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### ECO 2200: Module 6

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# Interest Rates



# Module 6: Outline

- Interest rates and cost of money
- Determinants of interest rates
- Terms and Yield
- Using yield curves to estimate future interest rates

# Interest Rates

- $r$  = represents any nominal rate
- $r^*$  = represents the “real” risk-free rate of interest. Like a T-bill rate, if there was no inflation. Typically ranges from 1% to 4% per year.
- $r_{RF}$  = represents the rate of interest on Treasury securities.

# Determinants of Interest Rates

- $r = r^* + IP$
- $r$  = required return on a debt security [real interest rate because it is adjusted for inflation]
- $r^*$  = real risk-free rate of interest
- $IP$  = inflation premium

# Determinants of Interest Rates

- $r = r^* + IP + \mathbf{DRP}$

- $r$  = required return on a debt security [real interest rate because it is adjusted for inflation]

- $r^*$  = real risk-free rate of interest

- $IP$  = inflation premium

- $\mathbf{DRP}$  = **default risk premium**

# Determinants of Interest Rates

- $r = r^* + IP + DRP + LP$
- $r$  = required return on a debt security [real interest rate because it is adjusted for inflation]
- $r^*$  = real risk-free rate of interest
- $IP$  = inflation premium
- $DRP$  = default risk premium
- **$LP$  = liquidity premium**

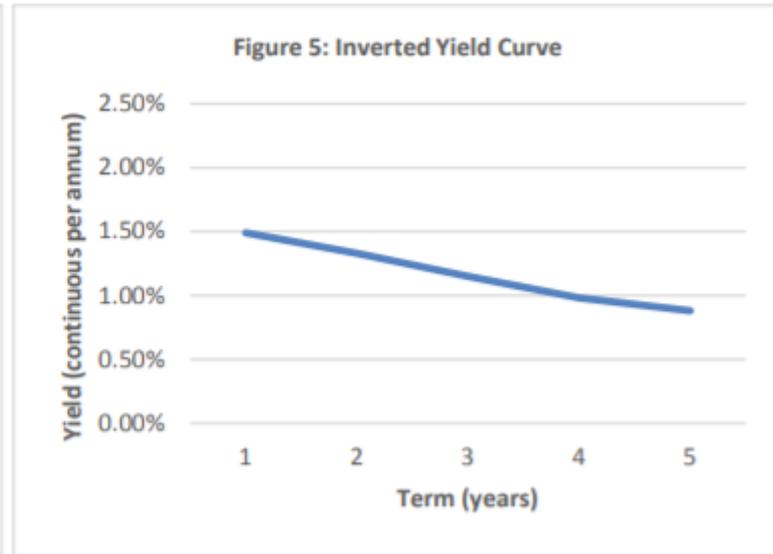
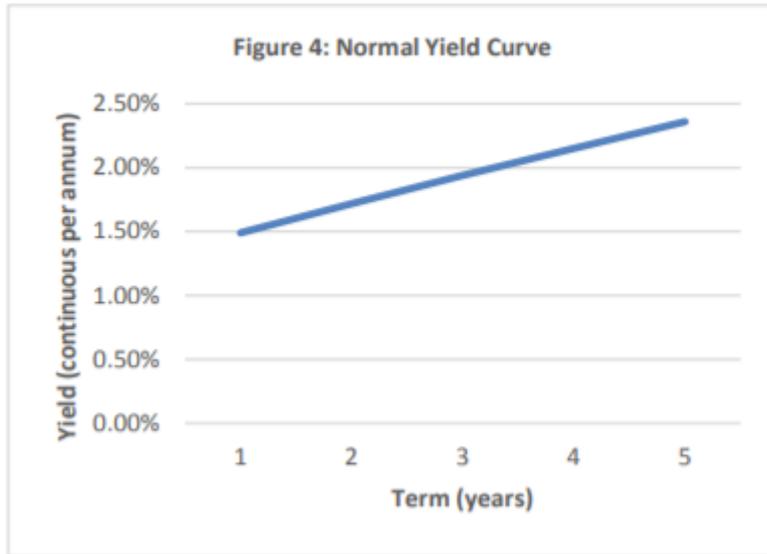
# Determinants of Interest Rates

- $r = r^* + IP + DRP + LP + \mathbf{MRP}$
- $r$  = required return on a debt security [real interest rate because it is adjusted for inflation]
- $r^*$  = real risk-free rate of interest
- $IP$  = inflation premium
- $DRP$  = default risk premium
- $LP$  = liquidity premium
- **$MRP$  = maturity risk premium**

# Yield Curves

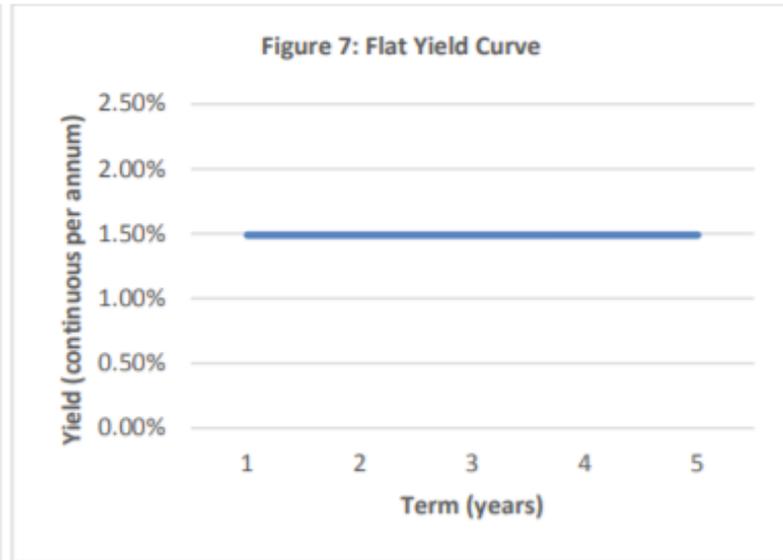
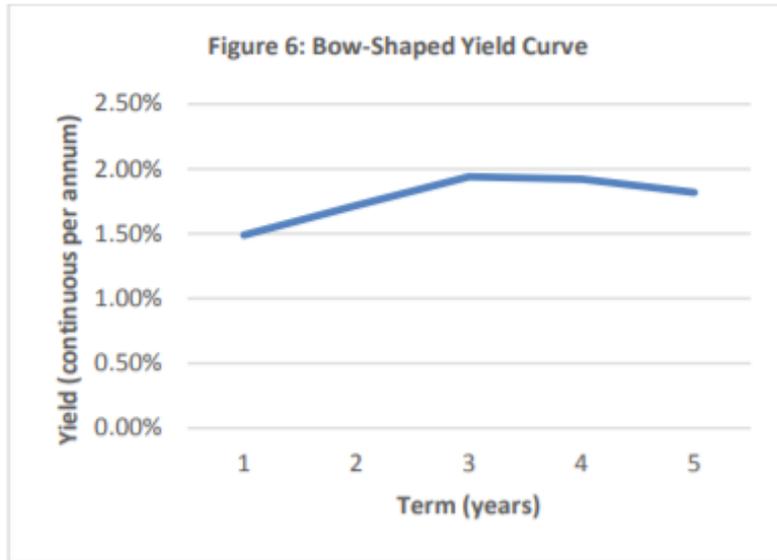
- A convenient alternative is to consider the interest rate values for the different terms as a collection and specify how that collection evolves over time. When the interest rate values for the different terms are considered as a collection, this collection is called a yield curve.
- A yield curve is said to be normal or upward-sloping if the interest rate values increase with term; it is said to be inverted or downward-sloping if the interest rate values decrease with term; and it is said to be bowed if the interest rate values increase and then decrease with term, or decrease and then increase with term.
- <https://www.soa.org/globalassets/assets/Files/Edu/2017/fm-determinants-interest-rates.pdf>

# Yield Curves



- Figure 4. Note that the curve in this case slopes upwards. This is the expected shape because, as noted earlier, lenders tend to prefer to lend money for shorter terms and hence generally must be provided an incentive to lend for a longer term.
- Figure 5 shows a yield curve when interest rates decrease with term.

# Yield Curves



- Figure 6 shows one when interest rates increase and then decrease. Note that the yield curve in Figure 5 slopes downwards and the one in Figure 6 has the shape of a bow, sloping upwards and then downwards.
- Figure 7 provides an illustration of a flat yield curve.
- A yield curve is said to be flat if the interest rate values are the same for all terms.

# Other Topics

- Insider Trading
- Efficient Market