Discussion Handout #8
Econ 102
Prof. Eudey

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Goals for this session

- Arbitrage Theory
- Bonds
- Stocks

Vocabulary/Definitions

- Four modes of savings:
  - Put it in a bank
  - Loan directly to firm our household
  - Buy bonds
  - Buy stocks
- Real Expected Rates of Return Real expected return from lending = {nominal rate} - {inflation} - {expected risk} - {transaction costs/taxes}
  - Interest rate is COST for borrowers, and BENEFIT for lenders.
- Arbitrage Arbitrage equalizes expected rates of return. Here's a famous story about arbitrage: Friedman and fellow University of Chicago professor George Stigler, both Nobel Prize winners, walking together on the Hyde Park campus.

  Stigler spots a dollar bill in front of them on the sidewalk and says, "Milton, there's a dollar bill on the sidewalk." Friedman keeps walking past the money, and says: "No, George, there isn't. If there were a dollar bill on the sidewalk, somebody would have picked it up."
  - Are there arbitrage opportunities in equilibrium? NO
- Liquidity Ability to turn something into cash. Think of liquidity as a spectrum. Cash is the most liquid. Then bonds/stocks, car house, ownership in business, collectible art are more and more illiquid. For the more illiquid goods liquidity can fluctuate! For example during the most recent recession, houses became more illiquid, nobody was buying!
- Interest Rate Spread Difference between lending rate and borrowing rate
  - What 'costs' does the spread ecompass? Costs of financial intermediation: Credit Assessment, Loan Assessment, Monotoring, Risk, Deposit rate (inter-bank rate)
- Bonds
  - Yield Another term for rate of return used when talking about bonds

- Term Date of full repayment
- Repayment Price (Face Value) self-explanatory... amount you borrower pays bond-holder on the term date.
- Coupon per-period return, usually annual
- Secondary Market Bond is just a piece of paper, can be transferred (sold) any number of times. This happens on the secondary market at a 'secondary price'.

- Stocks
  - Shares Firm sells an ownership share. This is an alternative way of raising money vs. selling bonds.
  - Two types of returns:
    1. Dividends Firms periodically distribute profits to their owners (Shareholders) in the form of dividends
    2. Rate of return by holding share Price of stock in secondary market fluctuates due to expectations of its value.

Problems

1. Why is the interest rate spread countercyclical? During recessions risk goes up, which means teh spread increases.
2. Do stocks or bonds have a higher rate of return? Why? Stocks have a higher rate of return because they are riskier assets
3. Something exogenous occurs to cause interest rates to fall
   (a) What happens to bonds?

Coupon on old bond	no change
Secondary bond price	rises
Secondary bond yield	falls to same value as interest rate
New bond yield	falls

   (b) What happens to stocks?

Dividends	unknown-not relevant effect here
Stock price	rises

4. The government decides to issue more bonds in order to pay for increased social security liabilities:
   (a) What happens to bonds?

Coupon on old bond	no change
Secondary bond price	falls
Secondary bond yield	rises to value of new interest rate
New bond yield	rises

   (b) What happens to stocks?

Dividends	Unknown, irrelevant here
Stock price	falls

From past exams

6. **Fall 13 Q2** If the interest rate is 4%, the present value of a $300 bond a year from now is about: $288

7. **Fall 13 Q8** The present value of lottery winnings over a 20-year period will increase with a(n) **(increase/decrease)** in interest rates.

8. **Fall 14 Q16** Many economists expect bank lending rates to rise in March of 2015. Use arbitrage theory to how an increase in the interest rate would affect each of the following:

   (a) Stock prices and their returns, explain. Demand for stocks will fall as savers move assets to banks to get the relatively high rate of return. This fall in demand causes prices to fall. The other possible argument is that firms now prefer selling stocks to taking out loans, so supply of new stocks rises, causing prices to fall. In sum this causes the returns of stocks to rise.

   (b) Secondary bond prices and their returns, explain. Demand for old bonds will fall because they offer a relatively low rate of return, causing their price to fall. Therfore the return from bonds in secondary market will rise toward the bank rate.