Chapter 5
THE BEHAVIOR OF INTEREST RATES
Determinants of Asset Demand

Table 1: Response of the Quantity of an Asset Demanded to Changes in Income or Wealth, Expected Returns, Risk, and Liquidity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Change in Variable</th>
<th>Change in Quantity Demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income or wealth</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Expected return relative to other assets</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Risk relative to other assets</td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td>Liquidity relative to other assets</td>
<td>↑</td>
<td>↑</td>
</tr>
</tbody>
</table>

Note: Only increases (↑) in the variables are shown. The effect of decreases in the variables on the change in demand would be the opposite of those indicated in the rightmost column.

Derivation of Bond Demand Curve

\[ i = RET^e = \frac{(F - P)}{P} \]

Point A:

\[ P = \$950 \]

\[ i = \frac{($1000 - \$950)}{\$950} = 0.053 = 5.3\% \]

\[ B^d = \$100 \text{ billion} \]

Point B:

\[ P = \$900 \]

\[ i = \frac{($1000 - \$900)}{\$900} = 0.111 = 11.1\% \]

\[ B^d = \$200 \text{ billion} \]
Point C: $P = 850 \ i = 17.6\% \ B^d = 300 \text{ billion}

Point D: $P = 800 \ i = 25.0\% \ B^d = 400 \text{ billion}

Point E: $P = 750 \ i = 33.0\% \ B^d = 500 \text{ billion}

Demand Curve is $B^d$ in Figure 1 which connects points A, B, C, D, E.

Has usual downward slope

**Derivation of Bond Supply Curve**

Point F: $P = 750 \ i = 33.0\% \ B^s = 100 \text{ billion}$

Point G: $P = 800 \ i = 25.0\% \ B^s = 200 \text{ billion}$

Point C: $P = 850 \ i = 17.6\% \ B^s = 300 \text{ billion}$

Point H: $P = 900 \ i = 11.1\% \ B^s = 400 \text{ billion}$

Point I: $P = 950 \ i = 5.3\% \ B^s = 500 \text{ billion}$

Supply Curve is $B^s$ that connects points F, G, C, H, I, and has upward slope

**Supply and Demand Analysis of the Bond Market**

![Graph of Supply and Demand Analysis of the Bond Market](image)
Market Equilibrium

1. Occurs when $B^d = B^s$, at $P^* = $850, $i^* = 17.6\%$
2. When $P = $950, $i = 5.3\%$, $B^s > B^d$ (excess supply): $P \square$ to $P^*$, $i \uparrow$ to $i^*$
3. When $P = $750, $i = 33.0$, $B^d > B^s$ (excess demand): $P \uparrow$ to $P^*$, $i \square$ to $i^*$

Loanable Funds Terminology

1. Demand for bonds = supply of loanable funds
2. Supply of bonds = demand for loanable funds
Shifts in the Bond Demand Curve

Factors that Shift the Bond Demand Curve:

1. Wealth
   A. Economy ↑, wealth ↑, $B^d ↑$, $B^d$ shifts out to right

2. Expected Return
   A. $i \in$ future, $RET_e$ for long-term bonds ↑, $B^d$ shifts out to right
   B. $\frac{i}{i^0}$, Relative $RET_e$ ↑, $B^d$ shifts out to right

3. Risk
   A. Risk of bonds $\in$, $B^d ↑$, $B^d$ shifts out to right
   B. Risk of other assets $↑$, $B^d ↑$, $B^d$ shifts out to right

4. Liquidity
   A. Liquidity of Bonds $↑$, $B^d ↑$, $B^d$ shifts out to right
   B. Liquidity of other assets $\in$, $B^d ↑$, $B^d$ shifts out to right
Shifts in the Bond Supply Curve

Factors that Shift the Bond Supply Curve:

1. **Profitability of Investment Opportunities**
   - Business cycle expansion, investment opportunities ↑, \( B^s \) ↑, \( B^s \) shifts out to right

2. **Expected Inflation**
   - ↑, \( B^s \) ↑, \( B^s \) shifts out to right

3. **Government Activities**
   - Deficits ↑, \( B^s \) ↑, \( B^s \) shifts out to right
Changes in $p$: the Fisher Effect

If $p \uparrow$
1. Relative $RET$, $B^d$ shifts in to left
2. $B^s \uparrow$, $B^s$ shifts out to right
3. $P$, $i \uparrow$

Business Cycle Expansion

1. Wealth $\uparrow$, $B^d \uparrow$, $B^d$ shifts out to right
2. Investment $\uparrow$, $B^s \uparrow$, $B^s$ shifts right
3. If $B^s$ shifts more than $B^d$ then $P$, $i \uparrow$