충남대학교
Chungnam National University

투자론

- *R*과 Excel을 통한 금융데이터 분석 -

9주차
효율적 시장가설

충남대학교
장호규 교수

충남대학교
Chungnam National University

Unit 02

Behavioral Finance

Overview

- Conventional vs. Behavioral Finance
  - Information processing and behavioral irrationalities
  - Limits to arbitrage and bubbles in behavioral economics

Behavioral Finance

Conventional Finance

- Prices are correct and equal to intrinsic value
- Resources are allocated efficiently
- Consistent with EMH

Behavioral Finance

- What if investors don’t behave rationally?

Behavioral Critique

Two Categories of Irrationalities

1. **Investors do not always process information correctly**
   - Result: Incorrect probability distributions of future returns

2. **Even when given a probability distribution of returns,** investors may make inconsistent or suboptimal decisions
   - Result: They behave behavioral biases

Errors in Information Processing

1. Forecasting Errors
2. Overconfidence
3. Conservatism
4. Sample Size Neglect and Representativeness

Examples of Behavioral Biases

1. Framing

- How the risk is described, “risky losses” vs. “risky gains” can affect investor decisions

2. Mental Accounting

- Investors may segregate accounts or monies and take risks with their gains that they would not take with their principal

Examples of Behavioral Biases

3. Regret Avoidance

- Investors blame the mselves more when an unconventional or risky bet turns out badly

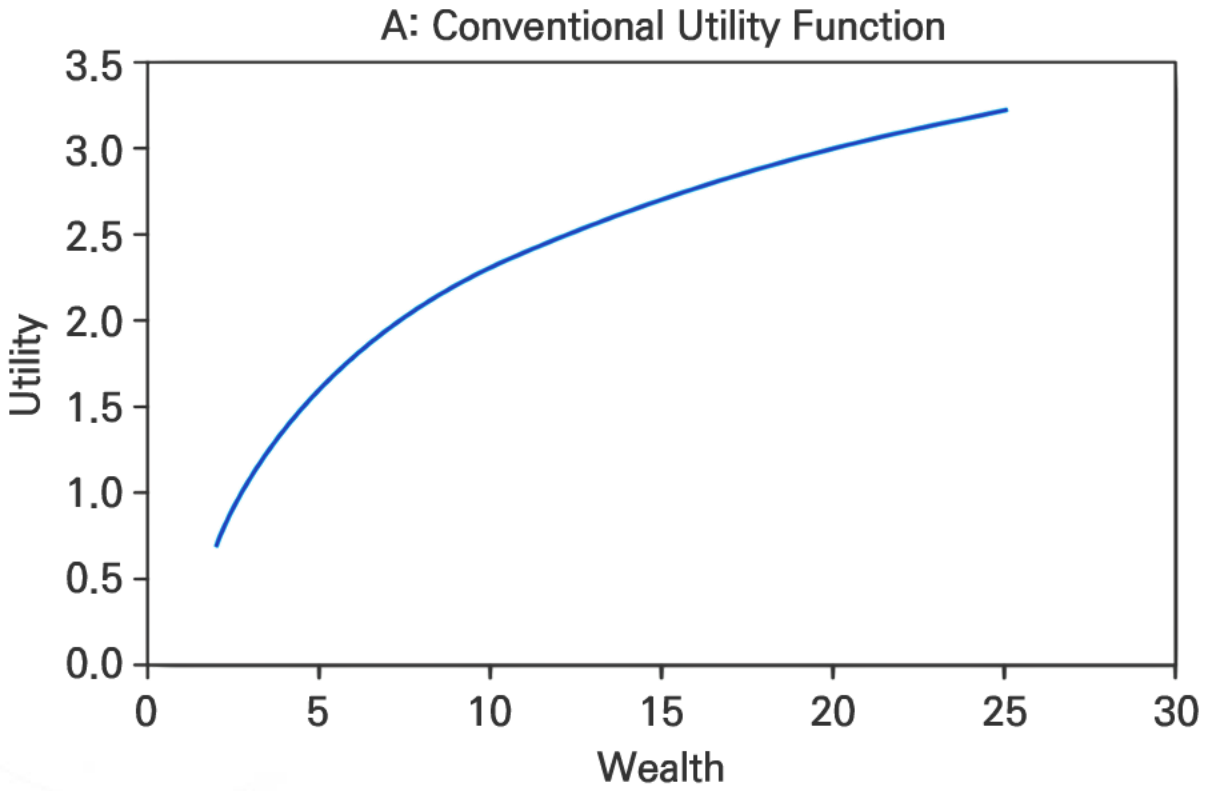
4. Prospect Theory

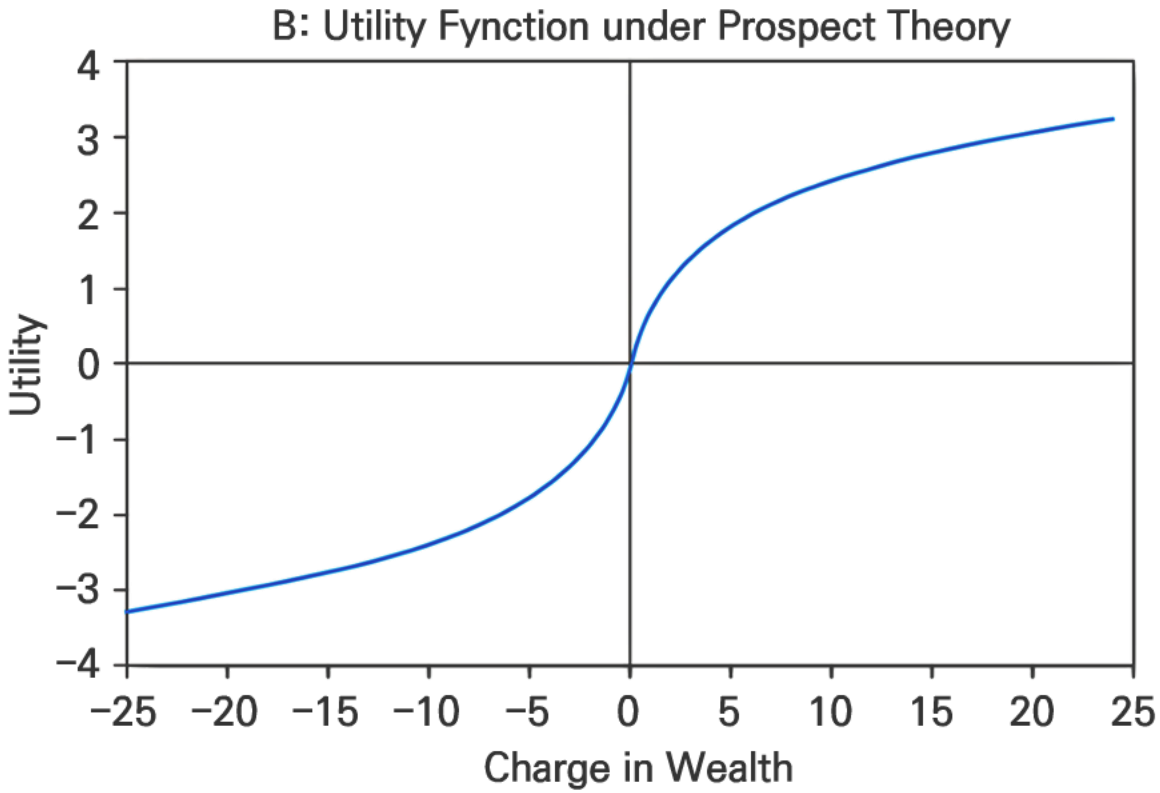
- Conventional View: Utility depends on level of wealth
- Behavioral view: Utility depends on changes in current wealth

Example for Framing

- **Situation: Without any preventive healthcare security measure, 600 will die for sure.**
  - Choice
    - A. With this option, 200 less death for sure (100% chance).
    - B. With this option, 600 less death with 1/3 chance, and no effect in reducing the number of death with 2/3 chance.
  - Choice
    - C. With this option, 400 will die for sure (100% chance).
    - D. With this option, no one dies with 1/3 chance, or 600 will die with 2/3 chance.

Prospect Theory — Utility





Limits to Arbitrage

- **Behavioral biases would not matter if rational arbitrageurs could fully exploit the mistakes of behavioral investors**
- **Fundamental Risk**
  - “Markets can remain irrational longer than you can remain solvent”
  - Intrinsic value and market value may take too long to converge
- **Implementation Costs**
  - Transactions costs and restrictions on short selling can limit arbitrage activity
- **Model Risk**
  - What if you have a bad model and the market value is actually correct?

Limits to Arbitrage and the LOP

Siamese twin Companies

- Royal Dutch should sell for 1.5 times Shell, deviated from parity ratio for extended periods = Example of fundamental risk

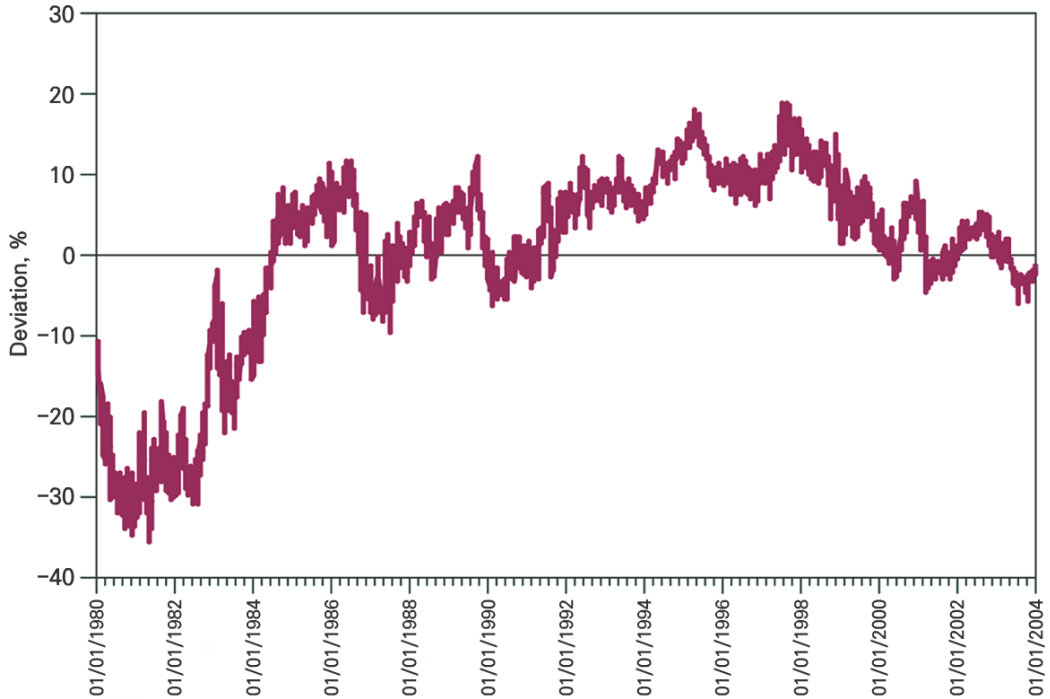


Figure -- Log Deviations from Royal Dutch Shell/Shell T&T parity.

출처 : Mathijs van Dijk, www.mathijsavandijk.com/dual-listed-companies. Used with permission

Bubbles and Behavioral Economics

- **Bubbles are easier to spot after they end**
  - Dot-com bubble
  - Housing bubble

- **Rational explanation for stock market bubble using the dividend discount model**

$$PV_0 = \frac{D_1}{k - g}$$

Bubbles and Behavioral Economics

- S&P 500 is worth $12,883 million if dividend growth rate is 8% (close to actual value in 2000)
- S&P 500 is worth $8,589 million if dividend growth rate is 7.4% (close to actual value in 2002)

Concept Check!

Concept Check 1

- We saw in Chapter 11 that stocks seem to exhibit a pattern of short- to middle-term momentum, along with long-term reversals. How might this pattern arise from an interplay between the conservatism and representativeness biases?

Concept Check 2

- How might the P/E effect also be explained as a consequence of regret avoidance?

Exercise Problem 1

Jill Davis tells her broker that she does not want to sell her stocks that are below the price she paid for them. She believes that if she just holds on to them a little longer they will recover, at which time she will sell them. Which behavioral characteristic is the basis for Davis's decision making?

a. Loss Aversion

b. Conservatism

c. Representativeness

Exercise Problem 2

Match each example to one of the following behavioral characteristics.

Example	Characteristic
a. Investors are slow to update their beliefs when given new evidence	i. Disposition effect
b. Investors are reluctant to bear losses caused by their unconventional decisions.	ii. Representativeness bias
c. Investors exhibit less risk tolerance in their retirement accounts versus their other stock accounts.	iii. Regret avoidance
d. Investors are reluctant to sell stocks with "paper" losses.	iv. Conservatism bias
e. Investors disregard sample size when forming views about the future from the past	v. Mental accounting

Exercise Problem 3

During an interview with her investment adviser, a retired investor made the following two statements:

a. "I have been very pleased with the returns I've earned on Petrie stock over the past two years and I am certain that it will be a superior performer in the future."
b. "I am pleased with the returns from the Petrie stock because I have specific uses for that money. For that reason, I certainly want my retirement fund to continue owning the Petrie stock."

Identify which principle of behavioral finance is most consistent with each of the investor's two statements.