

Behavioral Finance

Which is it Rational & Efficient or Irrational & Inefficient?

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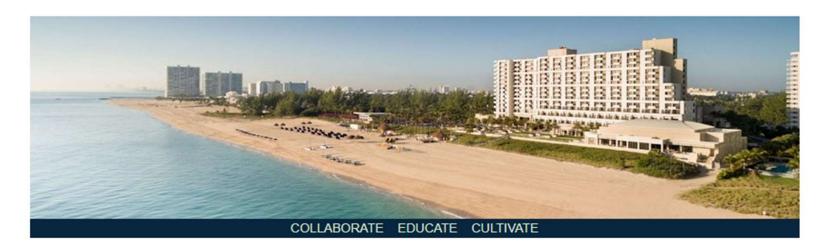


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COUNTDOWN TO OPENING REMARKS

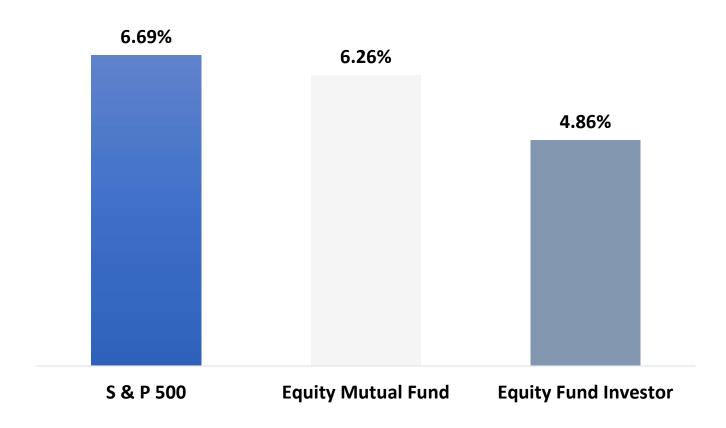
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Are humans rational?



Average Annualized Returns for 15-year Period ending December 31, 2016



Source: Morningstar Direct SM. Funds used to compute average Investor Returns and Mutual Fund Returns meet the following criteria: 1) Broad Category Group is Equity, 2) Primary Prospectus Benchmark is S&P 500 TR, 3) Morningstar Category is Large Blend, 4) Equity Style Box (Long) is Large Blend, 5) Oldest share class = yes. 56 funds with available data met these criteria. Within this dataset, average Investor Return is 4.86% and average Fund Return is 6.26%.

The S&P 500 Index is a capitalization-weighted index of 500 stocks designed to measure the performance of the broad domestic economy. **Past performance is no guarantee of future results**. All indices are unmanaged and unavailable for direct investment.



Behavioral Finance

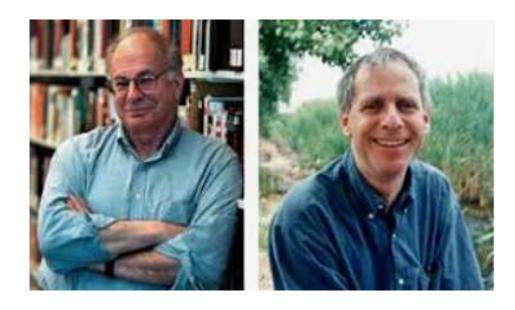
- Cab drivers stop driving after they reach a certain level of income.
- On rainy days, drivers reach goal quickly & quit early
- On slow days, it takes longer
- Why do they choose to work less when it is easy and work longer hours when it is more difficult? Is this rational?





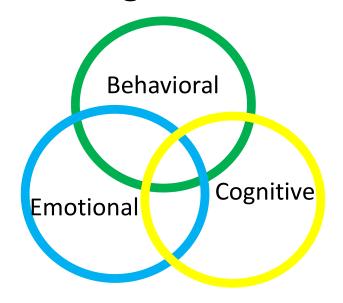
Behavioral Finance

- Supposedly irrelevant factors are in fact highly relevant in predicting behavior Tversky & Kahneman 1974.
- Liberal Paternalism



Topics for Discussion

- Foundations of Behavioral Finance
- Heuristics/Biases
- What does this have to do with investing
- Lessons for Practitioners



Traditional Finance

- Human Beings are Rational
 - Investors have all the information
- Efficient Market Hypothesis
 - No trading advantage
 - No arbitrage
 - "The Price is Right"
 - CAPM only risk is the correlation with the rest of the market (beta)



Behavioral Finance

- Finance/economics with reality
- Choice Architecture
- Rational & Irrational
- Inefficient



Decision Making Bias

Heuristics

- Availability
 - Relies on information that's handy, recent
- Anchoring
 - Original reference points/1st piece of information
- $\circ \, Similarity$
 - Quick judgement
 - o Appearance conforms to reality





Heuristics/Mental Shortcuts

Mental Accounting





- Categorize and evaluate economic outcomes, dividing current and future assets into separate groups
- Rationally, all dollars should be fungible
- We treat income and spending in a different way
- Plays a role in "Goals Based Investing"/bucketing





Cognitive & Emotional Biases

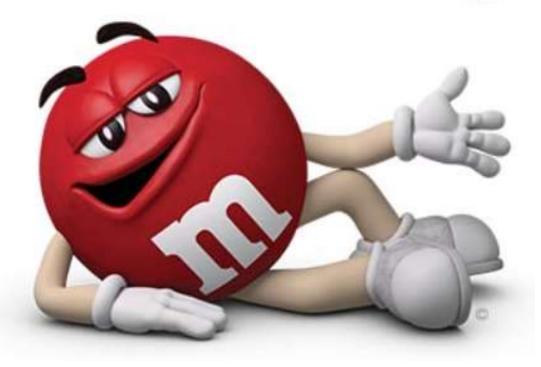
- Framing
- Narrow Framing
- Loss Aversion
- Myopic Loss Aversion
- Overconfidence
- Optimism Bias
- Endowment Effect
- Confirmation Bias
- Hindsight Bias
- Recency Bias



Behavioral Biases

Framing

- One of the strongest biases
- Focus on mental shortcuts
- Deals with
 - Cognitive bias (errors in thinking)
 - emotional biases (distortions caused by feelings)





I AM BLIND



IT IS SPRINGTIME AND I AM BLIND

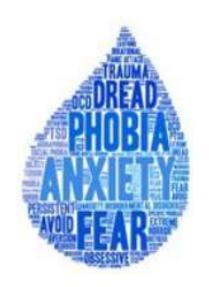
Narrow Framing



- Narrow framing consider problems as singular
- Kahneman and Lovallo
- Humans too optimistic about future outcomes anchored on plans rather than results
- Too timid focus on risks associated with a single action rather than considering risk in the aggregate
- Use intuition shared in large part by how accessible information is, or importantly, how easily that information may come to mind.
- Involves binary thinking, in terms of either/or



Loss Aversion





- Kahneman & Tversky found that individuals feel the pain of losses two to 2.5 times more deeply than they feel gains
- The length and severity of those losses matter
- Eric Johnson, Columbia University, older adults evidenced a pain from losses 5 times greater than any pleasure from gains —"Hyper Loss Aversion"

- Source: Prospect Theory: An analysis of Decision under Risk, Daniel Kahneman and Amos Tversky, Econometrical, 47(2), pages 263-291, page 273
- March 1979. Hypothetical example for educational purposes only. Not representative of an actual client or transaction.

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Loss Aversion



Example 2

Example 1

Award of \$100,000 AND

(a) Certain gain of \$50,000

OR

(b) Flip a coin in which you have:

H: 50% chance of a *gain* of \$100,000

T: 50% chance of gain of \$0

Award of \$200,000 AND

(a) Certain loss of \$50,000

OR

(b) Flip a coin in which you have:

H: 50% chance of *loss* of \$100,000

T: 50% chance of loss of \$0

- Source: Prospect Theory: An analysis of Decision under Risk, Daniel Kahneman and Amos Tversky, Econometrical, 47(2), pages 263-291, page 273
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Myopic Loss Aversion

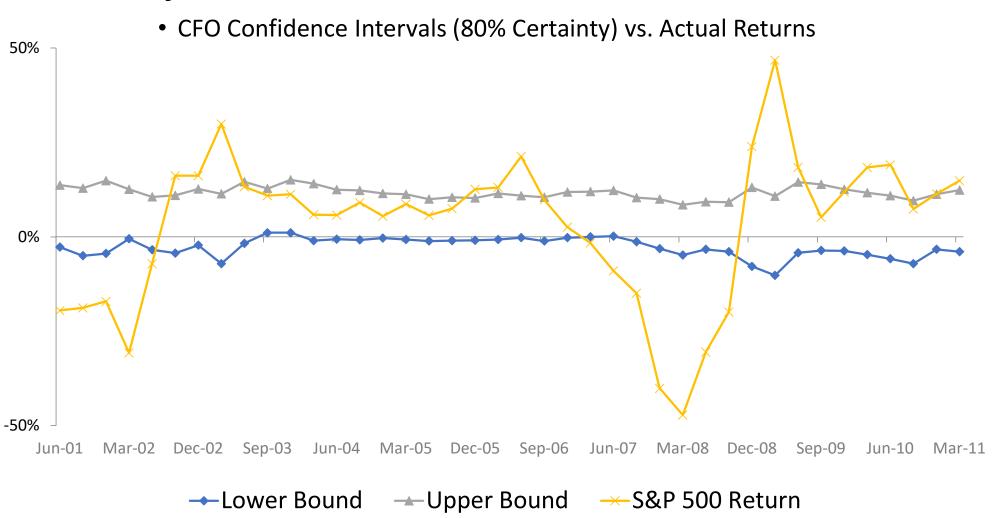
- Intense pain due to losses
- 1997 study
 - Reviewed 2 portfolios on a monthly basis vs. an annual basis
 - Monthly review lead to 59% bonds and 42% stocks.
 - Annual review lead to 70% stocks and 30% bonds
 - Those with most feedback took less risk





Behavioral Biases

Overconfidence



• Source: "Managerial Miscalibration", Itzhak Ben-David, John R. Graham, and Campbell R. Harvey, SSRN working paper.

Behavioral Biases

Optimism Bias

Belief that our chances of experiencing a negative event are lower than that of the average person.

1980 study by Neil Weinstein; comes from both cognitive and emotional reasons. Not everyone is above average

- 120 Female College Students
- 93% Above average drivers

Protects our self-esteem



Confirmation Bias





- The human tendency to select information or evidence which corroborates what we already believe
- Select the facts which confirm what we already believe and filter our contradictory facts, even if they are extremely relevant
- Research shows that most physicians already have in mind two or more possible diagnoses within minutes of meeting a patient, and that they tend to develop their hunches from very incomplete information, heuristics

Endowment Effect



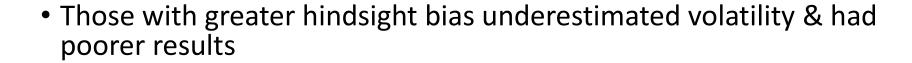


- Tendency to give a greater value to what we already own
- Thaler, Kahneman and Knetsch study
 - Students would not part with mugs at a reasonable price, Asked 3xs more than students that didn't own the mug
 - Boston Condo owners between 1990-97
 - Linked to loss aversion
 - Ownership-relation between people and their stuff
- Linked to Loss Aversion



Hindsight Bias

- The belief the event was really inevitable, foregone conclusion
- We knew it all along
- Fail to dig deeper
- Pay less attention to alternative explanations



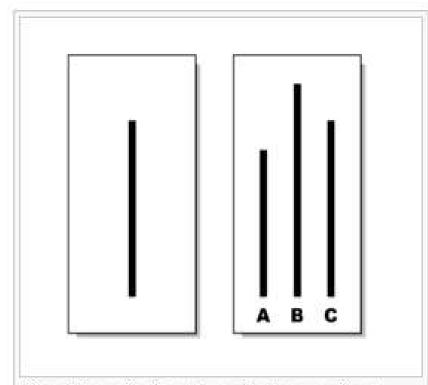




Herd Mentality

Asch Experiment of Social Conformity

- 8 group members 7 control, 1 test
- Members asked which of three lines is the same length as the reference line
- When 7 members purposely give wrong answer, 33% of test members give same wrong answer.
- Why?
 - Distortion of perception
 - Distortion of judgment
 - Distortion of action



One of the pairs of cards used in the experiment.

The card on the left has the reference line and the one on the right shows the three comparison lines.

• Source: S.E. Asch, "Effects of Group Pressure Upon the Modification and Distortion of Judgment," in Harold Guetzkow, 1951.

Bubbles Mania Exuberance

- Extreme forecasts based on flimsy data
- Benjamin Graham Intelligent Investor 1949
 - P/E Ratios
 - 1937 30 stocks of DJIA ranked them based on
 - Formed two portfolios
 - 10 highest P/Es
 - 10 lowest P/Es
 - Cheap stocks outperformed
 - Cheap portfolio \$10K into \$66,900
 - Expensive portfolio \$10 into \$23,300
 - Buying the entire portfolio \$44,000



Bubbles Mania Exuberance

- Reversion to mean can't happen
- No such thing as a cheap stock mispricing
- Overreactions of markets
 - Three year period loser portfolio did better
 - With lower beta (1.03 vs 1.37)



- Means the prices are wrong "Stock Prices and & Social Dynamics"
- Used Keynes term "Animal Spirits"





Law of One Price

- Splitting company up should not raise value
- 3Com and Palm
- Magically worth more separated



EMH: 3Com = Palm + remainder of 3Com

\$40/share = Palm + remainder of 3Com (12-13-99)

\$100/share = Palm + remainder of 3Com (3-1-2000)

Day of IPO divide into 2 investments

1 share new 3Comm = 1.5 shares Palm + remainder of 3Comm





Closed End Funds

Benjamin Graham

"an expensive monument erected to the inertia and stupidity of stockholders."

- Market price vs. NAV
- Violates EMH can't have two prices
- Larry Summer's Noise Traders
 - SIF = noise
 - News
 - Noise influences asset prices
 - "THERE ARE IDIOTS. Look around"
 - Small firm effect





Conclusions for Financial Markets

- EMH normative benchmark of how the world should be
 - Active money managers don't beat the market
 - Even when all the information is out there, the prices can still be wrong. And stay wrong for a long time.
- Low opinion of the price is Right
 - Price is often wrong
 - Sometimes very wrong
 - Causes for misallocation of resources
 - Example: Housing prices, NASDAQ 2000-2002 decline



Lessons for Practitioners

- Language makes a difference
- Clients have a wide range of biases.
- Biases and Heuristics are not always wrong
- Be aware of our own biases



Lessons for Professionals

- Ideas conform to observable reality
- Know what we "don't know"
- Focus on individual goals
- Recognize loss aversion (fear)



"Not ignorance, but ignorance of ignorance is the death of knowledge."

Alfred North Whitehead



Lessons for Practitioners

- Educate yourself
 - Seek out information which challenges assumptions
 - Add other alternatives to enrich the process
 - Consider context of past data as well as current circumstances
 - Evaluate this new information fairly and fully





Lessons for Practitioners

- Look at the whole picture business cycle, geopolitical context
- Rely on consistent benchmarks against the goals
- Consider using the "Ulysses Strategy" a behavioral solution to a bias
- Mental accounting is not always a fool's game.





Thank you for your time and attention.

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