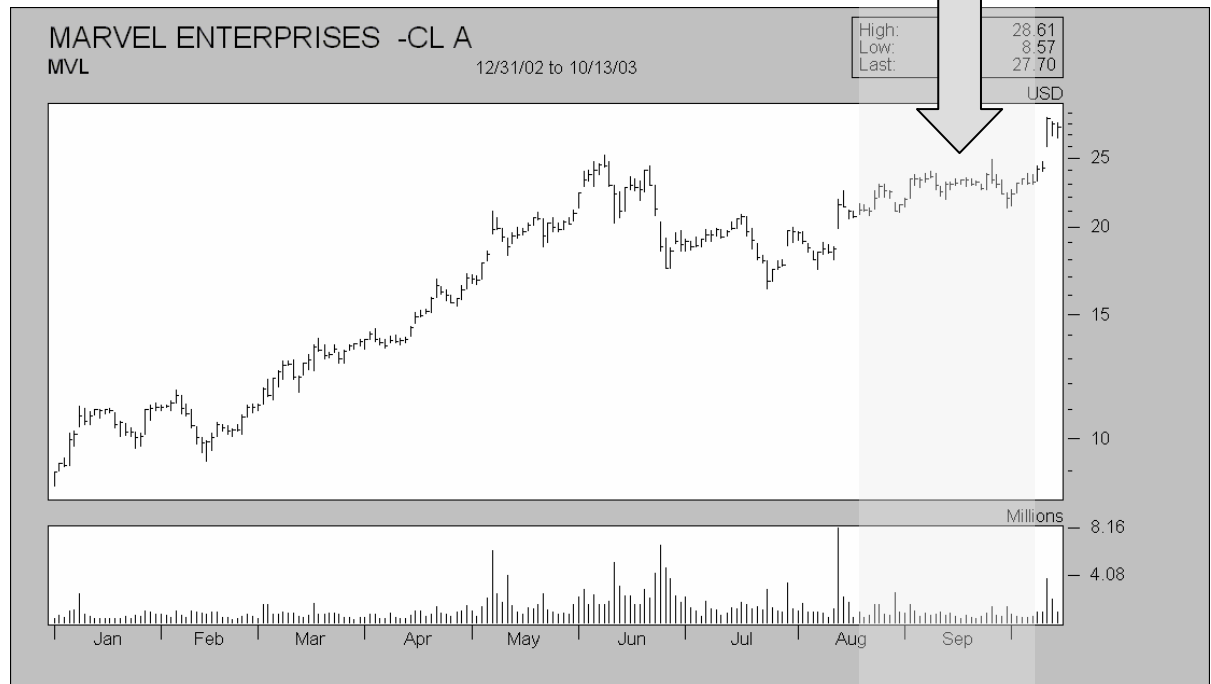
## Earnings Estimates: High Glamour



**Quadrant 3**  
**Expectation = Good**  
**Reality = Good**



### MVL:US Marvel Enterprises Inc.



Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

# Overconfidence

## Earnings Estimates: High Glamour

### Earnings Surprises: Last Quarter

	<b>Negative Surprise</b> (reality lower than expectations)	<b>Positive Surprise</b> (reality higher than expectations)
<b>High Glamour</b>	<b>1</b>  5 out of 6 Miss Next Quarter  Return: -0.61  Expectation: Good Reality: Bad	<b>3</b>  1 out of 2 Beat Next Quarter  Return: +0.31  Expectation: Good Reality: Good
<b>Low Glamour</b>	<b>2</b>  3 out of 4 Miss Next Quarter  Return: +0.12  Expectation: Bad Reality: Bad	<b>4</b>

Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

# Overconfidence

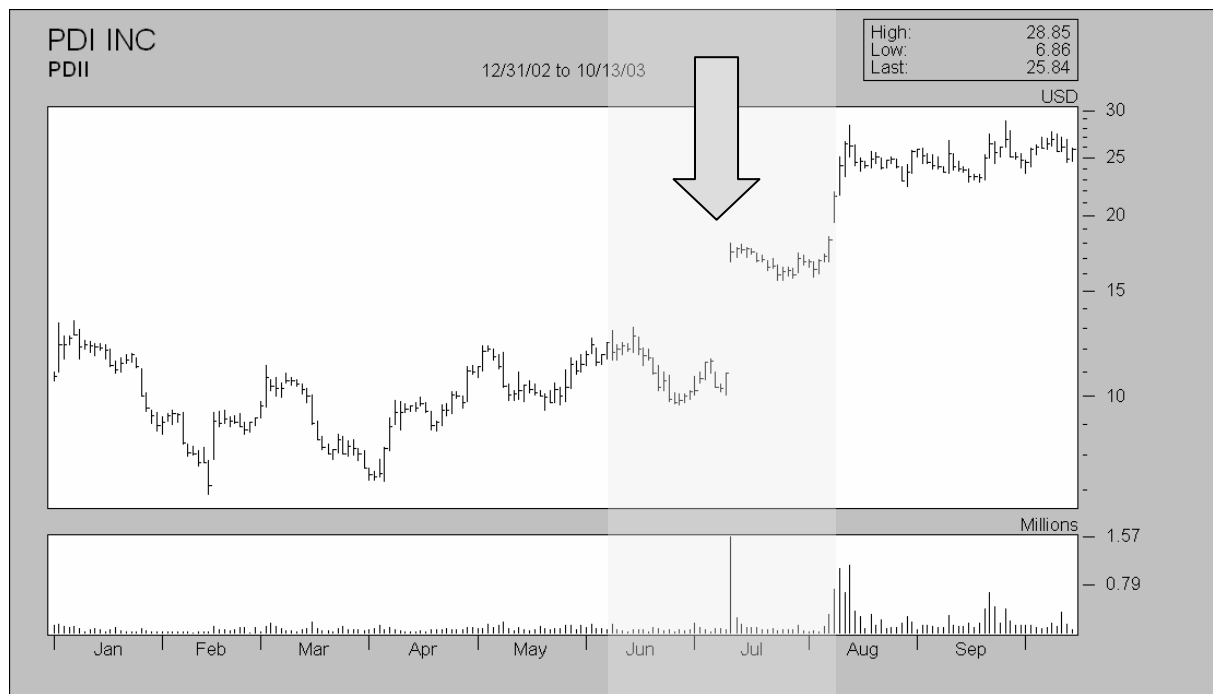
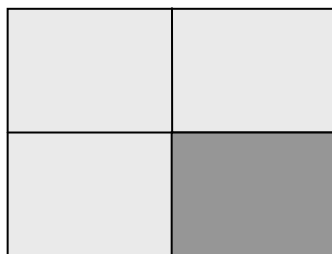
## Earnings Estimates: Low Glamour



### PDII:US PDI Inc.

PDI, Inc. is a sales and marketing company serving the pharmaceutical, biotechnology and medical devices industries.

Quadrant 4  
Expectation = Bad  
Reality = Good



Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

# Overconfidence

## Expectations (High & Low) versus Reality (Random)

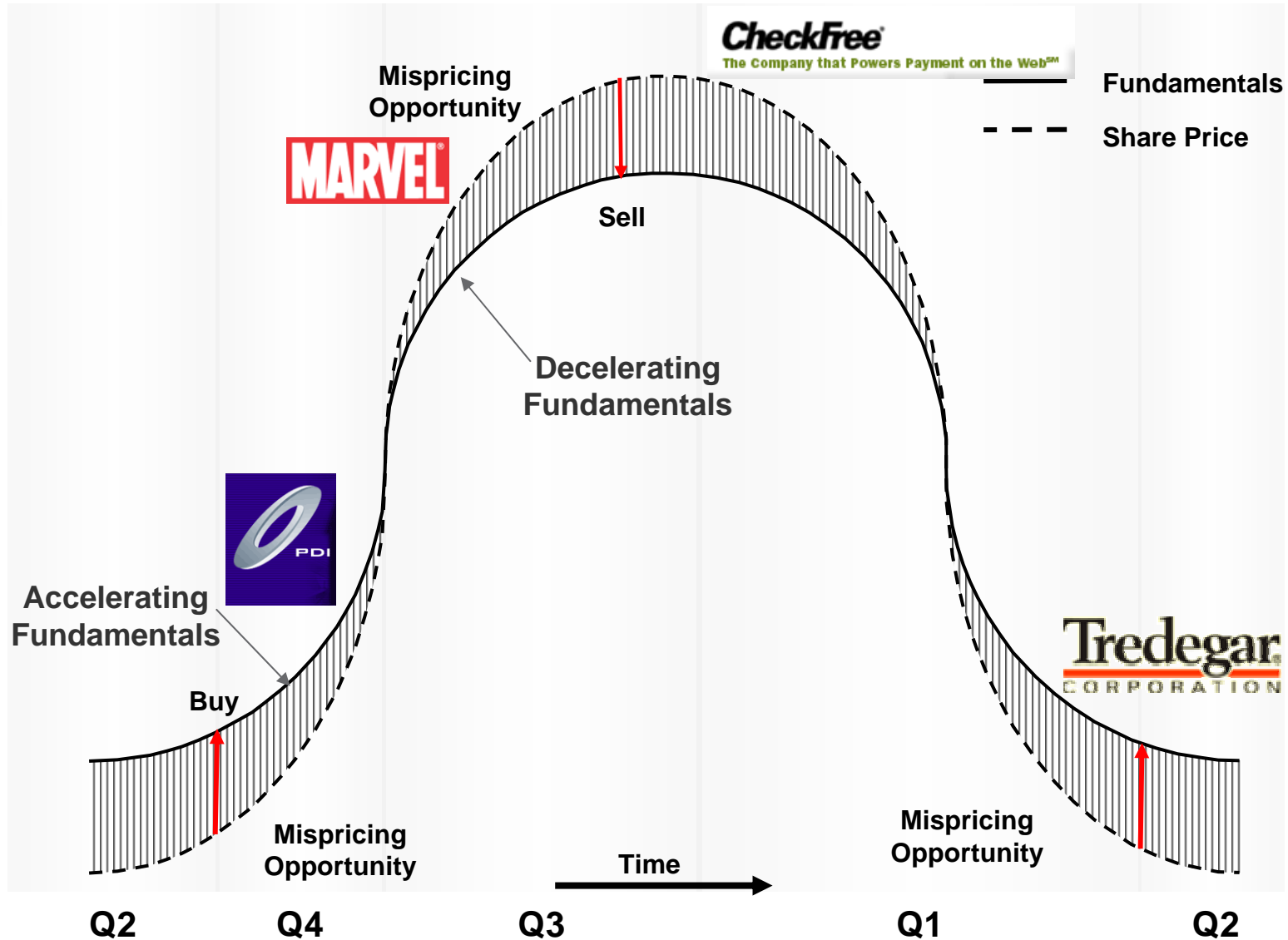
### Earnings Surprises: Last Quarter

	<b>Negative Surprise</b> (reality lower than expectations)	<b>Positive Surprise</b> (reality higher than expectations)
<b>High Glamour</b>	<b>1</b>  5 out of 6 Miss Next Quarter  Return: -0.61  Expectation: Good Reality: Bad	<b>3</b>  1 out of 2 Beat Next Quarter  Return: +0.31  Expectation: Good Reality: Good
<b>Low Glamour</b>	<b>2</b>  3 out of 4 Miss Next Quarter  Return: +0.12  Expectation: Bad Reality: Bad	<b>4</b>  1 out of 2 Beat Next Quarter  Return: +0.54  Expectation: Bad Reality: Good

Source: Stacy Nutt, Nicholas-Applegate, FactSet, 2003

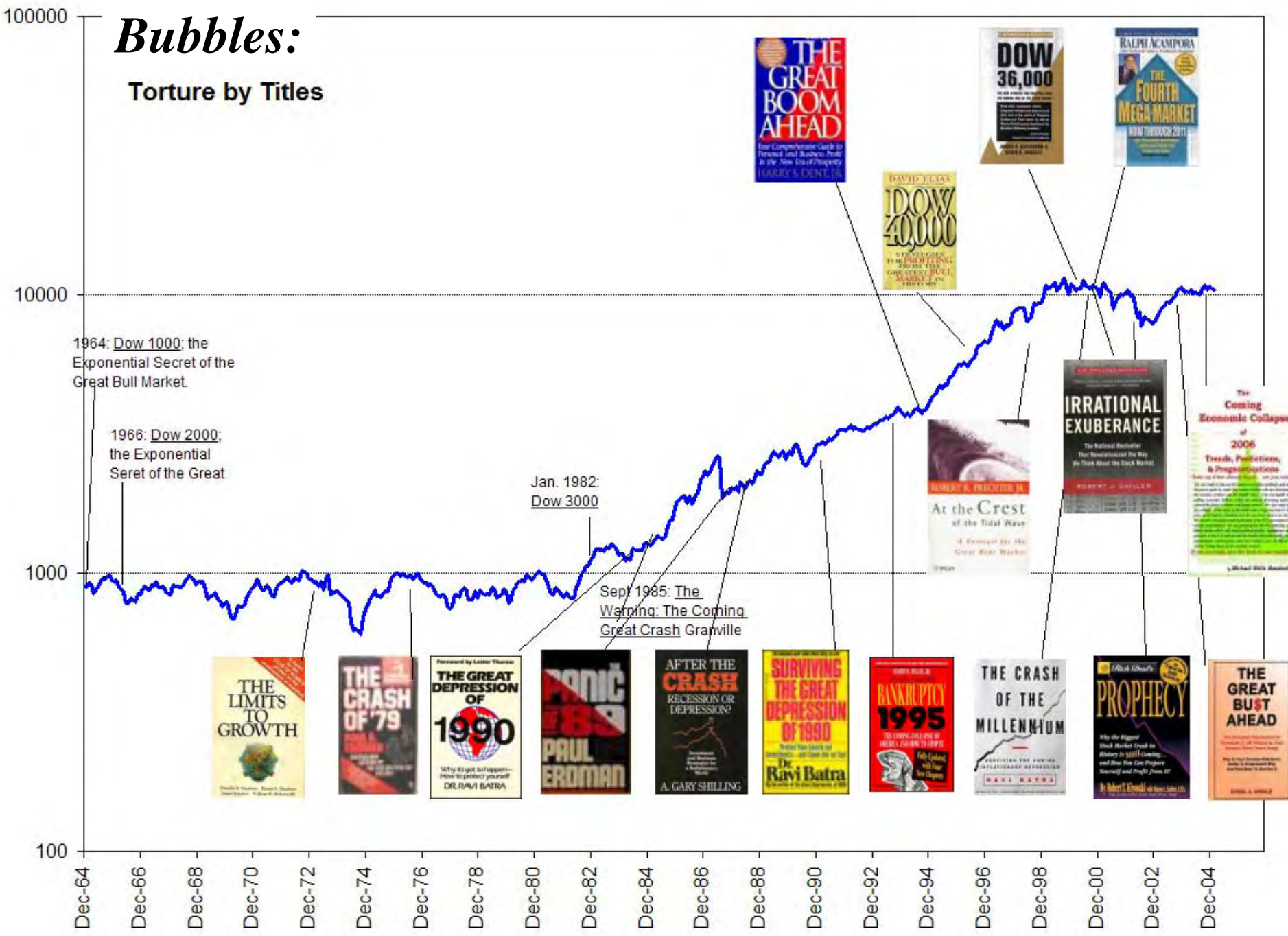
# Overconfidence

Expectations (High & Low) versus Reality (Random)



# Bubbles:

## Torture by Titles

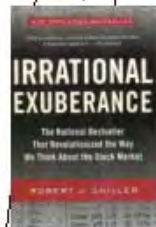
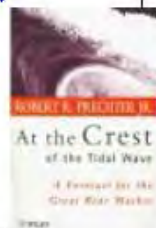
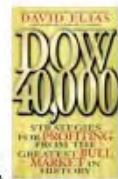
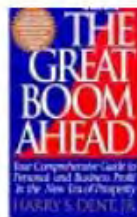
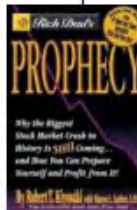
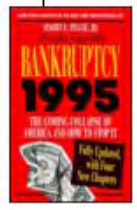
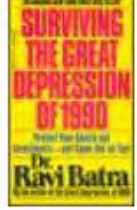
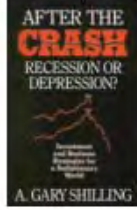
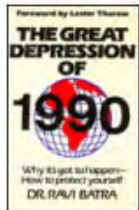
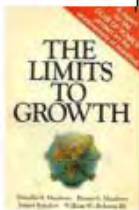


1964: Dow 1000; the Exponential Secret of the Great Bull Market.

1966: Dow 2000; the Exponential Secret of the Great

Jan. 1982: Dow 3000

Sept 1985: The Warning: The Coming Great Crash Granville

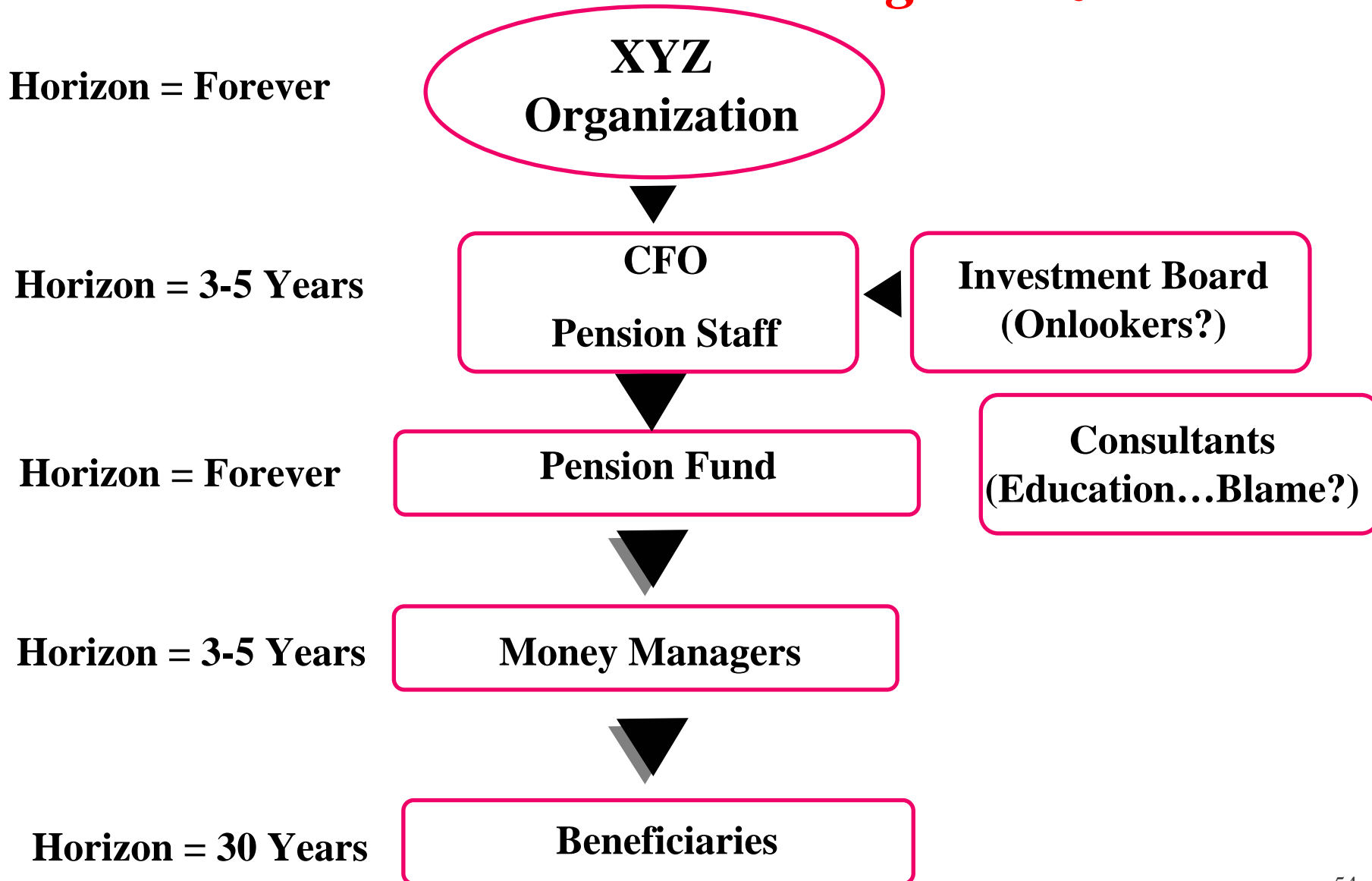


# *The Beauty Contest*

- Height:
  - Average American Male: 5'9"
  - Average CEO: 6'
  - 30% of CEOs > 6'2" versus 3.9% overall
  - 1" height = 1.8% increase in wages
- Beauty:
  - Above average +9% wages (male lawyers +12%)
  - Below average –5% wages
  - Obese women –17% wages

# Agent Risks

## *Evaluation versus Planning Horizon*



# Agent Risks

Loss Aversion

*"The Equity Premium Puzzle"*

- **Since 1926:**

	<b>Real Return</b>	<b>Value of \$1</b>
– Stocks	7%	\$2000
– Bonds	1%	\$35

  - Why does a Long Term Investor hold Bonds?
- **Stock Returns over 1 month:**
  - 62% win (up month)
  - 38% lose (down 97% of average gain)
- **Stock Returns over 5 years:**
  - 90% win (up over 5 years)
  - 10% lose (down 63% of average gain)

# *Agent Risks*

## **Myopic Loss Aversion:**

- **Evaluation Horizon drives Asset Allocation...  
Not the Planning Horizon (Portfolio Life)**
- **Over 1 Year Evaluation Horizon:**
  - **Utility of Stocks (7% return, 17% Standard Deviation) equals the**
  - **Utility of 5 Year Bonds (1% return, 7% Std Dev)**
  - **i.e. 50:50 Asset mix**
- **Longer Evaluation Horizon...**
  - **More Stocks or**
  - **Accept Lower Equity Risk Premium: 3% @ 5 yrs**

# Agent Risks:

## Loss Aversion versus the “Prudent Man Rule”

*(Frame Portfolios as a Whole)*

a)	<u>Cost</u>	<u>Market</u>	<u>Gain (or loss)</u>
<i>Undisclosed Perceptions, Inc.</i>	200,000	300,000	100,000
<i>Crispy Cream Diet Centers</i>	200,000	310,000	110,000
<i>Harley Safety Equipment</i>	200,000	280,000	80,000
<i>Boston Red Sox B Shares</i>	200,000	120,000	<b>(80,000)</b>
<i>New Orleans Health Foods</i>	200,000	260,000	60,000
<hr/>			
<b>TOTAL</b>	1,000,000	1,270,000	270,000

b) *Enron, K-Mart, Emerging Markets....*

c) ***Embarrassment & Riches....***

## Trust

is related to  
income...  
and cultural  
history

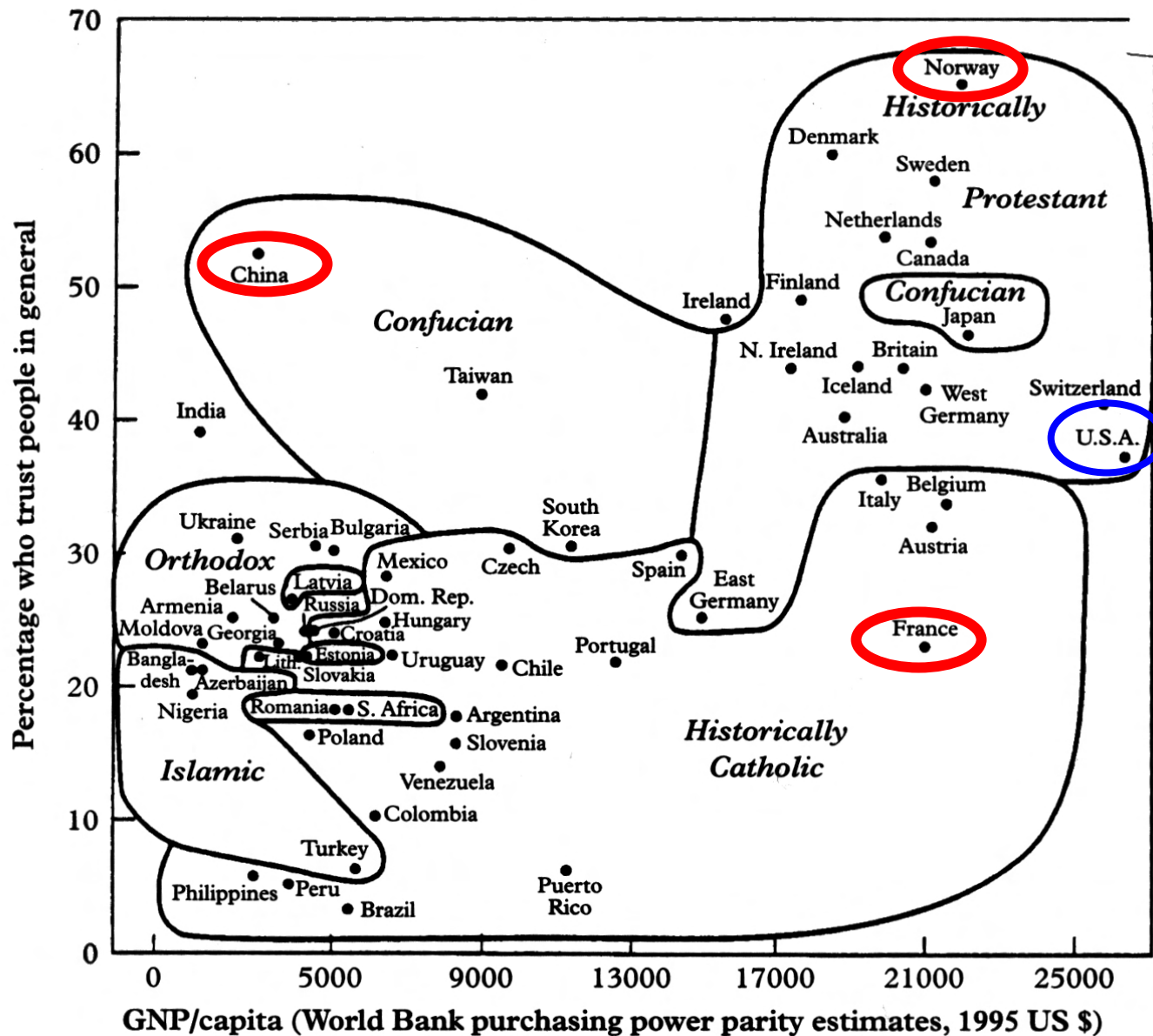
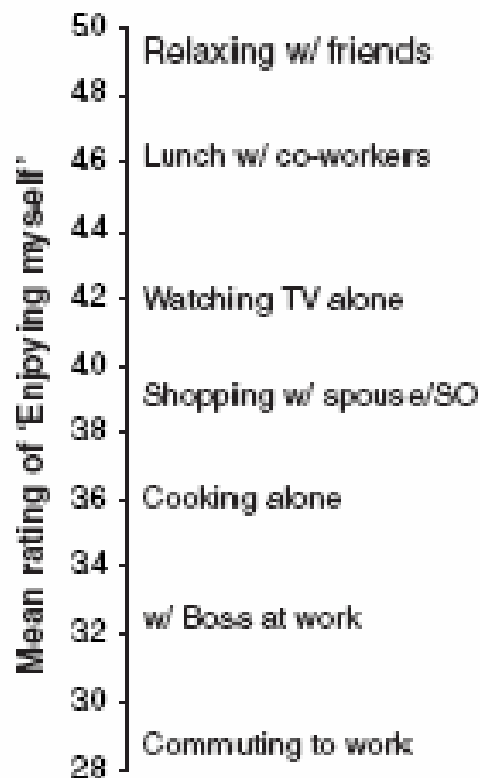
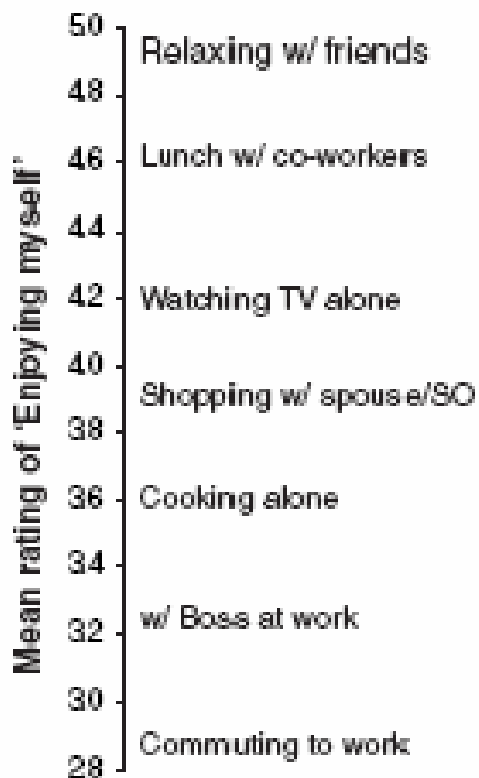


Figure 4.1 Interpersonal trust by cultural tradition and level of economic development and religious tradition. Trust by GNP/capita:  $r = 0.63$   $p < 0.000$

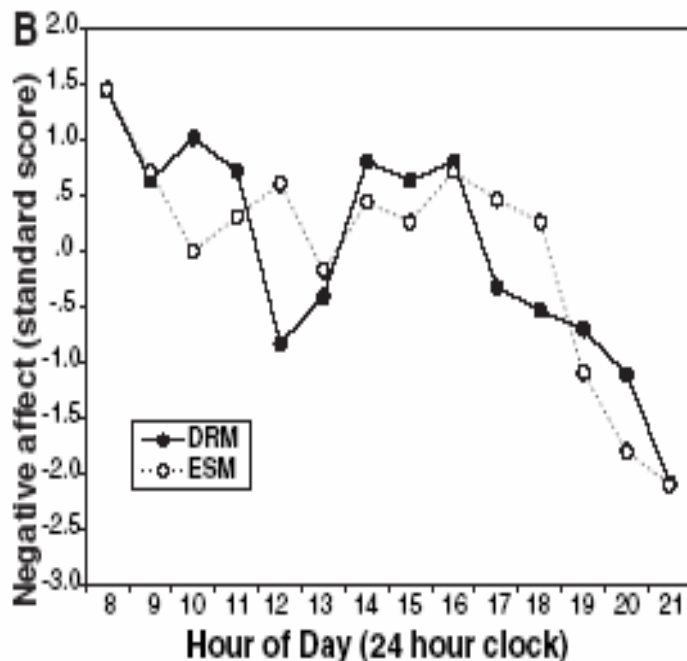
*Enjoyment*



## Enjoyment



## Negative feelings

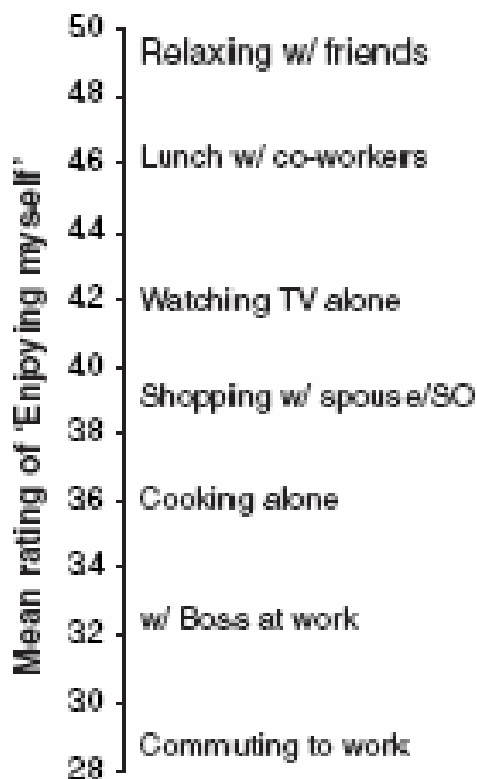


# Agents Risks :

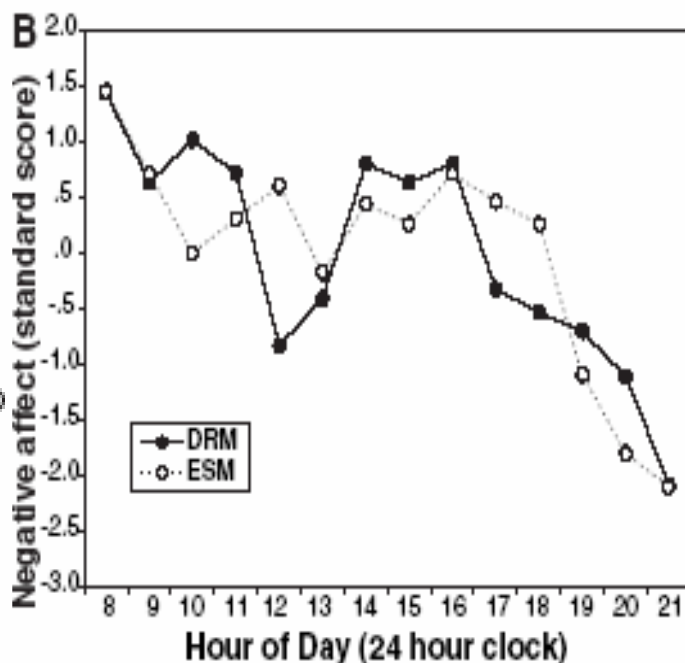
# Trust with clients

- Clients & Prospects may be optimal at 11:30 am
- Be a friend & take them for lunch

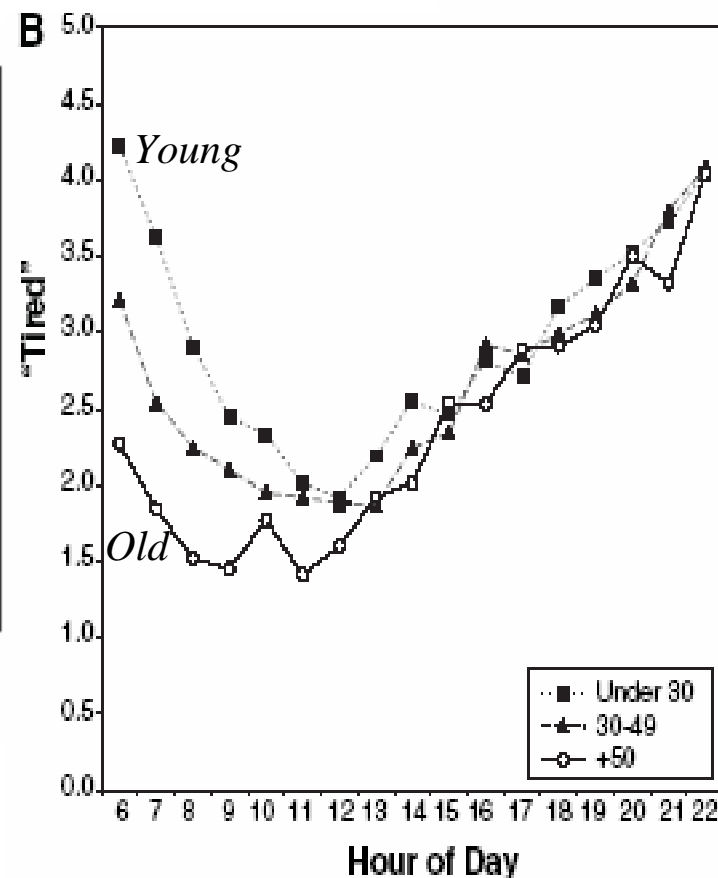
## Enjoyment



## Negative feelings



## Tired

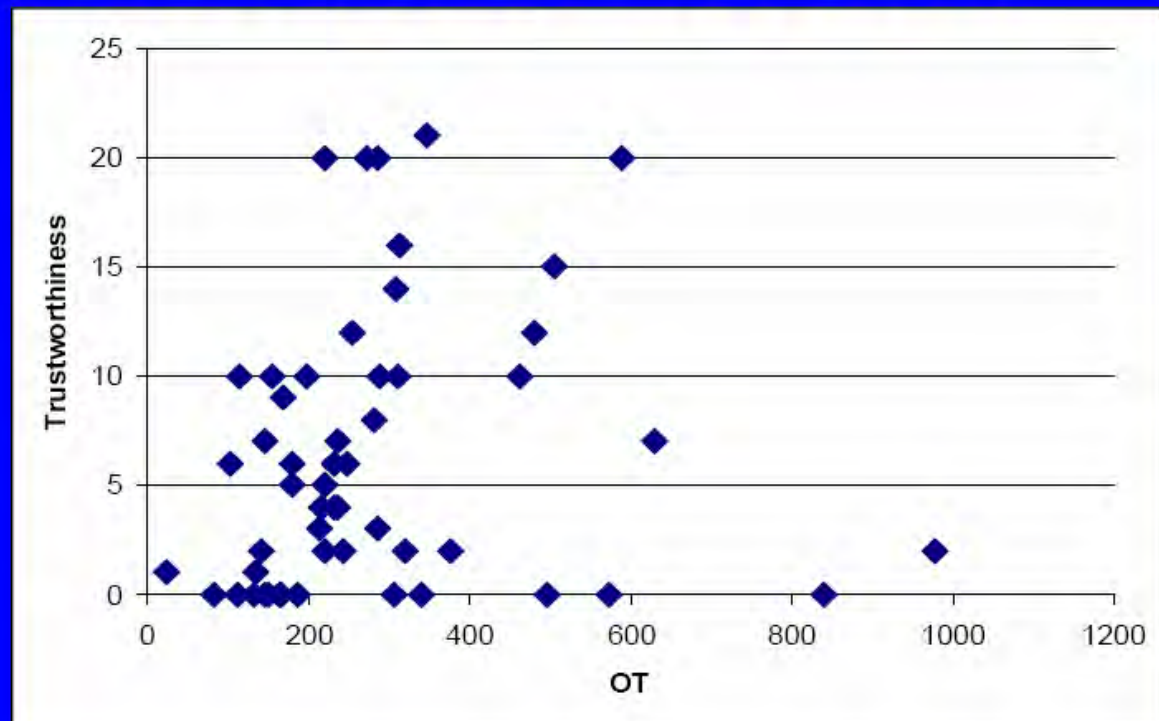


Source: "Day Reconstruction Method", Kahneman, Science Dec 2004

# OXYTOCIN AND TRUST



December, 2005



nature

June 2, 2005



• Intranasal infusion of OT more than doubles the number of people who trust a stranger with all their money



- Oxytocin – Hormone from Hypothalamus –
- Tested as a nasal spray:
  - Investors receive 12 units of money
  - Investors can give 4, 8 or all to Trustee
  - Trustees profits will triple the number of units
  - Trustees may or may not give units back
- With Oxytocin
  - 45% of Investors invested maximum amount with Trustees vs 21% without Oxytocin
  - Investors increased average investment with Trustees by 17%
- Trustees were unaffected – They returned nearly half of units with or without Oxytocin (i.e. no change in generosity)

*“Paying through the nose”, Economist, June 4, 2005*

# *Over-confidence in Random Events*

**Theory:** Shots should cluster more than chance expectations.



**Interview with 100 fans:**

91% of Fans – “Hits follow hits” ...and believe:

61% Hit Rate following hits, even if a 50% shooter

42% Hit Rate following misses, even if a 50% shooter

84% of Fans – “Always pass ball to hot hand!”

# Over-confidence in Random Events

	Making			Missing		
Last Shot(s)	1	2	3	1	2	3
% Hits	51%	50%	46%	54%	53%	56%

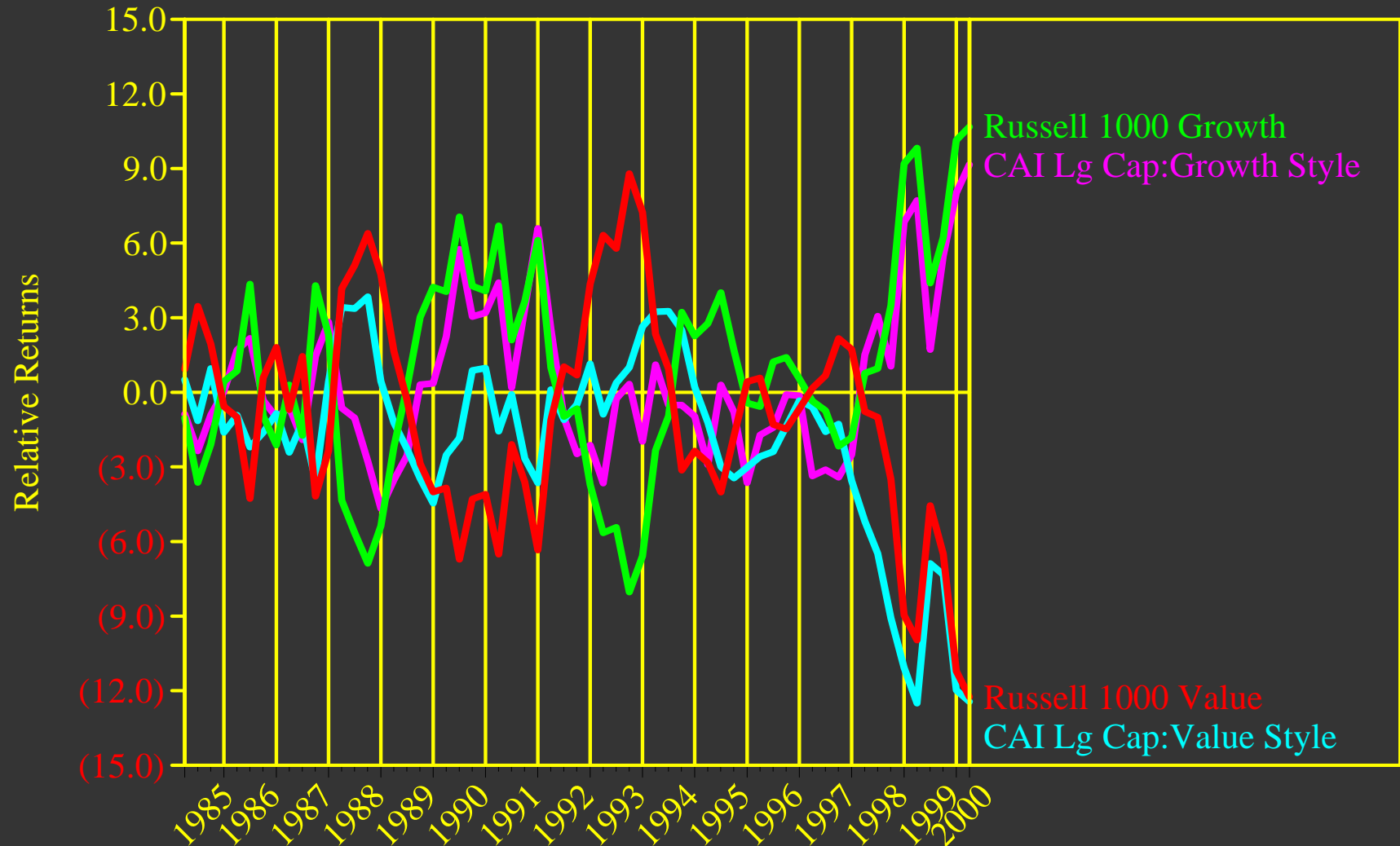
*Philadelphia 76ers 1980-81*

*(only team to keep such records)*



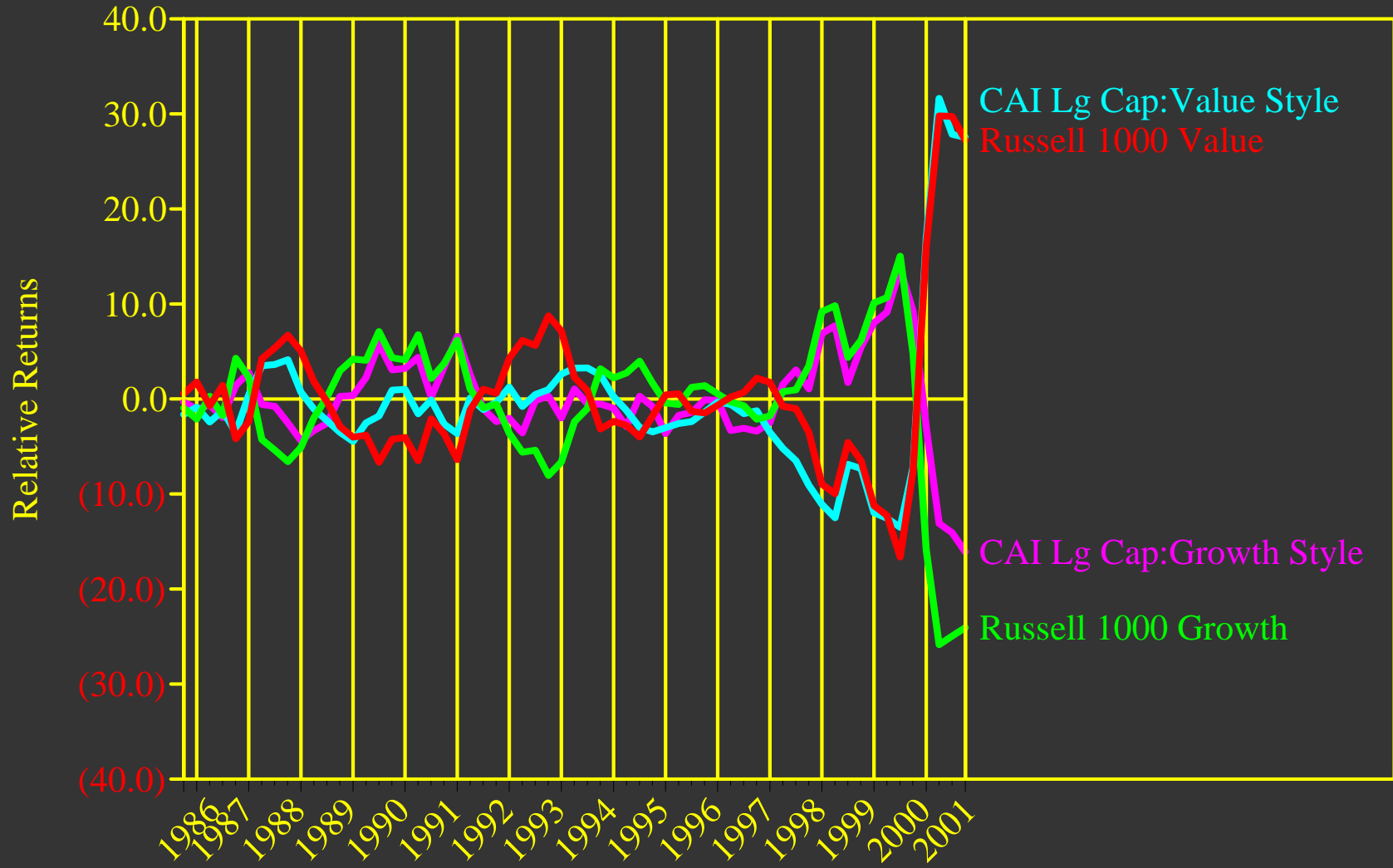
# Over-confidence in Random Events

Rolling 4 Quarter Relative Returns Relative To Russell 1000 Index  
for 15 Years Ended March 31, 2000



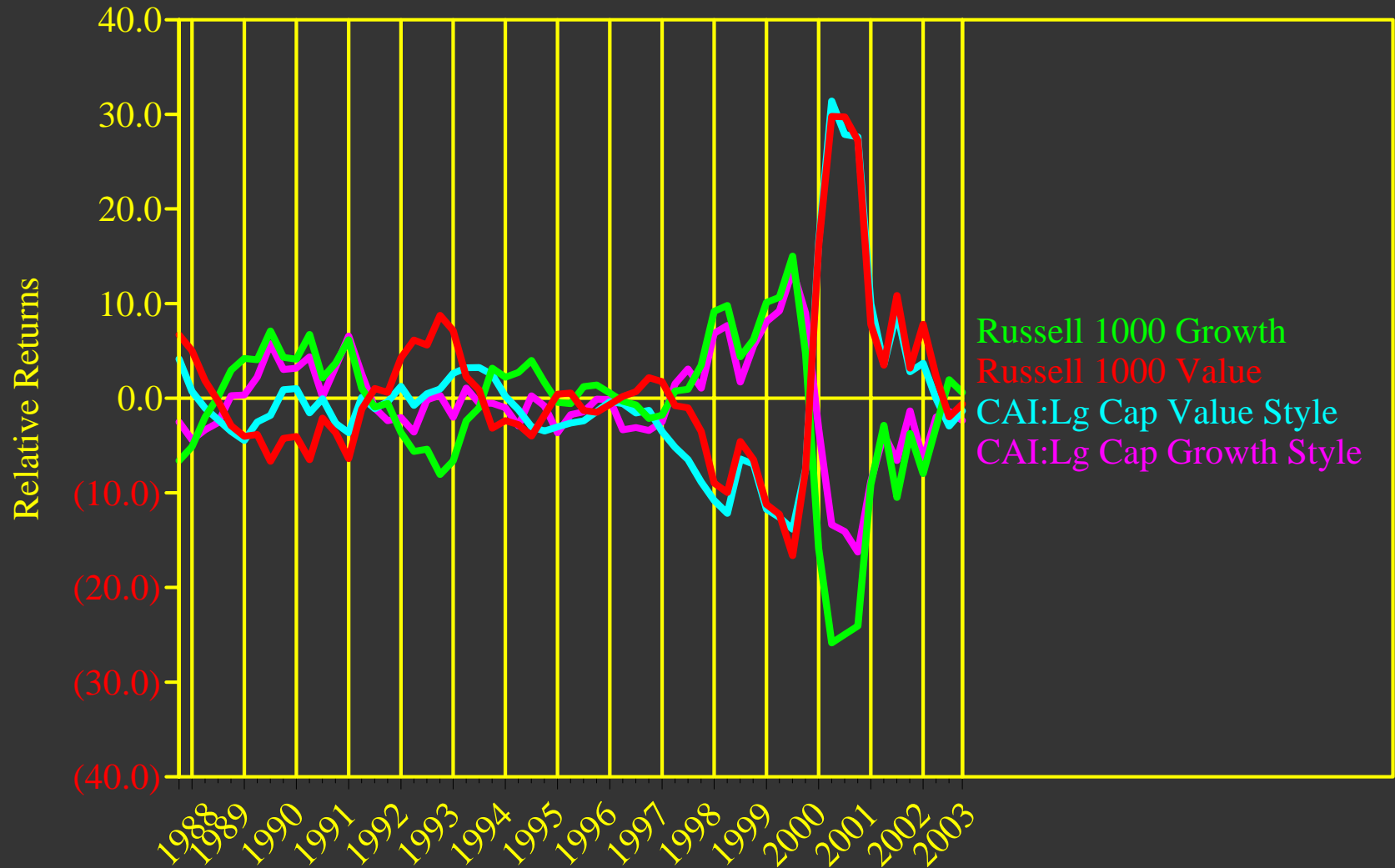
# Over-confidence in Random Events

Rolling 4 Quarter Relative Returns Relative To Russell 1000 Index  
for 15 Years Ended September 30, 2001



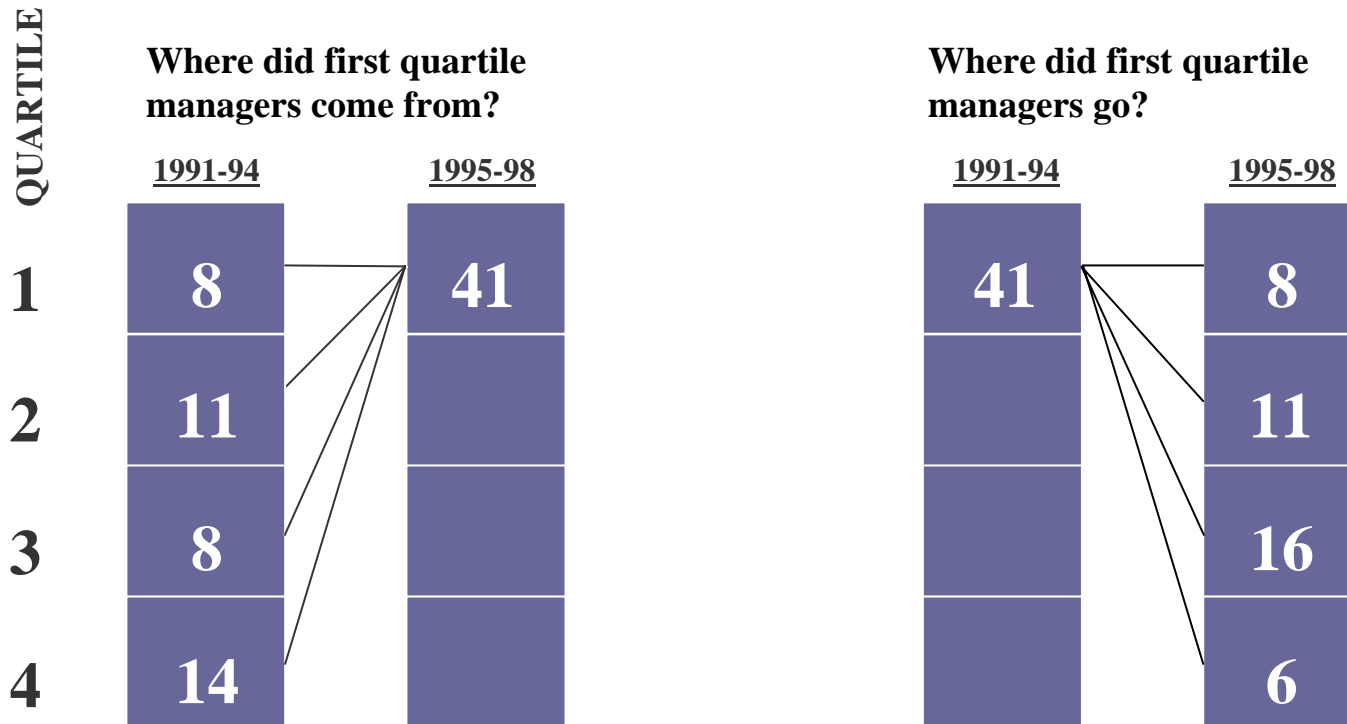
# Over-confidence in Random Events

Rolling 4 Quarter Relative Returns Relative To Russell 1000 Index  
for 15 Years Ended September 30, 2003



# Over-confidence in Random Events

## Representativeness Bias

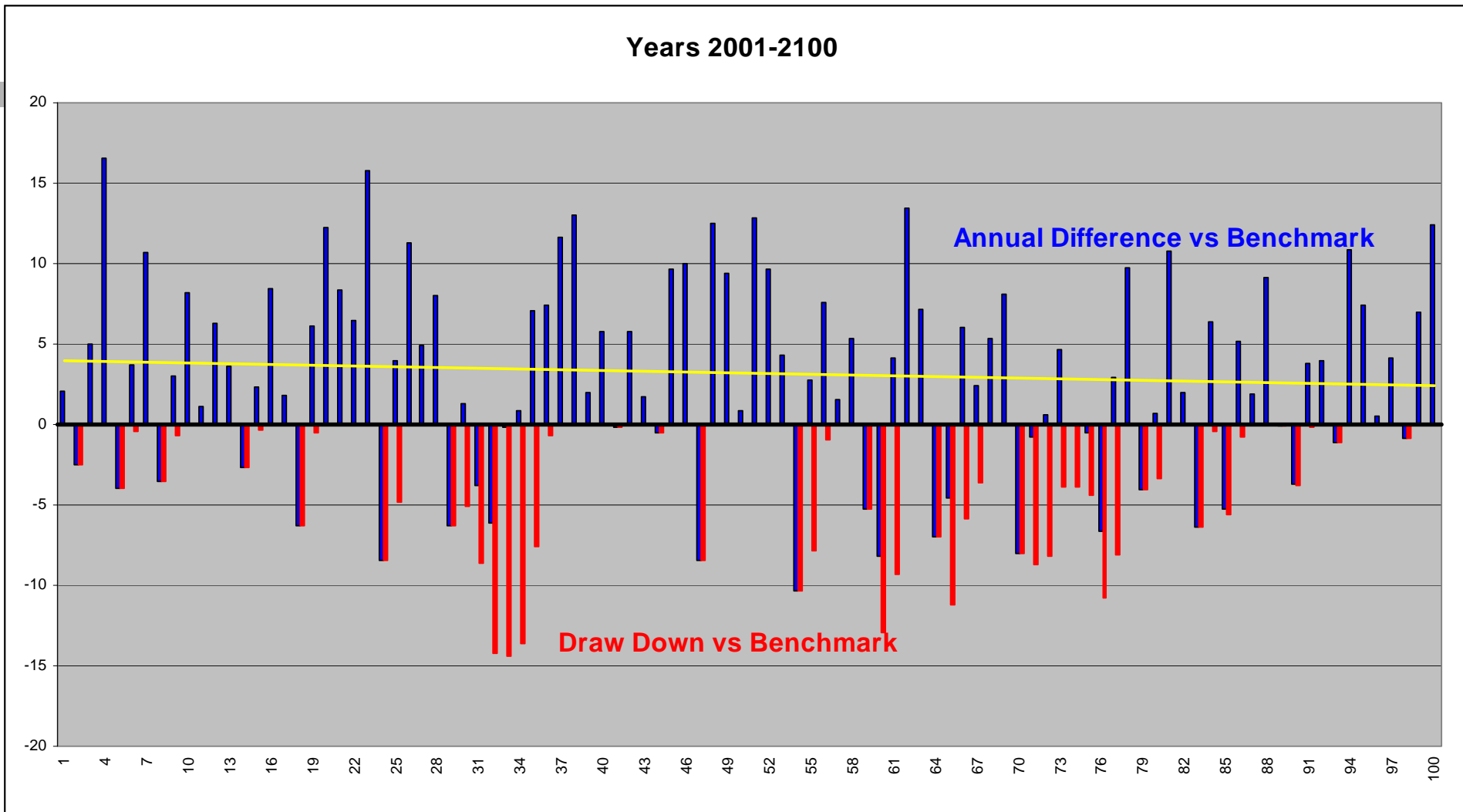


Universe consisted of 162 institutional managers in Russell's Growth, Market-Oriented, and Value universes with 8 years of history ending 1998.

Example: Of the 41 managers in the top quartile for years 1991-1994, only 8 remained in the first quartile in years 1995-1998.

# Over-confidence in Random Events

Excess Returns are Variable (Alpha = 3%, Std Dev 6%, Info Ratio 0.50)



## *The market is a fierce warrior*

- **“Draw them in with the prospect of gain.**
  - **Take them by confusion.**
- **Use anger to throw them into disarray.”**
  - **Sun Tzu - “Art of War”**

# *Rules of the Agent Warrior*

- **Self-attribution Bias**
  - Don't confuse brains with a Bull Market
- **Loss Aversion**
  - Frame Portfolios as a Whole (the Prudent Person Rule)
  - Stretch Evaluation Horizon toward Planning Horizon
- **Representativeness Bias**
  - Understand Probabilities of Random Events
- **Empathy Gap**
  - Cool Analysis versus Fear & Greed
- **Impact Bias**
  - Realistic expectations
  - “The secret of life is knowing that what you got is what you would have wanted in the first place if you could have known” – Garrison Keillor