Bond Prices and Yields

- Two dimensions”
  - **Default Risk** (not all issuers are alike! e.g. Argentina vs Switzerland)… poor Italian grandmothers…
  - **(*) Maturity** (length of time over which the bond promises to make payments)
    - The Yield Curve (term structure of interest rates)
  - Figure 15-1

Bond Prices

- A bond that promises one payment of a $100 in n year is worth P_n(t) at time t:

$P\_n(t) = \$100/((1+i(t))..(1+i^e(t+n-1)))$

If i is constant,

$P\_n(t) = \$100/(1+i)^n$

The Yield Curve

- The **yield to maturity** on an n-tear bond is the **constant** interest rate that makes the bond price today equal to the present value payments of the bond (sort of an “average”):

$\$100/(1+\mathbf{i\_n}(t)) = \$100/((1+i(t))..(1+i^e(t+n-1)))$

Approx: $\mathbf{i\_n(t)} \approx (i(t) + i^e(t+1)+\ldots)/n$

Easy example: If $i^e(t+s) = i \Rightarrow \mathbf{i\_n}(t) = i$

Back to Figure 15-1 / Figures 15-3, 15-4, 15-5

Stocks

- Figure 15-6
- Equity finance: dividens -> EPDV
- **$P(t) = d^e(t+1)/(1+i(t)) + d^e(t+2)/((1+i(t))(1+i^e(t+1))+\ldots$**

  [n - > infty]

The Stock Market and Economic Activity

- A monetary expansion: Figure15-7
- An increase in consumer spending: Figure 15-8
- Summary: The role of **expectations** is key.

Bubbles

- Fundamental vs Bubbles

  $P(t) = (d^e(t+1)+\mathbf{P(t+1)})/(1+i(t))$

- Tulipmania: 1,500 guineas in 1964… to 7,500 by 1967 (the price of a house)… a few years later, 10% of the the 1967 price.
- MMM Pyramid in Russia: Sold shares promising a rate of return of 3,000% per year! In six months, P went from 1,600 rubles to 105,000 rubles… … the company didn't produce anything! It crashed… and Mavrody became a politician…