Micro and Macro Behavioral Finance

Four Axioms of Rational Decision Makers

Bayes' Formula

Risk Aversion in Behavioral Finance

- **Completeness.** Given a choice between A and B, either A or B is preferred, or indifference.
- **Transitivity.** If A is preferred to B is preferred to C then A must be preferred to C.
- **Independence.** If A and B are mutually exclusive with A preferred, and C is an additional choice that adds positive utility, then $A + \alpha C$ is preferred to $B + \alpha C$. Here αC is some portion of C.
- **Continuity.** If A is preferred to B is preferred to C, then there will be a combination of A and C indifferent from B.

- **Micro behavioral finance** describes the decision-making process of individuals. It tries to explain why they deviate from traditional finance.
- **Macro behavioral finance** tries to explain how and why markets deviate from the efficiency of traditional finance.

Traditional finance assumes individuals are risk-averse and prefer greater certainty over less certainty. Behavioral finance uses the following categories.

- **Risk-averse** have a greater loss of utility for a given loss of wealth than they gain in utility for the same risk in wealth.
- **Risk-neutral** gains or loses the same amount of utility for a given gain or loss of wealth.
- **Risk seeker** gains more utility for a rise in wealth than they lose in an equivalent loss of wealth.

$$P(A|B) = \frac{P(B|A)}{P(B)} P(A)$$

where:

$P(A|B)$ = probability of A occurring given that B has occurred

$P(B|A)$ = probability of B occurring given that A has occurred

$P(A)$ = probability of A occurring

$P(B)$ = probability of B occurring

Traditional and Behavioral Finance Utility Functions

Study Session 3

- Traditional finance is based in utility theory with an assumption of diminishing marginal return. This implies
  - The risk-averse utility function is concave. As more wealth is added, utility increases at a diminishing rate.
  - Convex indifference curves due to diminishing marginal rates of substitution.
- Behavioral finance observes people who are both risk-seeking and risk-averse. This can lead to complex, double-inflection utility functions.