

# The Time Value of Money: Foundations

- Should I lend money to my friend?

## Savings and Investment Decisions w/o Uncertainty – An Intermediate-Micro Approach

- Saving and borrowing as decisions between income streams
1. W/o capital markets:
    - crucial role of preferences and endowments
  2. With capital markets: Fisher's separation theorem
    - foundation of PV calculus
- Application to investment decisions
    - NPV Criterion
    - Shareholder Unanimity

## Generalization to Many Time Periods

- Time Line
  
- Future Value: compounding
  - doubling rule
  
- Present Value: discounting
  
- Adding Up
  
  
- Special cases:
  1. Perpetuity
    - Application: Interest rate sensitivity of house prices
  2. Annuity
    - Annuity Factor
    - Application: Saving for College