Applying Behavioral Finance to Value Investing

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What is Behavioral Finance?

Peter Bernstein in Against the Gods states that the evidence "reveals repeated patterns of irrationality, inconsistency, and incompetence in the ways human beings arrive at decisions and choices when faced with uncertainty."

Behavioral finance attempts to explain how and why emotions and cognitive errors influence investors and create stock market anomalies such as bubbles and crashes.

But are human flaws consistent and predictable such that they can be: a) avoided and b) exploited for profit?

Why is Behavioral Finance Important?

"Investing is not a game where the guy with the 160 IQ beats the guy with the 130 IQ…Once you have ordinary intelligence, what you need is the temperament to control the urges that get other people into trouble in investing." -- Warren Buffett

Common Mental Mistakes

1) Overconfidence
2) Projecting the immediate past into the distant future
3) Herd-like behavior (social proof), driven by a desire to be part of the crowd or an assumption that the crowd is omniscient
4) Misunderstanding randomness; seeing patterns that don't exist
5) Commitment and consistency bias
6) Fear of change, resulting in a strong bias for the status quo
7) "Anchoring" on irrelevant data
8) Excessive aversion to loss
9) Using mental accounting to treat some money (such as gambling winnings or an unexpected bonus) differently than other money
10) Allowing emotional connections to over-ride reason
11) Fear of uncertainty
12) Embracing certainty (however irrelevant)
13) Overestimating the likelihood of certain events based on very memorable data or experiences (vividness bias)
14) Becoming paralyzed by information overload
15) Failing to act due to an abundance of attractive options
16) Fear of making an incorrect decision and feeling stupid (regret aversion)
17) Ignoring important data points and focusing excessively on less important ones; drawing conclusions from a limited sample size
18) Reluctance to admit mistakes
19) After finding out whether or not an event occurred, overestimating the degree to which one would have predicted the correct outcome (hindsight bias)
20) Believing that one's investment success is due to wisdom rather than a rising market, but failures are not one's fault
21) Failing to accurately assess one's investment time horizon
22) A tendency to seek only information that confirms one's opinions or decisions
23) Failing to recognize the large cumulative impact of small amounts over time
24) Forgetting the powerful tendency of regression to the mean
25) Confusing familiarity with knowledge

Overconfidence

1) 19% of people think they belong to the richest 1% of U.S. households
2) 82% of people say they are in the top 30% of safe drivers
3) 80% of students think they will finish in the top half of their class
4) When asked to make a prediction at the 98% confidence level, people are right only 60-70% of the time
5) 68% of lawyers in civil cases believe that their side will prevail
6) Doctors consistently overestimate their ability to detect certain diseases
7) 81% of new business owners think their business has at least a 70% chance of success, but only 39% think any business like theirs would be likely to succeed
8) Graduate students were asked to estimate the time it would take them to finish their thesis under three scenarios: best case, expected, and worst case. The average guesses were 27.4 days, 33.9 days, and 48.6 days, respectively. The actual average turned out to be 55.5 days.
9) Mutual fund managers, analysts, and business executives at a conference were asked to write down how much money they would have at retirement and how much the average person in the room would have. The average figures were $5 million and $2.6 million, respectively. The professor who asked the question said that, regardless of the audience, the ratio is always approximately 2:1
10) 86% of my Harvard Business School classmates say they are better looking than their classmates

Can lead to straying beyond circle of competence and excessive leverage, trading & portfolio concentration

Information and Overconfidence

Sometimes additional information can lead to worse decisions, overconfidence and excessive trading

- Heuer study of 8 professional handicappers (set betting odds at horse races)
  - Moving from 5 most important pieces of data to 40 slightly *de*creased handicapping accuracy
  - But *doubled* their confidence
  - Similar results with doctors and psychologists
  - Conclusion: “Experienced analysts have an imperfect understanding of what information they actually use in making judgments. They are unaware of the extent to which their judgments are determined by a few dominant factors, rather than by the systematic integration of all available information. Analysts use much less available information than they think they do."

- Andreassen study on information overload leading to excessive trading

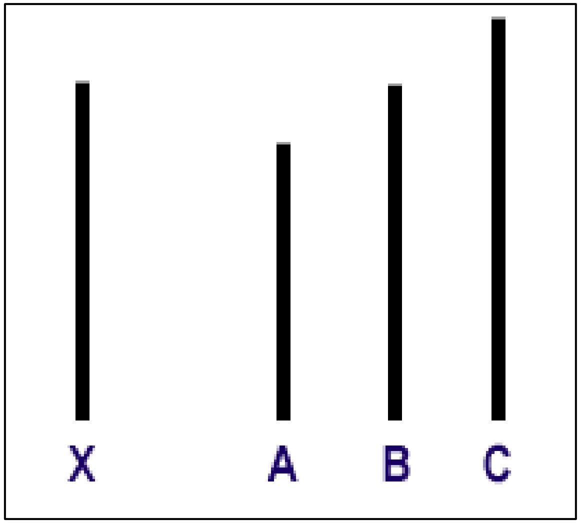
Herd-Like Behavior

- A “social proof” phenomenon
- From 1984 through 1995, the average stock mutual fund posted a yearly return of 12.3% (versus 15.4% for the S&P), yet the average investor in a stock mutual fund earned 6.3%. That means that over these 12 years, the average mutual fund investor would have made nearly twice as much money by simply buying and holding the average mutual fund, and nearly three times as much by buying and holding an S&P 500 index fund.
- Over the same period, the average bond mutual fund returned 9.7% annually, while the average investor in a bond mutual rose earned 8% annually
  - A far narrower gap than equity funds
  - Bonds are easier to value and thus bond markets are not as susceptible to bubbles and crashes

A Key Factor in Bubbles Forming: Conforming With the Crowd

Conforming with the crowd: the Solomon Asch experiment

- 35% of the subjects conformed to the group's judgment, even though they knew it was wrong, because they were uncomfortable being a minority facing an overwhelming majority
- The size of the group didn't matter
- But if even one person gave the correct answer, the subject was far more likely to also give the correct answer



Source: Solomon E. Asch, "Effects of group pressure upon the modification and Distortion of judgment," in h. Guertzkow, ed., *Groups, leadership, and men* (Pittsburgh, PA: Carnegie press, 1951).

More on Bubbles

- Overconfidence, social proof, misunderstanding random bunching, overweighting vivid & recent data – lollapalooza effect

- Wall Street Journal, 4/30/04:

  “Speculators do know that it's important to get out, however -- that's the lesson they took away from the cratering of the dot-com highfliers. And they appear to believe that they will be able to get out before a stock craters, as illustrated by numerous trading experiments conducted by Vernon Smith, a professor at George Mason University who shared in the 2002 Nobel Prize for economics.

  In these experiments, participants would trade a dividend-paying stock whose value was clearly laid out for them. Invariably, a bubble would form, with the stock later crashing down to its fundamental value. Participants would gather for a second session. Still, the stock would exceed its assigned fundamental value, though the bubble would form faster and burst sooner.

  "The subjects are very optimistic that they'll be able to smell the turning point," says Mr. Smith. "They always report that they're surprised by how quickly it turns and how hard it is to get out at anything like a favorable price."

  But bring the participants back for a third session, and the stock trades near its fundamental value, if it trades at all, the professor's studies show.”

Loss Aversion

- People feel pain of loss twice as much as they derive pleasure from an equal gain
- Case study: two six-sided dice, A and B. A is marked 1-1-1-1-1-13. B is marked 2-2-2-2-2-2. People prefer B, though expected value of A is higher (3 vs. 2)
- Case study: Refusal to sell at a loss
  - Philip Fisher, Common Stocks and Uncommon Profits:

    "There is a complicating factor that makes the handling of investment mistakes more difficult. This is the ego in each of us. None of us likes to admit to himself that he has been wrong. If we have made a mistake in buying a stock but can sell the stock at a small profit, we have somehow lost any sense of having been foolish.

    On the other hand, if we sell at a small loss we are quite unhappy about the whole matter. This reaction, while completely natural and normal, is probably one of the most dangerous in which we can indulge ourselves in the entire investment process.

    More money has probably been lost by investors holding a stock they really did not want until they could 'at least come out even' than from any other single reason. If to these actual losses are added the profits that might have been made through the proper reinvestment of these funds if such reinvestment had been made when the mistake was first realized, the cost of self-indulgence becomes truly tremendous."

Commitment

- “A study done by a pair of Canadian psychologists uncovered something fascinating about people at the racetrack: Just after placing a bet, they are much more confident of their horse’s chances of winning than they are immediately before laying down that bet.

  The reason for the dramatic change is…our nearly obsessive desire to be (and to appear) consistent with what we have already done. Once we have made a choice or taken a stand, we will encounter personal and interpersonal pressures to behave consistently with that commitment. Those pressures will cause us to respond in ways that justify our earlier decision.” – Influence

- Leads to information distortion. "Information that is consistent with our existing mindset is perceived and processed easily. However, since our mind strives instinctively for consistency, information that is inconsistent with our existing mental image tends to be overlooked, perceived in a distorted manner, or rationalized to fit existing assumptions and beliefs. Thus, new information tends to be perceived and interpreted in a way that reinforces existing beliefs.”
  – Grizelda and Beth study
    - Example of commitment and also “brains have a remarkable talent for reframing suboptimal outcomes to see setbacks in the best possible light. You can see it when high-school seniors decide that colleges that rejected them really weren't much good.”

- Case study: “I made a big mistake in not selling several of our larger holdings during The Great Bubble. If these stocks are fully priced now, you may wonder what I was thinking four years ago when their intrinsic value was lower and their prices far higher. So do I.” – Warren Buffett, 2003 Berkshire Hathaway annual report

- One of the great dangers of speaking/writing publicly about one’s positions.

Anchoring

- Anchoring on purchase price
  - "When I bought something at X and it went up to X and 1/8th, I sometimes stopped buying, perhaps hoping it would come back down. We've missed billions when I've gotten anchored. I cost us about $10 billion [by not buying enough Wal-Mart]. I set out to buy 100 million sharers, pre-split, at $23. We bought a little and it moved up a bit and I thought it might come back a bit – who knows? That thumb-sucking, the reluctance to pay a little more, cost us a lot." -- Buffett
  - Selling Denny's at different prices
- Anchoring on historical price (or typical price)
  - Refusal to buy a stock today because it was cheaper last year or has a high price per share (Berkshire Hathaway)
  - Refusal to sell because it was higher in the past
- Anchoring on historical perceptions
  - Dell is a commodity box maker or MBIA is a triple-A company
- Anchoring on initial data/perceptions
  - Restaurant descriptions experiment
- Anchoring on meaningless numbers
  - Taversky and Kahneman study: spin the wheel and estimate the percentage of countries in the UN that are African

Learning the Wrong Lessons by Misunderstanding Randomness

- Confusing making money with making a good decision
  - Chris Davis's 5-bagger mistake
  - Munger's example of oil executives congratulating themselves

- Confusing losing money with making a bad decision
  - Calculated risks are OK
  - Bob Rubin's example of politics (from <u>In an Uncertain World</u>)

- Pecking pigeon experiment

Other Mistakes

- Mental accounting
  - Invest speculatively with “found money” or small amounts of money
    - Holocaust payments
  - There is no such thing as “house money”

- Emotional connections
  - Paying more for a new car when upgrading
  - I like McDonald’s food; Cantalupo’s gift to my children
  - Discount on Cutter & Buck clothing (reciprocity)
  - Becoming friends with management

- Fear of uncertainty

- Embracing certainty (however irrelevant)
  - The future is uncertain and hard to predict, where as the past is known
  - Focus on stock charts (irrelevant)

Other Mistakes (2)

- Vividness bias
  - "People tend to underestimate low probability events when they haven't happened recently, and overestimate them when they have." – Buffett
  - Panic after WorldCom and Enron blew up
  - Projecting the immediate past into the distant future
    - Buffett: Driving while "looking into the rear-view mirror instead of through the windshield."
    - Cisco in March 2000, McDonald's in March 2003

- Worrying about what others will think
  - Klarman: "As a money manager, it's potentially embarrassing and painful to have to explain to your investors why you own a name that went into bankruptcy. So the temptation is to just get rid of it."

- Paralysis resulting from too many choices
  - Experiment: Selling jams in a supermarket
  - My failure to act in July and October, 2002…
  - …and finally acting in March 2003

- The near-miss phenomenon
  - Slot machines
  - Lynch: "Long shots almost never pay off"

Other Mistakes (3)

- Status quo bias and endowment effect
  - Inheritance study
  - Thaler’s coffee mugs experiment
    - $5.25 vs. $2.75 for a $6 mug
  - Picking cards out of a deck experiment
    - Valuing a card worth $1.92 for $1.86 or $6.00 or $9.00

- Self-interest bias
  - Descarte: Man is incapable of understanding any argument that interferes with his revenue
  - Mutual fund scandal
    - Munger: “It’s as if someone approached you and said, ‘Let’s murder your mother and split the life insurance proceeds 50/50.’”
  - Hedge funds swinging for the fences

- Failing to consider second- and third-order consequences
  - Legislation mandating small class sizes

- Regret aversion
  - Failing to act (see next slide)

Failing to Act

- Failing to Buy
  - Status quo bias
  - Regret aversion
  - Choice paralysis
  - Information overload
  - Hope that stock will go down further (extrapolating recent past into the future; greed) or return to previous cheaper price (anchoring)
  - Regret at not buying earlier (if stock has risen)
    - Office Depot at $8 (vs. $6)

- Failing to Sell
  - Status quo bias
  - Regret aversion
  - Information overload
  - Endowment effect
  - Vivid recent evidence (if stock has been rising)
  - Don’t want to sell at a loss (if stock has been falling)
  - If I didn’t own it, would I buy it? Or, If the stock dropped 25%, would I enthusiastically buy more?

Not to decide *is* a decision

Tips to Applying Behavioral Finance

- Be humble
  - Avoid leverage, diversify, minimize trading

- Be patient
  - Don’t try to get rich quick
  - A watched stock never rises
  - Tune out the noise
  - Make sure time is on your side (stocks instead of options; no leverage)

- Get a partner – someone you really trust – even if not at your firm

- Have written checklists; e.g., my four questions:
  - Is this within my circle of competence?
  - Is it a good business?
  - Do I like management? (Operators, capital allocators, integrity)
  - Is the stock incredibly cheap? Am I trembling with greed?

- Actively seek out contrary opinions
  - Try to rebut rather than confirm hypotheses; seek out contrary viewpoints; assign someone to take opposing position or invite bearish analyst to give presentation (Pzena’s method)
  - Use secret ballots
  - Ask “What would cause me to change my mind?”

Tips to Applying Behavioral Finance (2)

- Don't anchor on historical information/perceptions/stock prices
  - Keep an open mind
  - Update your initial estimate of intrinsic value
  - Erase historical prices from your mind; don't fall into the "I missed it" trap
  - Think in terms of enterprise value not stock price
  - Set buy and sell targets

- Admit and learn from mistakes – but learn the right lessons and don't obsess
  - Put the initial investment thesis in writing so you can refer back to it
  - Sell your mistakes and move on; you don't have to make it back the same way you lost it
  - But be careful of panicking and selling at the bottom

- Don't get fooled by randomness

- Understand and profit from regression to the mean

- Mental tricks
  - Pretend like you don't own it (Steinhardt going to cash)
  - Sell a little bit and sleep on it (Einhorn)

Recommended Reading

(in rough order of priority)

- Poor Charlie's Almanack
- Influence, Robert Cialdini
- Why Smart People Make Big Money Mistakes, Belsky and Gilovich
- The Winner's Curse, Thaler
- Irrational Exuberance, Shiller
- Against the Gods: The Remarkable Story of Risk, Bernstein
- See overview of the field at http://www.investorhome.com/psych.htm