Behavioral Finance

http://www.investopedia.com/university/behavioral_finance/

Shiller (2003)

Survival frame

- Imagine that Thailand is preparing the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative program to combat the disease are proposed.
  - If program A is adopted, 200 people will be saved
  - If program B is adopted, there is a ½ probability that 600 people will be saved and a ½ that no people will be saved
- Which of the two programs would you favor?

Mortality frame

- Imagine that Thailand is preparing the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative program to combat the disease are proposed.
  - If program C is adopted, 400 people will die
  - If program D is adopted, there is a ½ probability that nobody will die and a ½ that 600 people will die
- Which of the two programs would you favor?

According to Tversky and Kahneman (1981) *The framing of decisions and the psychology of choice*. **Science 211**, pp. 453 – 458.

- Of all the respondents to the first problem, 72% picked A
- Of all the respondents to the second problem, 78% picked D
- But actually these two problems are identical!
- Psychological factors matter!

Behavioral Economics

- A relatively new field that uses ***sociological and psychological factors*** in explaining economic decisions of individuals and institutions

Background

- According to “conventional” financial theory, the world and its participants are, for the most part, ***rational*** "wealth maximizers"
- The results are:
  - Efficient Market Hypothesis
  - CAPM
- However, there are some “anomalies” (i.e., irregularities) that conventional financial theories have failed to explain

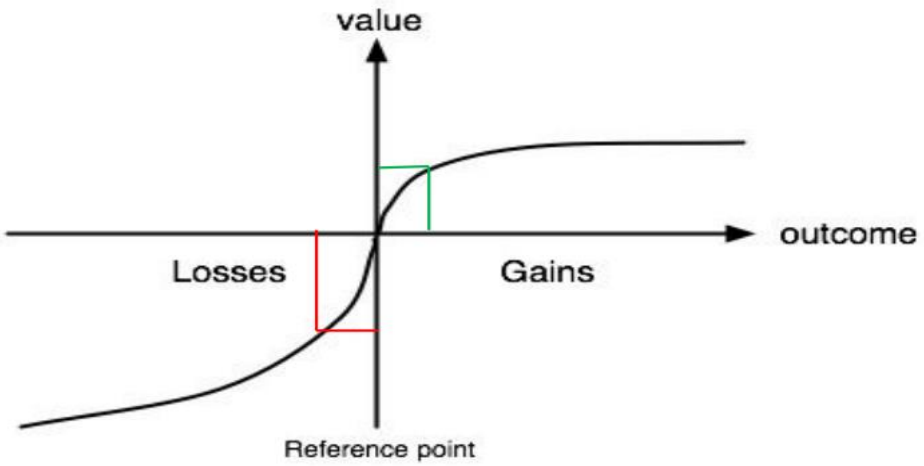
SOME PSYCHOLOGICAL FACTORS

Loss Aversion, Prospect Theory, the Disposition Effect and the Endowment Effect

- Key aspect 1: People sometimes exhibits risk aversion and sometimes exhibit risk seeking, depending on the nature of the prospect.
- Key aspect 2: People's valuations of prospects depend on gains and losses relative to a reference point. This reference point is usually the status quo.
- Key aspect 3: People are averse to losses because losses loom larger than gains.

Loss Aversion, Prospect Theory, the Disposition Effect and the Endowment Effect

- People have been shown to be loss averse, generally appearing to dislike losing something roughly twice as much as they like gaining it (Kahneman and Tversky, 1982)



Status Quo Bias and the Default Option

- People are resistant to change, fearing the regret that might follow if active steps are undertaken to alter the status quo.
- An example; As part of a law reform programs, citizens were offered two options for their automotive insurance: an expensive option giving them full right to sue and a less expensive option with restricted rights to sue. In New Jersey the cheaper option was the default and most citizens selected it. Only a minority chose the cheaper option in Pennsylvania, where the more expensive option was the default.

Framing Effects and Anchoring Effects

- The appraisal of alternative options can also depend on the way the choice is presented, or “framed”. People have a preference for positive rather than negative frames.
- For example, in choosing cancer treatment, 82% of patients preferred surgery over radio therapy when surgery was described as having a 90% survival rate. However, only 56% preferred surgery over radio therapy when it was described as having a 10% mortality rate.

Mental Accounting

- Mental accounting occurs when sums of money are treated and valued differently depending on where they came from and/or where they are kept
- For example, most people coming to a store to buy a lamp for $50 would travel to a different branch 5 minutes away if told that they could buy the same lamp at the other location for a special sale price of $25.
- However, most people coming to a store to buy a dinner table set for $1,500 would not travel to a different branch 5 minutes away if told they could buy the same set at another store for $1,475

Overconfidence

- Overconfidence is the tendency for people to overestimate their knowledge, abilities, and the precision of their information, or to be overly sanguine of the future and their ability to control it.
- For example, one researcher surveyed a sample of students, reporting that 82% rated themselves in the top 30% of their group on driving safety.

SOME ANOMALIES

Anomalies (1)

- The presence of regularly occurring anomalies in conventional economic theory was a big contributor to the formation of behavioral finance

- January Effect:
  - The January effect is named after the phenomenon in which the average monthly return for small firms is consistently higher in January than any other month of the year

Anomalies (2)

- The Winner's Curse
  - the winner's curse - a tendency for the winning bid in an auction setting to exceed the intrinsic value of the item purchased
- Equity Premium Puzzle
  - Studies have shown that over a 70-year period, stocks yield average returns that exceed government bond returns by 6-7%
  - However, academics believe that an equity premium of 6% is extremely large and would imply that stocks are considerably risky to hold over bonds (Next Time)

CHALLENGES TO MARKET EFFICIENCY

Efficient Markets Hypothesis

- The efficient markets hypothesis (EMH) maintains that market prices fully reflect all available information.

- The most enduring critique of EMH comes from psychological and behavioral economists who argue that the EMH is based on counterfactual assumptions regarding human behavior, that is, rationality.

Anomaly 1: Lagged Reactions to Earnings Announcements

- Recall that excess returns are above what needs to be earned in compensation for the risk borne.
- If markets are efficient, we should expect to see a positive/negative reaction to good/bad news over the window that includes the announcement, but no further reaction on days after that, to eliminate excess returns.
- Many studies found the tendency to be a continued drift in prices, which is sufficiently large and persistent. This is inconsistent with EMH.

Anomaly 2: Value s Growth

- **Value stocks** are defined to be stocks with prices that are low relative to such accounting magnitudes as earnings, cash flows, and book value.
- **Value investing** is the tendency to overweight value stocks in one's portfolio.
- As an example, this is from a journal article

	Quintile A	Quintile B	Quintile C	Quintile D	Quintile E
	High P/E				Low P/E
Median P/E	35.8	19.1	15.0	12.8	9.8
Average return	9.3%	9.3%	11.7%	13.6%	16.3%
Estimated beta	1.11	1.04	0.97	0.94	0.99

Anomaly 3: Momentum and Reversal

- According to weak form of EMH, returns should not be predictable by conditioning on lagged returns. There is abundant evidence that this does not always hold in practice.
- **Momentum** exists when returns are positively correlated with past returns.
- **Reversal** exists when returns are negatively correlated with past returns.
- For medium-term intervals (3 – 12 months), there is well-documented momentum. For long-term intervals (3 – 5 years), reversal is typical.

Shiller (2003)

- The 1980s and Excess Volatility
  - The anomaly represented by the notion of excess volatility seems to be much more troubling for efficient market theory than some other financial anomalies
  - The efficient market hypothesis can be stated as:

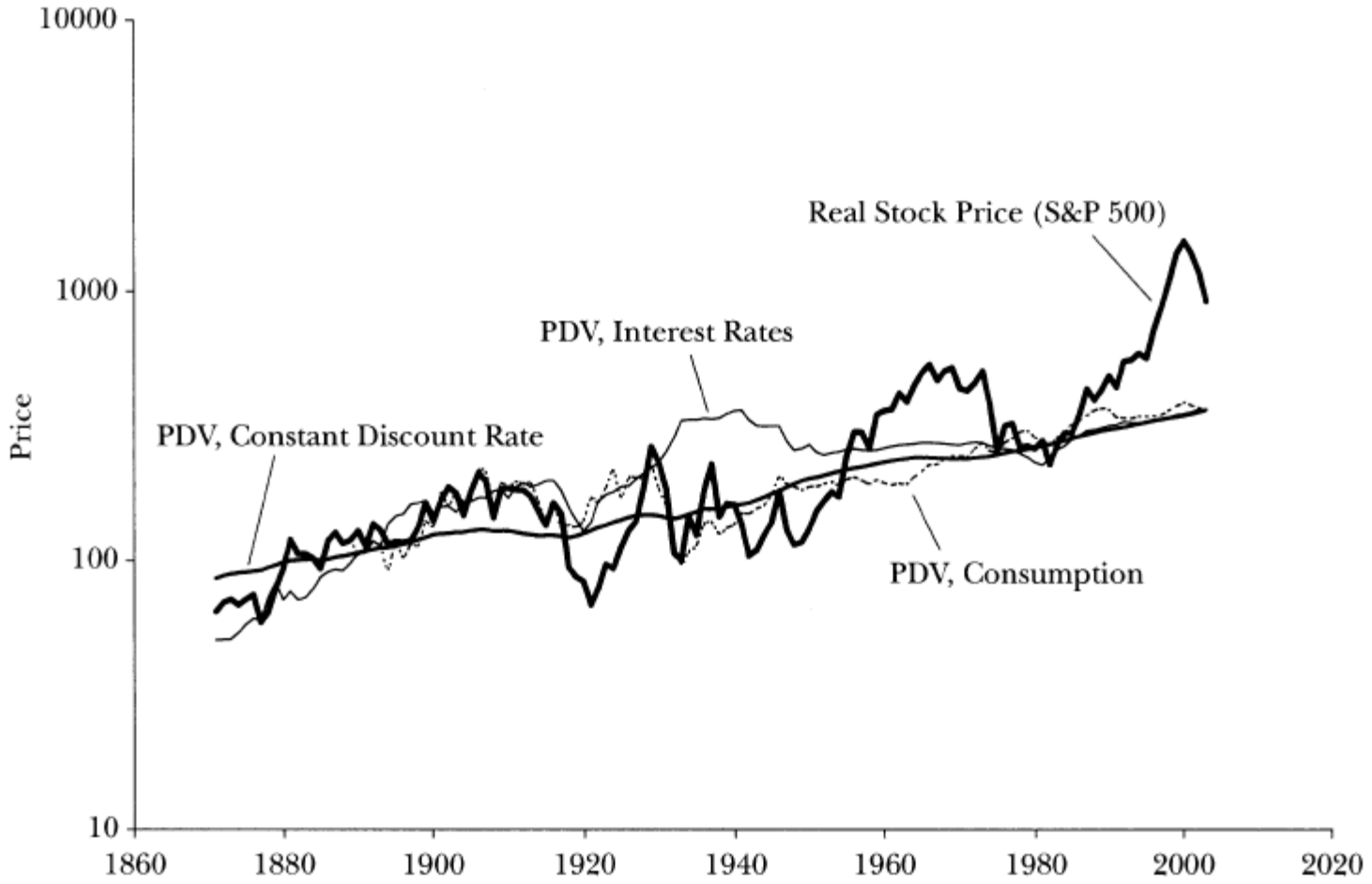
$$P_t^* = P_t + U_t$$

  - Forecast must be less variable than the variable forecasted

Figure 1

Real Stock Prices and Present Values of Subsequent Real Dividends

(*annual data*)



The Blossoming of Behavioral Finance

- In the 1990s, a lot of academic discussion shifted away from the econometric analyses of time series on prices, devidends and earnings toward developing models of human psychology as it relates to financial markets
- Two examples:
  - Feedback Models
  - Smart Money Vs. Ordinary Investors

Feedback Models (1)

- When speculative prices go up, creating successes for some investors, this may attract public attention, promote word-of-mouth enthusiasm, and heighten expectations for further price increases
- People talk about “new era” that justify the price increases, increasing the investor demand and generating another round of price increases

Feedback Models (2)

- The high prices are ultimately not sustainable, since they are high only because of expectations of further price increases, and so the bubble eventually bursts, and prices come falling down
- The presence of such feedback is supported by some “experimental” evidence
- Biased Self-Attribution: Individuals attribute events that confirm the validity of their actions to their own high ability and attribute events that disconfirm their actions to bad luck or sabotage

Smart Money Vs. Ordinary Investors

- There are two types of investors:
  - Smart Money (Rational Investors)
  - Feedback Traders (Irrational Investors)
- It is far from clear that smart money has the power to drive market prices to fundamental values
- Smart money may face some constraints to bring prices back to fundamental

Critics

- The most notable critic of behavioral finance is Eugene Fama, the founder of market efficiency theory. Professor Fama suggests that even though there are some anomalies that cannot be explained by modern financial theory, market efficiency should not be totally abandoned in favor of behavioral finance.
- In fact, he notes that many of the anomalies found in conventional theories could be considered shorter-term chance events that are eventually corrected over time. In his 1998 paper, entitled "Market Efficiency, Long-Term Returns And Behavioral Finance", Fama argues that many of the findings in behavioral finance appear to contradict each other, and that all in all, behavioral finance itself appears to be a collection of anomalies that can be explained by market efficiency.