Demand and Supply for Financial Assets

Mishkin ch.5: The Bond Market

• Motivation:
  - Interest rates are determined by the demand and supply for bonds.
  - Monetary policy works in part by manipulating interest rates.
  - Demand and supply for other financial assets are determined similarly.

• Perspectives on the bond market:

1. **Bonds as financial assets** = Financial Factors (very short run)
   - Bond demand affected by relative risk, relative liquidity, and wealth.
   - Key issue: Asset pricing (Finance). Instantaneous responses to news.

2. **Saving and Borrowing** = Real Factors (long run)
   - Bond market matches savers and borrowers, affected by their behavior.
   - Macro issue: Real savings/investment. Takes time – most powerful in the long run.

3. **Liquidity Preference** = Monetary Factors in a Keynesian setting (short run).
   - Relies on Keynesian macroeconomic assumptions: “sticky” prices.
   => **DEFER**. Return to Liquidity effect and “Money & Interest Rates” later.
Perspective #1: Bonds as Financial Assets

• General Finance Questions:
  - What determines the demand for financial assets?
    1. Expected return (+)
    2. Risk (-)
    3. Liquidity (+)
    4. Wealth (+)
  - Applies to all financial assets. Bonds as example.

• The Demand Curve for Bonds
  • To remember: High price <=> Low yield. Implies downward sloping demand function.
  • Demand function shifts if bond risk or liquidity change.
  • Demand is relative: shifts if return, risk, or liquidity on other assets change.

  • Time horizon: Instantaneous (within seconds):
    Bond market responds quickly to financial news, to any news relevant for determining the return, risk, or liquidity of bonds relative to other assets.
Wealth as Demand Factor: Caution

• Basic point: More wealth => More demand for all financial assets.

• Contrast: demand factors that affect relative values versus wealth:
  - Demands for different financial assets are negatively related when relative returns, relative risks, and relative liquidity levels shift.
  - Demands for different financial assets are positive related when wealth changes.

• Wealth can change in two ways: 1. New savings. 2. Re-valuation.
  - Re-valuation is a distraction (or even misleading): Not a source of new demand.
    Example: Hold 100 bonds @100 = $10,000 wealth. If price rises to $110 => Wealth $11,000.
    Will demand increase? Demand from existing wealth is still 100 bonds.
  - New savings must come from real activity = Surplus of income over spending.
    - New savings take time: NOT an instantaneous factor => Creates dynamics.
    - Purchasing power of wealth is eroded by inflation
      => Real returns (after inflation) determine the incentives to save

• Lessons for applications:
  - Source of wealth changes is savings. Savings raise all asset demands.
  - Quantity axis in diagrams = Number of securities or their face value (not $ value).
The Supply of Bonds
(and other financial assets)

• Simple: the supplier/issues of securities defines the market
  - Treasury bond market = supply by U.S. Treasury
  - Market for Microsoft stock = supply by Microsoft

• Supply incentives in the primary market:
  1. Need for funds:
     - Private: Profitability of capital investments.
     - Public: Level of government budget deficits.
  2. Cost of borrowing:
     - Borrow more if the cost is low => upward-sloping supply curve.
     - Inflation reduces the real value of debt
     => Real returns (after inflation) determine the incentives to issue securities

• Secondary market: Fixed supply except for buyback/new issues.
  => suggests that supply curves are steep or vertical.

• Mishkin’s demand & supply diagrams: generic slopes – okay for quizzes.
**Demand & Supply => Equilibrium Price and Volume**

- For bonds: Exact price-yield relationship (Example: F=1000)
- For all financial assets: high prices tend to imply low future returns.
Application: Demand for other financial assets

• Same basic argument as for bonds:
  - Downward sloping demand curve, because “higher Price <=> lower expected return”
    logic applies to all financial assets, provided the asset’s payment stream remains unchanged.
  - Shifting down/left when risk increases. Shifting up/right when liquidity increases.
    Examples: Stocks, mutual funds, real estate, gold, investments abroad.

• Additional issue for equity-type assets: future payments are uncertain
  => Unexpected new information about payments shifts the demand curve

• Example: Stock with $55 expected value next year.
  - If investors demand 10% expected return for given risk & liquidity => Price = $50.
  - If expectations change so $66 is the expected value next year => Demand curve shifts right, new equilibrium price = $60.
Application: The “Flight to Quality”

- Illustrates the point that demand is assessed *relative* to the alternatives.

- Scenario: unexpected increase in risk for some asset class (often: stocks)
  - Many specific examples – history of financial crises.
  - Find: Bond prices rise sharply, despite no news about the bond market.

- Principles for analysis: Supply is largely given in short run. Demand fluctuates with expected returns, risk, and liquidity relative to other markets.

- Lesson: Demand for financial assets is relative – depends on the alternatives.
Related Perspectives

• **Loanable Funds analysis** (see Online Appendix 5#1)
  - Supply of securities = Demand for financing
  - Demand for securities = Supply of funds to financial markets.
  - Diagram with axes: interest rates vs funding
  - Supply of funds by savers = increasing function of the real interest rate
  - Demand for funds by borrowers = declining in the real interest rate (cost)
  - Macroeconomic interpretation: Aggregate saving = aggregate investment.

• **Asset Pricing** – research area in Finance
  - What are the prices at which financial assets are demanded by investors?
  - Questions are all about demand. Implicitly takes supplies of financial assets as given.

=> Helpful perspectives to think about financial markets, but **not** required for exams.
Systematic Analysis: Predict the Effect of Changes in Market Conditions

• In Mishkin:

  1. List of reasons why bond demand may shift
  2. List of Reasons why bond supply may shift
  3. Two scenarios that involve shifts in demand and supply:
     - Business cycles
     - Inflation: The Fisher Effect

• In each case:
  - Task: Determine the impact on prices and quantities.
  - Consider additional questions: What’s the time horizon? What’s the likely impact on other markets, e.g., stock markets, real estate markets, etc.?
Overview #1:
Factors that shift the **Demand** for Bonds

<table>
<thead>
<tr>
<th>Variable</th>
<th>Change in Variable</th>
<th>Change in Quantity Demanded at Each Bond Price</th>
<th>Shift in Demand Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealth</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Expected interest rate</td>
<td>↑</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Expected inflation</td>
<td>↑</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Riskiness of bonds relative to other assets</td>
<td>↑</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Liquidity of bonds relative to other assets</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Only increases in the variables are shown. The effects of decreases in the variables on demand would be the opposite of those indicated in the remaining columns.*
Overview #2:
Factors that shift the **Supply** for Bonds

<table>
<thead>
<tr>
<th>Variable</th>
<th>Change in Variable</th>
<th>Change in Quantity Supplied at Each Bond Price</th>
<th>Shift in Supply Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability of investments</td>
<td>↑</td>
<td>↑</td>
<td>$B_1^*$</td>
</tr>
<tr>
<td>Expected inflation</td>
<td>↑</td>
<td>↑</td>
<td>$B_2^*$</td>
</tr>
<tr>
<td>Government deficit</td>
<td>↑</td>
<td>↑</td>
<td>$B_3^*$</td>
</tr>
</tbody>
</table>

Note: Only increases in the variables are shown. The effects of decreases in the variables on the supply would be the opposite of those indicated in the remaining columns.
**Scenario: Business Cycle Expansion**

- Shifts in Demand and Supply: Higher incomes. Real capital investment is more profitable. *Caution: Distinguish real and financial investments!*

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**Step 1.** A business cycle expansion shifts the bond supply curve rightward . . .

**Step 2.** and shifts the bond demand curve rightward, but by a lesser amount . . .

**Step 3.** so the price of bonds falls and the equilibrium interest rate rises.

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[Mishkin ch.5 - P.12]
**Scenario: Increase in Expected Inflation**

- Lower real cost of borrowing => More supply of securities (incl. bonds)
- Lower real return => Less saving => Less demand for securities (incl. bonds).
- Prediction (**Fisher effect**): $\Delta i = \Delta \pi^e$. Real interest rate unchanged.
  
  [Are causes of higher $\pi^e$ correlated with real changes? Then $\Delta i \neq \Delta \pi^e$]

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**Price of Bonds, $P$**

**Step 1.** A rise in expected inflation shifts the bond demand curve leftward...

**Step 2.** and shifts the bond supply curve rightward...

**Step 3.** causing the price of bonds to fall and the equilibrium interest rate to rise.

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[Mishkin ch.5 - P.13]
Preview: More Applications of Financial Markets Analysis

• Agenda: Next examine macroeconomic forces. Then return to financial markets. Introduction & preview…

1. The Risk-structure of interest rates (Mishkin ch.6, part 1)
   - Good measure of risk: Bond Ratings
   - Find: (1) Changes in risk & liquidity => Changes in relative yields; otherwise:
     (2) Yields move together => Focus on “benchmark” bonds for macro analysis.

2. The Term Structure of interest rates: (Mishkin ch.6, part 2)
   - Combines financial analysis and macro issues – DEFER.

3. Demand & Supply in the stock market (Mishkin ch.7) – DEFER.

4. The Market for Foreign Exchange (Mishkin ch.17)
   - Exchange rate = Relative price of different country’s financial assets
   - Demand = Function of relative return, risk, and liquidity. Supply ~ fixed.
   - Insight relevant for following the news: High U.S. interest rates create the demand for dollar assets => Dollar appreciates against other currencies.

• Common principles: Supply is largely given in the short run. Demand fluctuates in response to expected returns, risk, and liquidity relative to other markets.

[Mishkin ch.5 - P.14]