Mortgage Markets

Mortgage

- Used for finance real estate purchases
  - Saving institutions, mortgage comapnies
- Primary market
- Secondary market
- For needs of long-term funds to purchase real estate
- For creditors lending long-term funds for real estate purchase

Background on Mortgage

- Debt created to finance investment in real estate
  - Secured by property
- Seving institutions and mortgage companies
  - Intermediaries
  - Rating of applicants
- Mortgage contract
  - Martgage rate and maturity

Criteria Used to measure Crčeditworthiness

- Reflect the úrospective borrower´s to repay loan
  - Level of equity invested by borrower
  - Borrower´s income level
  - Borrower´s credit history

Classifications of Mortgages

- Prime versus Subprime Mortgages
- Insured versus Conventional Mortgages

Insured vs. Conventional Mortgages

- Federal and private insurance guarantees repayment in the event of borrower default
- Limits on amounts, borrower requirements
- Borrower pays insurance premiums
- Federal insurers include Federal Housing Administration and Veterans Administration

Types of Residential Mortgages

- Fixed-rate mortgages
- Adjustable-rate mortgages
- Graduated-payment mortgages
- Second martgages
- Shared-appreciation mortgages

Fixed Rate vs. Adjustable Mortgages

- Fixed rate loans have a constant, unchanging rate
  - Interest rate risk can hurt lender rate of return
    - If interest rates rise in the market, lender's cost of funds increases
    - No matching increase in fixed-rate mortgage return
  - Borrowers lock in their cost and have to refinance to benefit from lower market rates

Fixed-Rate vs. Adjustable Mortgages

- Fixed monthly payment includes
  - Interest owed first
  - Balance to principal
- Interest on the declining principal balance
- Calculating monthly payment
  - Principal borrowed = PV
  - Number of months to maturity = years $\times$ 12 = N
  - Rate/12 = I
  - Calculate PMT

Calculate the monthly payment for a \$330,000 home. The new owner has made a \$70,000 down payment and plans to finance over 30 years at the current fixed rate of 7%.

\$330,000 – \$70,000 = \$260,000 PV (original investment of the financial institution)

30 x 12 = 360 N; 7/12 = I; Calculate PMT

\$330,000 – \$70,000 = \$260,000 PV (original investment of the financial institution)

$30 \times 12 = 360$ N; 7/12 = I; Calculate PMT

PMT = \$1,729.79

Fixed-Rate vs. Adjustable Mortgages

- Adjustable-rate mortgages
  - Rates and the size of payments can change
    - Maximum allowable fluctuation over year and life of loan
    - Upper and lower boundaries for rate changes
  - Lenders stabilize profits as yields move with cost of funds
  - Uncertainty for borrowers whose mortgage payments can change over time

Mortgage Maturities

- Trend shows increased popularity of 15-year loans
  - Lender has lower interest rate risk if the term or maturity of the loan is lower
  - Borrower saves on interest expense over loan’s life but monthly payments higher

- Graduated-Payment Mortgages (GPMs)
- Growing-Equity Mortgages
- Second Mortgages
- Shared-Appreciation Mortgages
- Baloon Payment Mortgages

Mortgage Maturities

- Balloon payments
  - Principal not paid until maturity
  - Forces refinancing at maturity
- Amortizing mortgages
  - Monthly payments consist of interest and principal
  - During loan’s early years, most of the payment reflects interest

Creative Mortgage Financing

- Graduated-payment mortgage (GPM)
  - Small initial payments
  - Payments increase over time then level off
  - Assumes income of borrower grows
- Growing-equity mortgage
  - Like GPM low initial payments
  - Unlike GPM, payments never level off

- Second mortgage used in conjunction with first or primary mortgage
  - Shorter maturity typically for 2nd mortgage
  - 1st mortgage paid first if default occurs so 2nd mortgage has a higher rate
  - If used by sellers, makes a home with an assumable loan more affordable
- Shared-appreciation mortgage
  - Below market rate but lender shares in home's price appreciation

Activities in the Mortgage Markets

- How the secondary market facilitates mortgage activities
- Selling loans
  - Origination, servicing and funding are separate business activities and may be “unbundled”
  - Secondary market exists for loans
- Securitization
  - Pool and repackage loans for resale
  - Allows resale of loans not easily sold on an individual basis

Activities in the Mortgage Markets

- Unbundling of mortgage activities provides for specialization in:
  - Loan origination
  - Loan servicing
  - Loan funding
  - Any combination of the above

Institutional Use of Mortgage Markets

- Federally related mortgage pools
  - 37% of all mortgages, mostly residential
- Commercial banks
  - Dominate commercial mortgage market
  - Hold 23.3% of all mortgages
- Savings institutions
  - Primarily residential mortgages
  - Hold 10% of all mortgages
- Life insurance companies
  - Commercial mortgages
  - Hold 3% of all mortgages

Institutional Use of Mortgage Markets

- Mortgage companies
  - Originate and quickly sell loans
  - Do not maintain large portfolios
- Government agencies including Fannie Mae and Freddie Mac
- Brokerage firms
- Investment banks
- Finance companies

Valuation of Mortgages

- Market price of mortgages is present value of cash flows

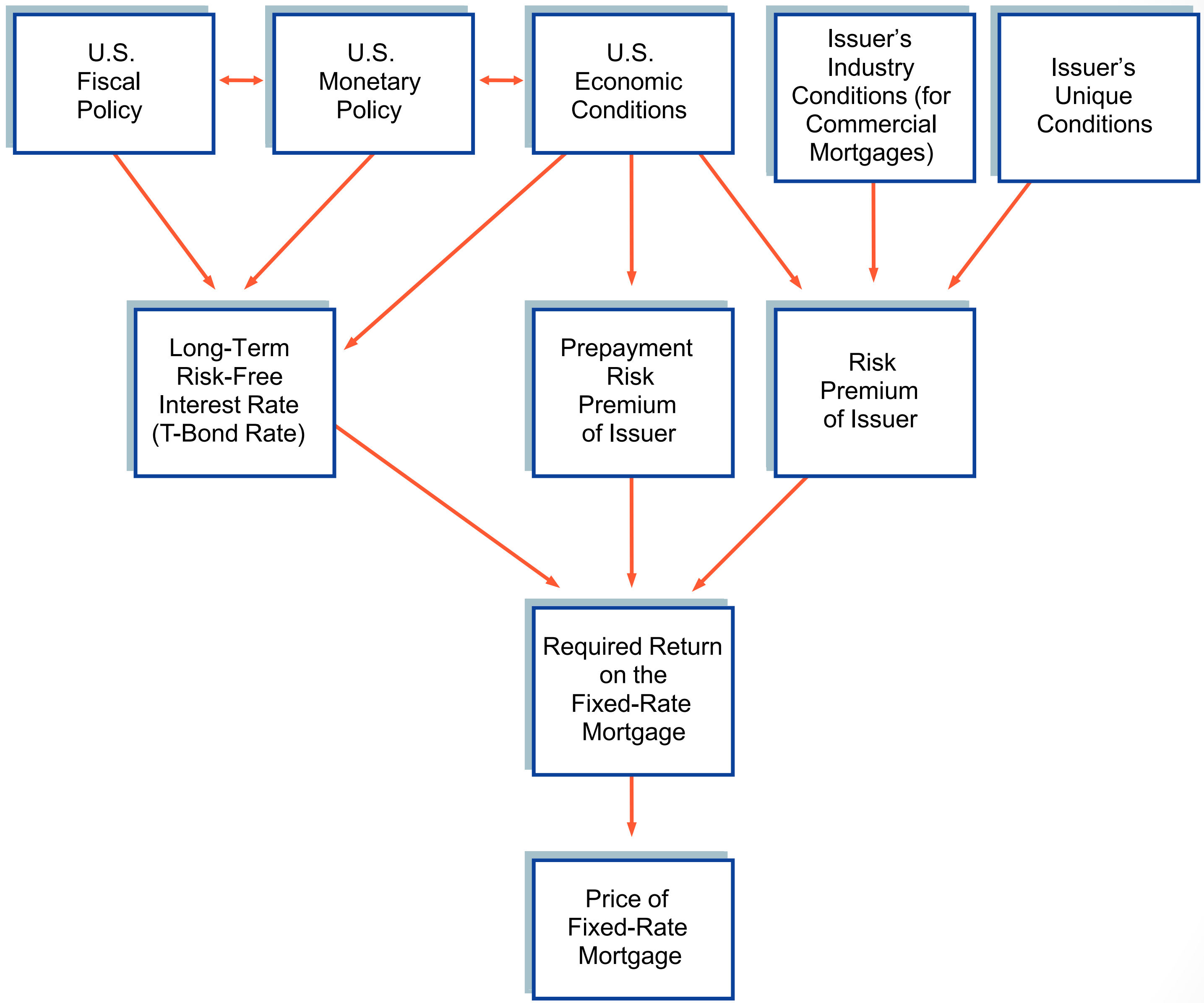
$$P_M = \sum_{t=1}^{n} \frac{C + \text{PRIN}}{(1+k)^t}$$

Valuation of Mortgages

- Periodic payment commonly includes payment of interest and principal
- Required rate of return determined by risk-free rate, credit risk and liquidity
- Risk-free interest rate components and relationship
  - + inflationary expectations
  - + economic growth
  - – change in the money supply
  - + budget deficit

Valuation of Mortgages

- Economic growth affects the risk premium
  - Strong growth improves borrowers’ income and cash flows and reduces default risk
  - Weak growth has the opposite affect
- Potential changes in mortgage prices monitored by reviewing inflation, economic growth, deficits, housing, and other predictor economic statistics


U.S. Fiscal Policy
U.S. Monetary Policy
U.S. Economic Conditions
Issuer's Industry Conditions (for Commercial Mortgages)
Issuer's Unique Conditions
Long-Term Risk-Free Interest Rate (T-Bond Rate)
Prepayment Risk Premium of Issuer
Risk Premium of Issuer
Required Return on the Fixed-Rate Mortgage
Price of Fixed-Rate Mortgage

Risk from Investing in Mortgages

- Interest rate risk
- Present value of cash flows or value of mortgage changes as interest rate changes
- Long-term fixed-rate mortgages financed by short-term funds results in risks
- To limit exposure to interest rate risk
  - Sell mortgage shortly after origination (but rate may change in that short period of time)
  - Make adjustable rate mortgages

Risk from Investing in Mortgages

- Prepayment risk
  - Borrowers refinance if rates drop by paying off higher rate loan and financing at a new, lower rate
  - Investor receives payoff but has to invest at the new, lower interest rate
  - Manage the risk with ARMs or by selling loans

Risk from Investing in Mortgages

- Credit risk can range from default to late payments
- Factors that affect default
  - Level of borrower equity
    - Loan-to-value ratio often used
    - Higher use of debt, more defaults
  - Borrowers income level
  - Borrower credit history
- Lenders try to limit exposure to credit risk

Risk from Investing in Mortgages

- Measuring risk
  - Use sensitivity analysis to review various “what if” scenarios covering everything from default to prepayments
  - Incorporate likelihood of various events
  - Review effect on cash flows
  - Institution tries to measure risks and use information to restructure or manage risk

Use of Mortgage-Backed Securities

- Securitization is an alternative to the outright sale of a loan
- Group of mortgages held by a trustee serves as collateral for the securities
- Institution can securitize loans to avoid interest rate risk and credit risk while still earning service fees
- Payments passed through to investors can vary over time
- Morgage-backed securities (MBS) or pass-through securities

Types of Mortgage-Backed securities

- Ginnie Mae mortgage-backed securities
- Fannie Mae mortgage-backed securities
- Publicly issued pass-through securities
- Particiaption certificates
- Collateralized mortgage obligations (CMOs)

Use of Mortgage-Backed Securities

Ginnie Mae mortgage-backed securities

- Government National Mortgage Association
- Guarantees timely interest and principal payments to investors
- Pool of loans with the same interest rate
- Purchasers receive slightly lower rate than that on the loans to cover service and guarantee

Use of Mortgage-Backed Securities

- Fannie Mae mortgage-backed securities
  - Uses funds from mortgage-backed pass-through securities to purchase mortgages
  - Channel funds from investors to institutions that want to sell mortgages
  - Guarantee timely payments to investors
  - Some securities strip (securitize) interest and principal payment streams for separate sale

Use of Mortgage-Backed Securities

- Publicly issued pass-through securities (PIPS)
  - Backed by conventional mortgages instead of FHA or VA mortgages
  - Private mortgage insurance
- Participation certificates (PCs)
  - Freddie Mac sells and uses funds to finance origination of conventional mortgages from financial institutions

Use of Mortgage-Backed Securities

- Collateralized mortgage obligations (CMOs)
  - Semi-annual payments differ from other securities' monthly payments
  - Segmented into classes
    - First class has quickest payback
    - Any repaid principal goes first to investors in this class
  - Investors choose a class to fit maturity needs
  - One concern is payback speed when rates drop

Use of Mortgage-Backed Securities

- CMOs cont.
  - Can be segmented into interest-only IO or principal-only PO classes
  - High return for IO reflect risks
- Useful investment but be aware of the risks
  - 1992 failure of Coastal States Life Insurance due to CMO investments
  - Some CMO mutual funds
  - Regulators have increased scrutiny

Use of Mortgage-Backed Securities

- Mortgage-backed securities for small investors
  - In the past, high minimum denominations
  - Unit trusts created to allow small investor participation
  - Mutual funds
- Advantages
  - Can purchase in secondary market without purchasing the need to service loans
  - Insured
  - Liquid

Risk of Mortgage-Backed Securities

- Credit risk
- Interest rate risk
- Prepayment rate risk

Globalization of Mortgage Markets

- Mortgage market activity not confined to just one country
- Market participants follow global economic conditions