BUAD 340 Principles of Finance Fall 2018/Dr. Minor Risk and Return Handout 181022

Van Horne Chapter 5. Risk and Return

Single Asset Risk Analysis

- **Standard Deviation** is a statistical measure of the variability of a distribution around its mean.
- **Coefficient of Variation** is the ratio of the *standard deviation* of a distribution to the *mean* of that distribution. It is a measure of *RELATIVE* risk

See Risk Calculation Spreadsheet 181022.

Certainty Equivalent (CE) is the amount of cash someone would require with certainty at a point in time to make the individual indifferent between that certain amount and an amount expected to be received with risk at the same point in time.

Certainty equivalent > Expected value
Risk Preference

Certainty equivalent = Expected value
Risk Indifference

Certainty equivalent < Expected value
Risk Aversion

***Most* individuals are Risk Averse.**

Example 5.21
You have the choice between
(1) a guaranteed dollar reward or
(2) a coin-flip gamble of $100,000 (50% chance) or
(3) $0 (50% chance).
The expected value of the gamble is $50,000**.**

- *Mary* requires a guaranteed $25,000, or more, to call off the gamble.
- *Raleigh* is just as happy to take $50,000 or take the risky gamble.
- *Shannon* requires at least $52,000 to call off the gamble.

What are the Risk Attitude tendencies of each?
Mary shows "risk aversion" because her "certainty equivalent" < the expected value of the gamble.
Raleigh exhibits "risk indifference" because her "certainty equivalent" equals the expected value of the gamble.
Shannon reveals a "risk preference" because her "certainty equivalent" > the expected value of the gamble.

Next Class: Portfolio Risk Analysis

Smart Chapter 4. Risk and Return

Why Return Is Important

- The rate of return indicates how rapidly an investor can build wealth.
- Allows us to "keep score" on how our investments are doing compared to our expectations
- Historical Performance
  - Provides a basis for future expectations
  - Does not guarantee future performance
- Expected Return
  - Return an investor thinks an investment will earn in the future
  - Determines what an investor is willing to pay for an investment or if they are willing to make an investment

- Internal Characteristics
  - Type or risk of investment
  - Issuer's management
  - Issuer's financing
- External Forces
  - Political environment
  - Business environment
  - Economic environment
  - Inflation
  - Deflation

Investor Required Return

The rate of return an investor must earn on an investment to be fully compensated for its risk

$$\text{Required return on investment } j = \text{Real rate of return} + \text{Expected inflation premium} + \text{Risk premium for investment } j$$

$$\text{Required return on investment } j = \text{Risk-free rate} + \text{Risk premium for investment } j$$

Sources of Risk

Business (earnings: stocks)
Financial (debt to equity: common stocks, corporate bonds)
Purchasing Power (inflation: bonds, CDs)
Interest Rate (bonds, preferred stocks)
Liquidity (small company stocks, real estate)
Tax (municipal bonds, real estate0
Event (all)
Market (all)
Currency Exchange (international stocks and bonds)