Part C

Time and Risk

I. Premise in Previous Discussions

So far in the course, we have said that:

1. Prices of cash flows with different timing and risk are determined in financial markets.

2. Prices of a rich set of traded securities allows us to price a particular cash flow by arbitrage.

3. Pricing of safe cash flows depends on their timing (time value of money).

4. Pricing of risky cash flows (with the same timing) has the following properties:

   (a) Cashflows with "same risk" should be discounted at the same rate.

   (b) "More risky" cashflows should be discounted at higher rate.

II. Unanswered Questions

We have left unanswered the following questions:

1. How do financial markets determine the time value of money?
2. How do we define and measure risk?
3. How do financial markets determine the price of risk?
4. How do we price risky cash flows that cannot be replicated by traded securities?

III. Objective of Part C

Answers to these questions are the focus of this part of the course.

1. Time value of money (interest rates) (Chapter 8).
2. Defining and Measuring risk (Chapter 9).
3. Portfolio theory (Chapter 10):
   - Diversifiable risk versus non-diversifiable risk.
4. The Capital Asset Pricing Model (CAPM) (Chapter 11):
   - How to determine price of risks by market equilibrium.
5. The Arbitrage Pricing Theory (APT) (Chapter 12):
   - How to price risks by "approximate arbitrage".