

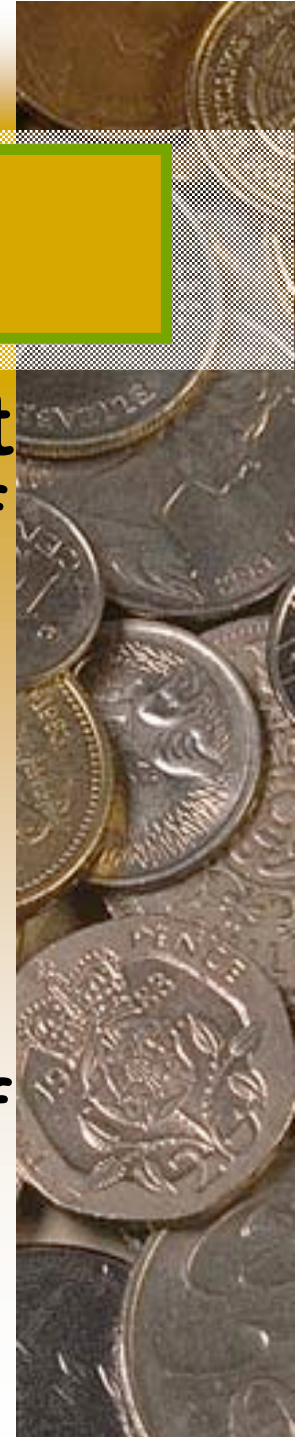


Financial Assets

Debt
Equity
Money

What are financial assets?

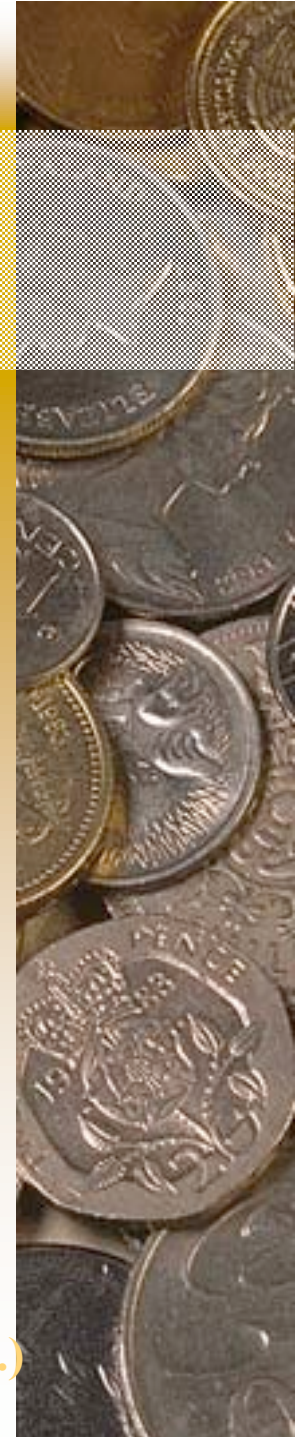
- A financial asset is a contract that entitles the owner to some type of payoff.
 - Debt
 - Equity
 - Derivatives
- In general, each financial asset involves two parties, a provider of cash (i.e., capital) and a user of cash.



What are some financial instruments?

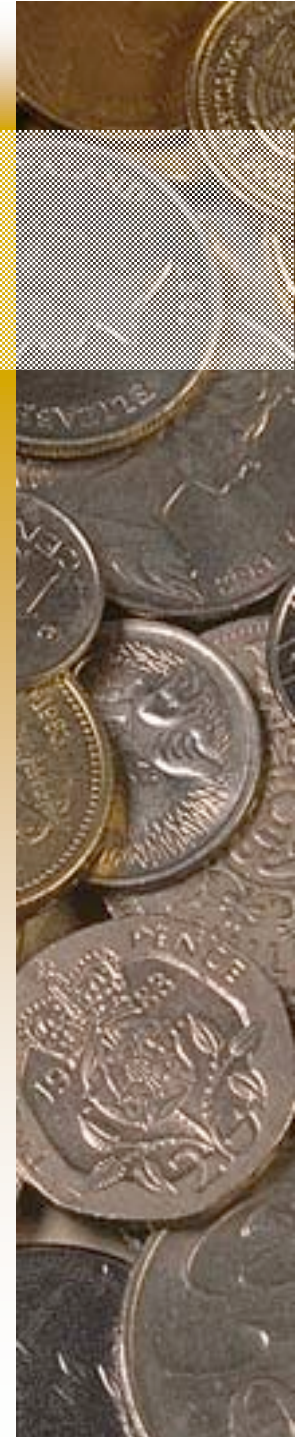
<u>Instrument</u>	<u>Rate (April 2003)</u>
U.S. T-bills	1.14%
Banker's acceptances	1.22
Commercial paper	1.21
Negotiable CDs	1.24
Eurodollar deposits	1.23
Commercial loans	Tied to prime (4.25%) or LIBOR (1.29%)

(More...)



Financial Instruments (Continued)

<u>Instrument</u>	<u>Rate (April 2003)</u>
U.S. T-notes and T-bonds 5.04%	
Mortgages	5.57
Municipal bonds	4.84
Corporate (AAA) bonds	5.91
Preferred stocks	6 to 9%
Common stocks (expected)	9 to 15%



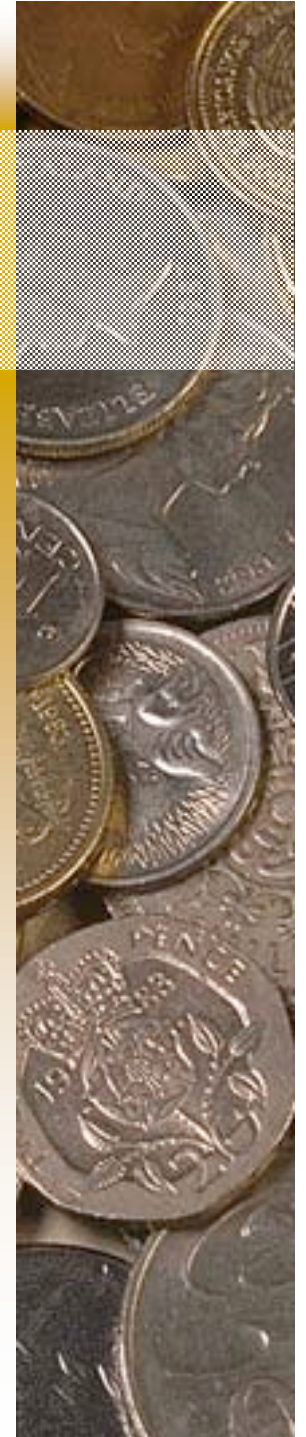
What do we call the price, or cost, of debt capital?

The interest rate



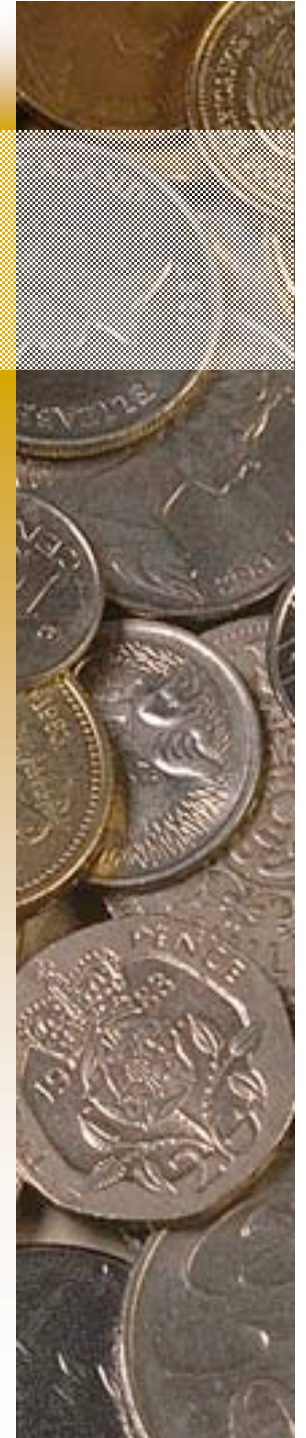
What do we call the price,
or cost, of **equity** capital?

**Required
return = Dividend
yield + Capital
gain**



What four factors affect the cost of money?

- Production opportunities
- Time preferences for consumption
- Risk
- Expected inflation



Real versus Nominal Rates

r^*

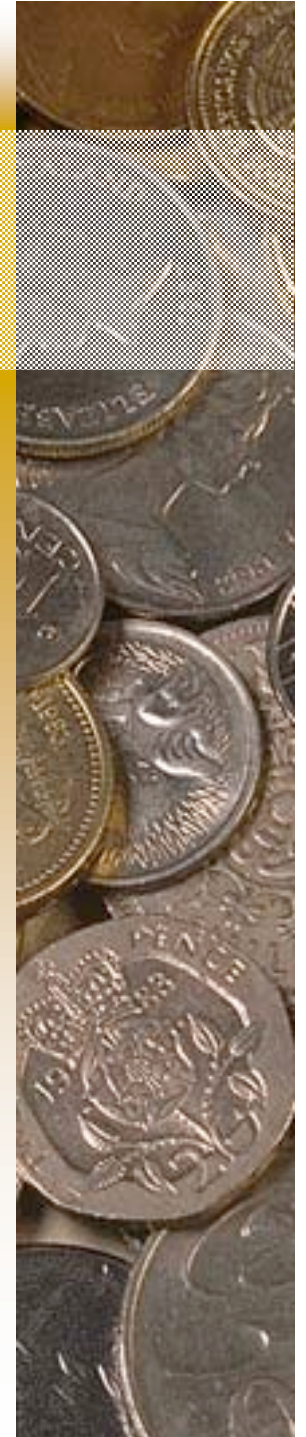
= **Real** risk-free rate.
T-bond rate if no inflation;
1% to 4%.

r

= Any **nominal** rate.

r_{RF}

= Rate on Treasury
securities.



$$r = r^* + IP + DRP + LP + MRP.$$

Here:

r = Required rate of return on a debt security.

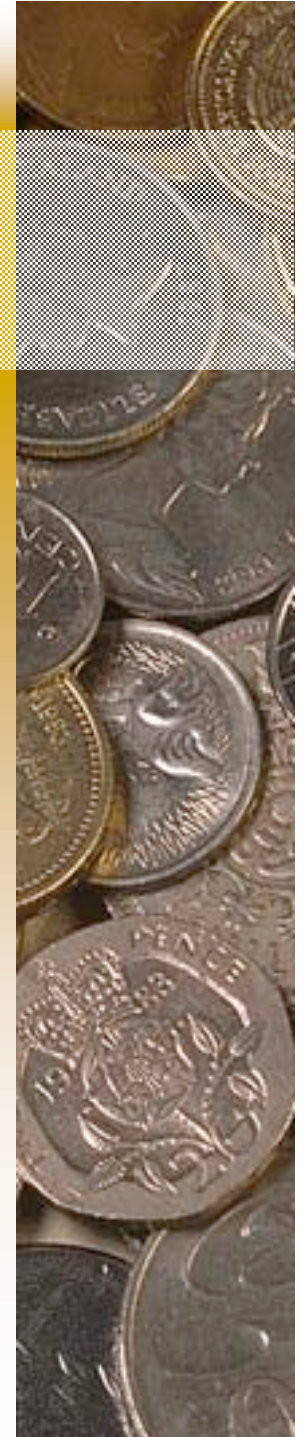
r^* = Real risk-free rate.

IP = Inflation premium.

DRP = Default risk premium.

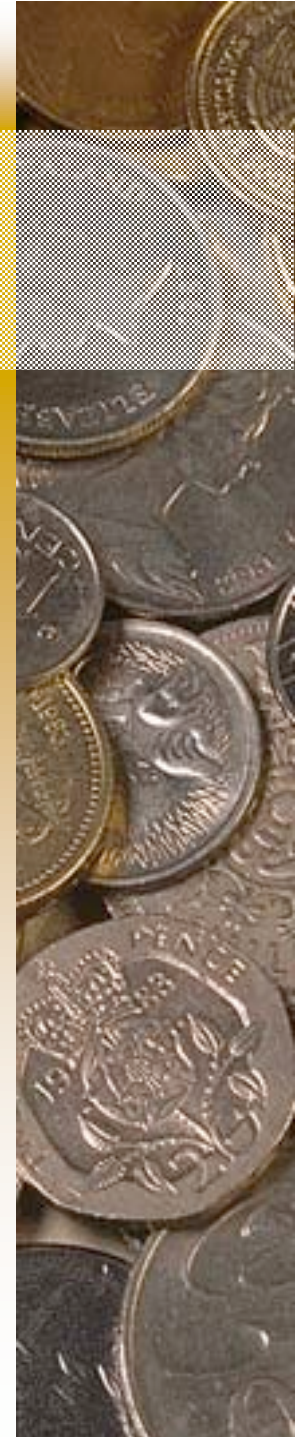
LP = Liquidity premium.

MRP = Maturity risk premium.



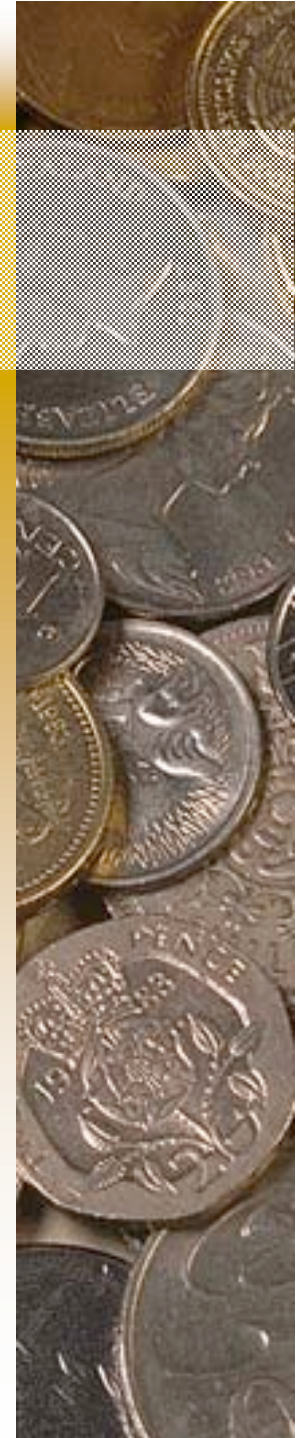
Premiums Added to r^* for Different Types of Debt

- **ST Treasury:** only IP for ST inflation
- **LT Treasury:** IP for LT inflation, MRP
- **ST corporate:** ST IP, DRP, LP
- **LT corporate:** IP, DRP, MRP, LP



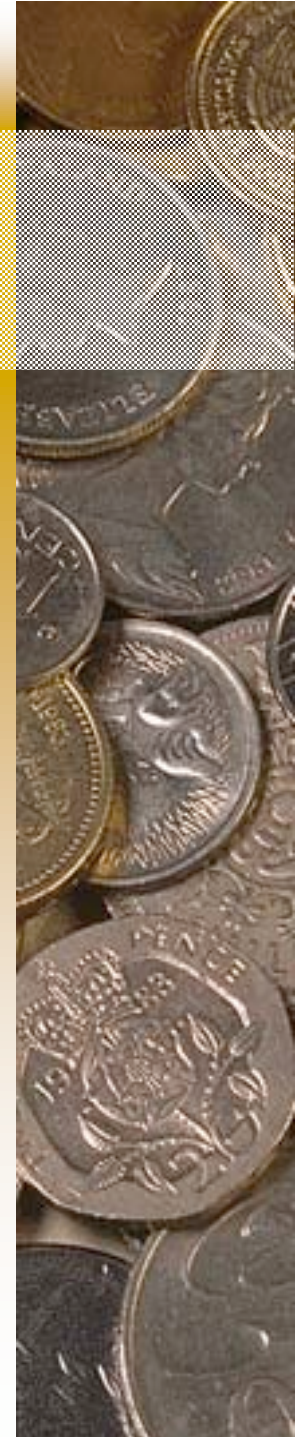
What is the “term structure of interest rates”? What is a “yield curve”?

- **Term structure:** the relationship between interest rates (or yields) and maturities.
- A graph of the term structure is called the **yield curve**.



How can you construct a hypothetical Treasury yield curve?

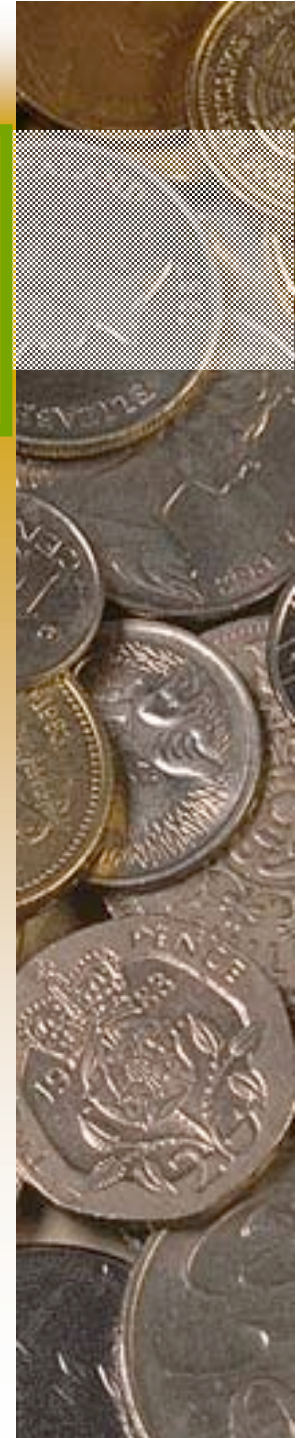
- **Step 1: Estimate the inflation premium (IP) for each future year. This is the estimated average inflation over that time period.**
- **Step 2: Estimate the maturity risk premium (MRP) for each future year.**



Assume investors expect inflation to be 5% next year, 6% the following year, and 8% per year thereafter.

Step 1: Find the average expected inflation rate over years 1 to n:

$$IP_n = \frac{\sum_{t=1}^n INFL_t}{n}$$



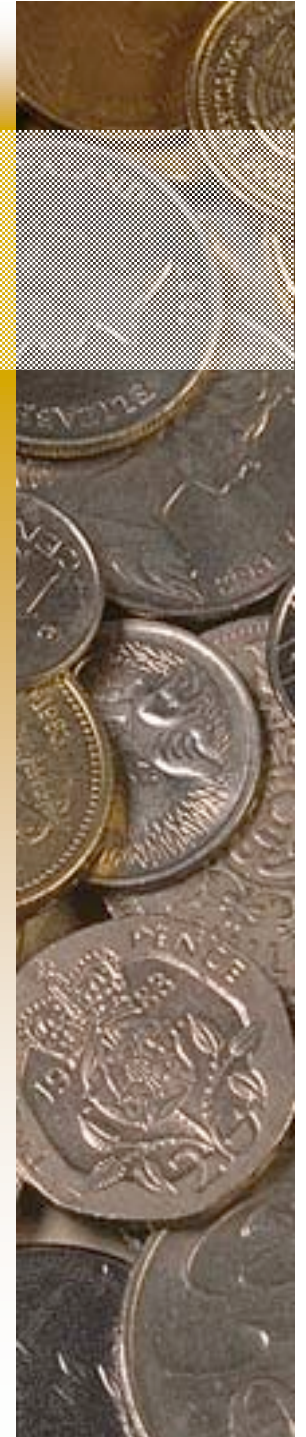
Step 1

$$IP_1 = 5\%/1.0 = 5.00\%.$$

$$IP_{10} = [5 + 6 + 8(8)]/10 = 7.5\%.$$

$$IP_{20} = [5 + 6 + 8(18)]/20 = 7.75\%.$$

Must earn these IPs to break even versus inflation; that is, these IPs would permit you to earn r^* (before taxes).



Assume the MRP is zero for Year 1 and increases by 0.1% each year.

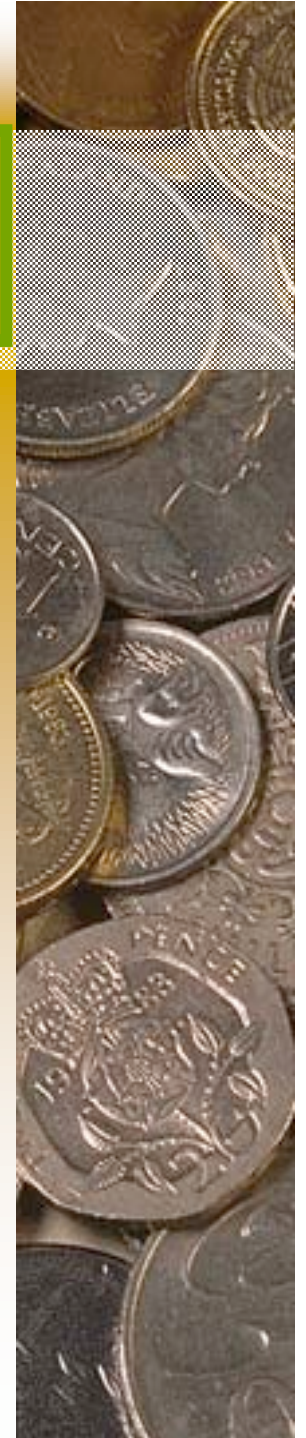
Step 2: Find MRP based on this equation:

$$\text{MRP}_t = 0.1\%(t - 1).$$

$$\text{MRP}_1 = 0.1\% \times 0 = 0.0\%.$$

$$\text{MRP}_{10} = 0.1\% \times 9 = 0.9\%.$$

$$\text{MRP}_{20} = 0.1\% \times 19 = 1.9\%.$$



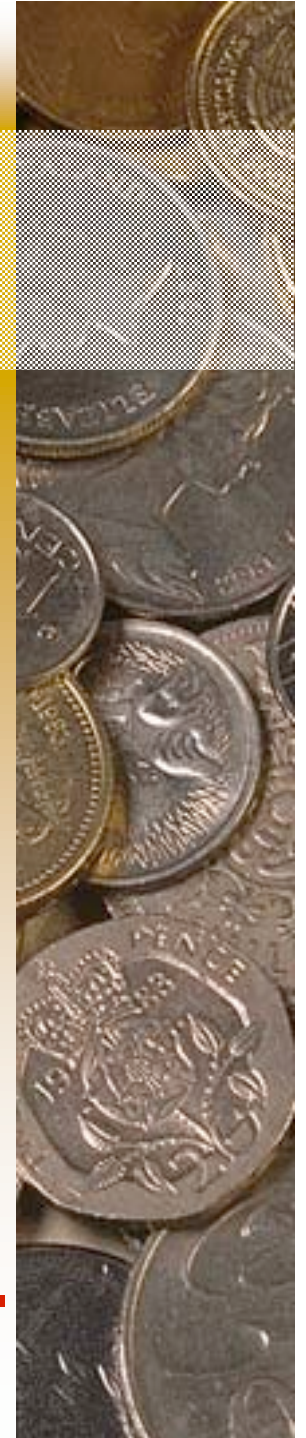
Step 3: Add the IPs and MRPs to r^* :

$$r_{RF_t} = r^* + IP_t + MRP_t.$$

r_{RF} = Quoted market interest rate on treasury securities.

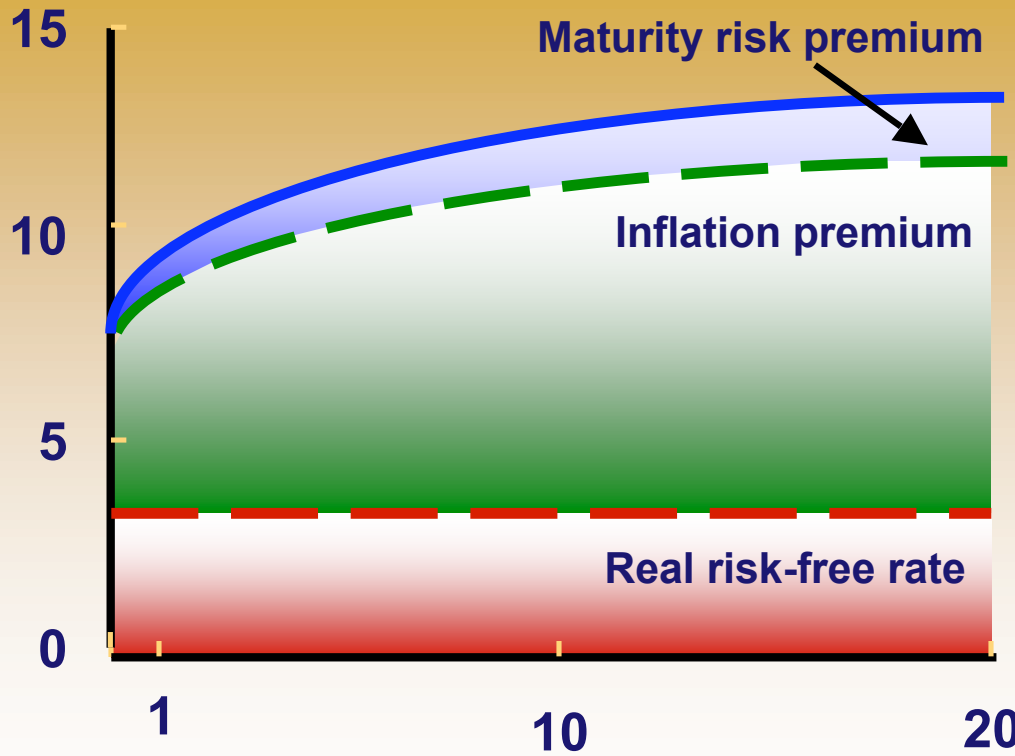
Assume $r^* = 3\%$:

$$\begin{aligned} r_{RF1} &= 3\% + 5\% + 0.0\% &= 8.0\%. \\ r_{RF10} &= 3\% + 7.5\% + 0.9\% &= 11.4\%. \\ r_{RF20} &= 3\% + 7.75\% + 1.9\% &= 12.65\%. \end{aligned}$$



Hypothetical Treasury Yield Curve

Interest Rate (%)



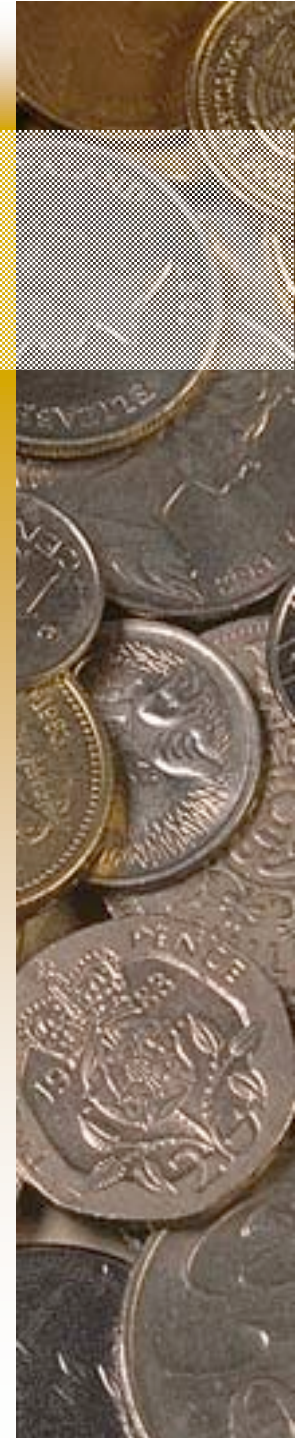
1 yr	8.0%
10 yr	11.4%
20 yr	12.65%

Years to Maturity



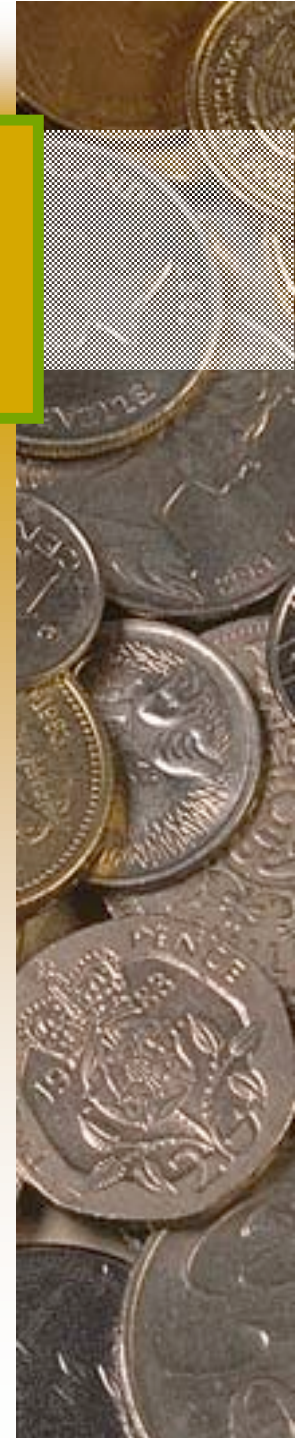
What factors can explain the shape of this yield curve?

- This constructed yield curve is upward sloping.
- This is due to increasing expected inflation and an increasing maturity risk premium.



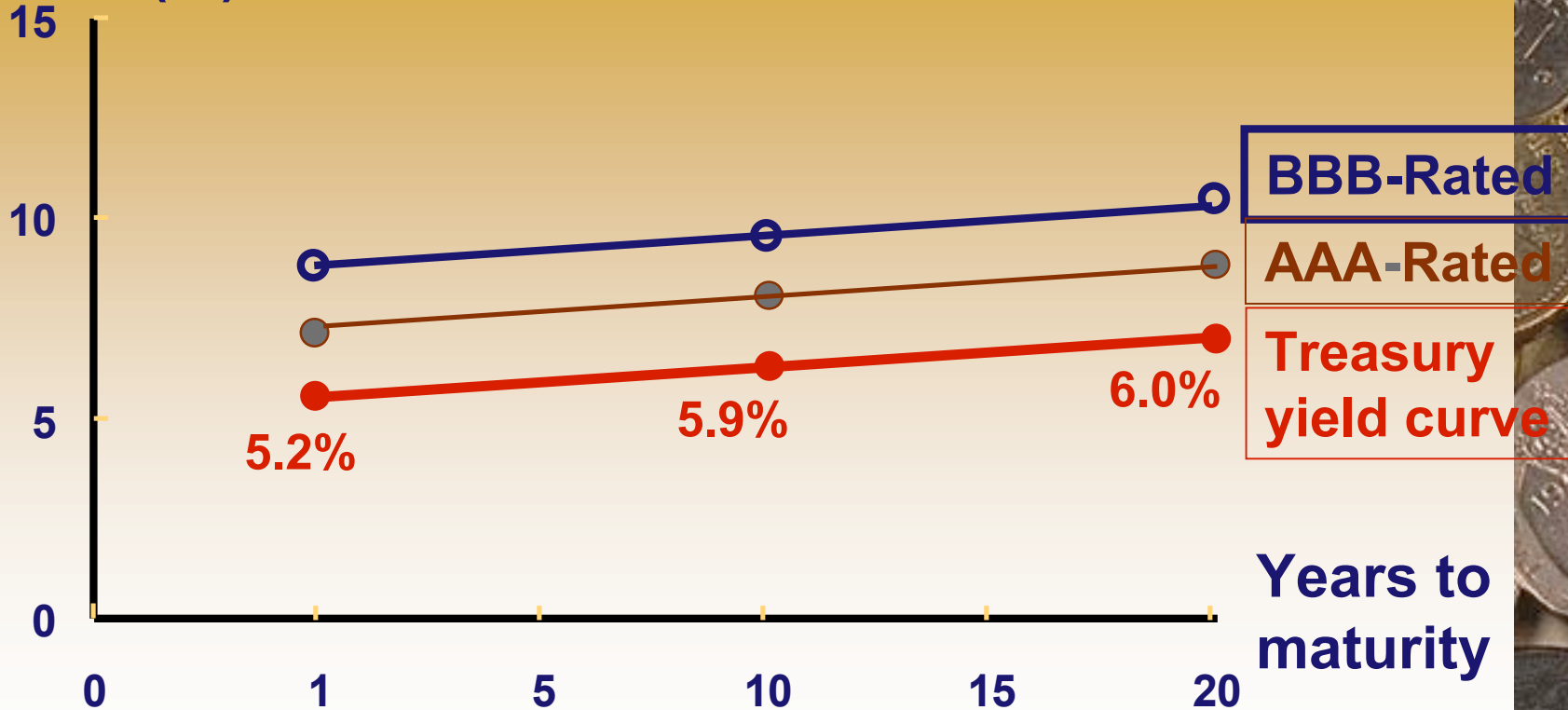
What kind of relationship exists between the Treasury yield curve and the yield curves for corporate issues?

- Corporate yield curves are higher than that of the Treasury bond. However, corporate yield curves are not necessarily parallel to the Treasury curve.
- The spread between a corporate yield curve and the Treasury curve widens as the corporate bond rating decreases.



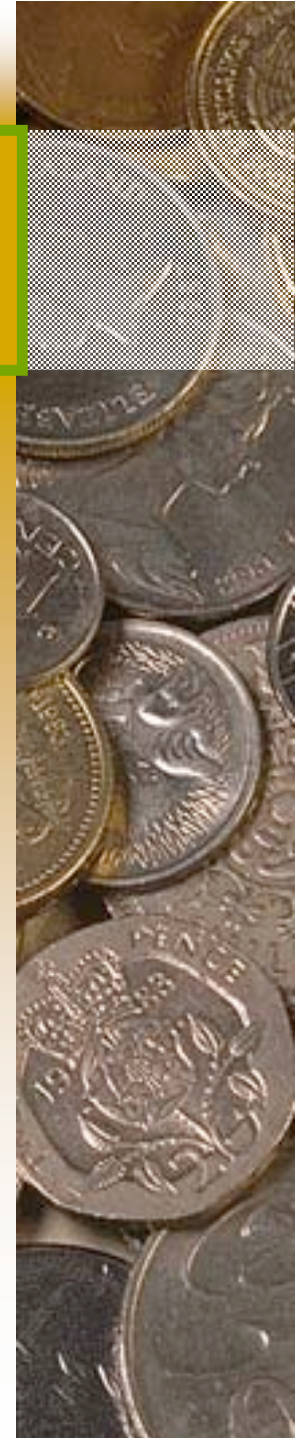
Hypothetical Treasury and Corporate Yield Curves

Interest Rate (%)



What is the Pure Expectations Hypothesis (PEH)?

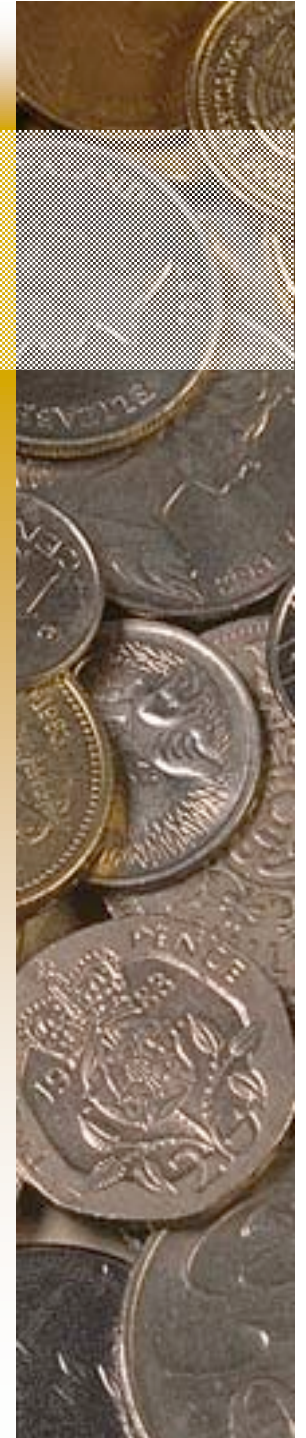
- Shape of the yield curve depends on the investors' expectations about future interest rates.
- If interest rates are expected to increase, L-T rates will be higher than S-T rates and vice versa. Thus, the yield curve can slope up or down.
- PEH assumes that $MRP = 0$.



What various types of risks arise when investing overseas?

Country risk: Arises from investing or doing business in a particular country. It depends on the country's economic, political, and social environment.

Exchange rate risk: If investment is denominated in a currency other than the dollar, the investment's value will depend on what happens to exchange rate.



What two factors lead to exchange rate fluctuations?

- Changes in relative inflation lead to changes in exchange rates.
- An increase in country risk may cause that country's currency to fall.

