SMU COX
SCHOOL OF BUSINESS

Lecture 7: Interest Rates

Determinants of Interest Rates, Term Structure of Interest Rates, and Yield Curves

Presentation to Cox Business Students

FINA 3320: Financial Management

Purpose of This Lecture

- **Discuss interest rates in terms of…**
  - (1) Determinants of the level of interest rates
  - (2) Real and nominal interest rates
  - (3) Term structure of interest rates
  - (4) Yield curves

Determinants of the Level of Interest Rates

- Interest rates are important inputs to many economic decisions
- Forecasting interest rates is difficult, but they are determined by the forces of supply and demand
  - This is expected in any competitive market
- Inflationary expectations are critical since lenders will demand compensation for anticipated losses in purchasing power

Real Interest Rates

- Real (or Pure) Risk-Free Interest Rate
  - The theoretical interest rate that would exist on a security devoid of all risk
  - Short-term T-bills often used as proxy, but subject to inflation and market risks (we will discuss these risks, and others, in a minute)

- The Equilibrium Real Rate of Interest
  - Supply of loanable funds, demand for these funds, and government actions determine the real interest rate
  - The fundamental determinants of the real interest rate are…
    - (1) Propensity of households to borrow and save
    - (2) Expected productively (profitability) of physical assets
    - (3) Propensity of governments to borrow or save

Nominal Interest Rates

- Nominal Interest Rate
  - The market (or quoted) rate of return for a fixed income security
  - The real rate plus the sum of all risk premia that an investor is exposed to

- The Equilibrium Nominal Rate of Interest
  - Treasury and Fed have some ability to influence short-term interest rates by controlling the flow of new funds into the banking system
  - However, the influence on long-term rates is not always favorable because of the potential impact of expansionary monetary policy on expected inflation

Determinants of Nominal Interest Rates (r)

- Nominal interest rate = r = r* + IP + DRP + LP + MRP (or RRP)
  - **r***, the real (or pure) risk-free interest rate, is defined as the theoretical interest rate that would exist on a security that has ***no*** risk
  - **IP**, the inflation (or purchasing power) premium, is a premium for expected inflation that arises because of the variation in the value of cash flows from a security due to inflation as measured in term of purchasing power
  - **DRP**, the default (or credit) risk premium, is the risk premium associated with the probability that the issuer of a security may default
  - **LP**, the liquidity (or marketability) premium, is the risk premium involved with the ease (or rather lack thereof) with which an issue can be sold at, or near, its market value

Determinants of Nominal Interest Rates (r)

- Nominal interest rate = r = r* + IP + DRP + LP + MRP (or RRP)
  - MRP, the maturity risk premium, is the premium that accounts for the differential in interest-rate risks between two bonds with different maturities
    - The MRP is inherent in long-term fixed-income securities
    - i.e., when interest rates increase, the value of long-term fixed-income securities decline in value more than short-term ones
  - Or
  - RRP, the reinvestment risk premium, is a premium based on the variability in the return from reinvestment from a given strategy due to changes in market rates
    - The RRP reflects the chance that interest rates will fall and reinvestment of cash flows from the security will be made at lower rates

Term Structure of Interest Rates

- Relationship between interest rates and the term to maturity
- Defines the relationship between short-term and long-term interest rates ***at a particular point in time***
- Holds credit or default risk constant (i.e., homogeneous default risk class)
- Relationship graphically presented as a ***Yield Curve***

Yield Curve

- Graphical depiction of the term structure of interest rates at a point in time (i.e., a snapshot in time)
- Graphic portrayal is typically a smooth curve fitted by least-squared process through a series of points on a chart representing interest rates of homogeneous securities with different times to maturity
- Resulting graph is the term pattern of yields on these homogeneous securities showing variation in interest rates by maturities

Types of Yield Curves

- Normal Yield Curve
  - Moderate rate levels rising continuously with increasing maturity (upward sloping)
- Rising Yield Curve
  - Low rate levels rising substantially with increasing maturity
- Inverted Yield Curve
  - Short-term rates high and declining over entire maturity range
- Flat Yield Curve
  - Rates are relatively constant (invariant) over entire maturity range

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Thank You!

Charles B. (Chip) Ruscher, PhD

Department of Finance and Business Economics