Monetary Transmission Mechanisms

1. Interest rate channel: $\downarrow$ interest rates $\longrightarrow \downarrow$ cost of capital, $\uparrow$ investment. Consumer durables also are quite responsive to interest rate changes.

2. Asset prices: $P = \sum \frac{D_t}{(1+r_t+\rho)^t}$. $\downarrow r \longrightarrow$ asset prices, which induces wealth effects: your wealth is now higher, so you spend more (by PIH logic).

3. Tobin's Q: $\downarrow$ interest rates $\uparrow$ asset prices, so $\uparrow \frac{\text{market value of equipment}}{\text{replacement value of equipment}}$, i.e. Tobin's Q, which in turn spurs investment.

4. When asset prices $\uparrow$, households have more liquid wealth, so they buy more illiquid assets (like cars).

Monetary Transmission Mechanisms

5. Credit channel: (i) balance sheet effects; (ii) lending.
    (i) Balance sheet effects: if asset prices ↑ due to monetary policy, then borrowers have more *collateral* to offer banks, which raises the incentive to lend. In turn, this raises the money multiplier and broad money supply. The fact that asset prices are procyclical therefore induces what Bernanke calls a *financial accelerator*.
    (ii) Lending channel:
        i. If banks have more reserves (due to open market operations, say), they are 'awash with funds' and would be willing to lend more. This would be especially important for small firms who rely on banks for funding (by contrast, large corporations can go to the debt/equity markets themselves).
        ii. Balance sheet positions of banks – next slide.

Monetary Transmission Mechanisms
Balance Sheet of Bank

Assets
Loans: 100
Liabilities
Capital: 10
Debt: 90
Leverage Ratio is $\frac{Assets}{Capital} = \frac{100}{10}$.
If bank's assets fall by 10% in value, it loses all its capital (or *buffer* against losses). Any further losses render the bank *insolvent*. In this case, a bank will be very reluctant to lend and the money multiplier ↓, i.e. there will be a *credit crunch*.

Monetary Transmission Mechanisms

6. Exchange rate channel – international aspect.

7. $\uparrow P \longrightarrow \downarrow$ real value of debt, improving debtor's balance sheets.

8. Cash flow: $\downarrow$ interest rates $\Longrightarrow$ debtor firms have more cash on hand $\longrightarrow \uparrow$ investment (empirically, investment is quite responsive to internal funds of firms).

9. $\downarrow$ interest rates $\longrightarrow \downarrow$ credit rationing (since $\downarrow$ interest rates $\longrightarrow \downarrow$ adverse selection problem).

Issues in Monetary Policy

Liquidity Trap – Some Solutions

1. FX intervention $\longrightarrow \uparrow$ domestic currency $\longrightarrow$ improve CA.
2. Buy long-run bonds $\longrightarrow \downarrow$ return $\longrightarrow \downarrow$ cost of borrowing.
3. Expectations of large g_M or π in future to $\uparrow M^d$ today.
4. Make money bills 'obsolete' after one year to encourage spending.

$$r = i - \pi^e \Longrightarrow \uparrow \pi^e \longrightarrow \downarrow r \Longrightarrow \uparrow Y$$

Issues in Monetary Policy

Why do banks target $\pi > 0$?

1. $\uparrow$ leverage for monetary policy. FED targets i_n on average. $\uparrow$ risk of falling into liquidity trap.
   E.g. $r_n = 1\%$, $\pi = 5\% \implies i_n = 6\%$ versus
   $\pi = 0\% \implies i_n = 1\%$.

2. $\pi \longrightarrow \downarrow$ real w if w sticky: 'greasing the wheels' of labour market to make it more flexible.

3. $\downarrow$ likelihood of deflation. Japan's lost decade in 90s and Great Depression.

4. Source of finance for government.

Issues in Monetary Policy

Money Multiplier

- $M = \mu mb$
- μ not necessarily constant – actually procyclical.

Issues in Monetary Policy

Miscellaneous

- Preemptive policy (lags).
- Monetary policy widely believed to be more effective than fiscal policy.
- Monetary policy can be less effective in inflationary environments.
- Gains to inflation (real wages / nominal rates / debt deflation).
- Communication/monetary rules/forward guidance.
- Target asset prices, e.g. $\frac{P}{D}$ ratio.
- Lucas critique.
- Dynamic inconsistency.
- Price level target / nominal GDP.
- Credit rationing / moral hazard / adverse selection.
- Deflation ($r = i - \pi$).
- Money multiplier / Koo (high levels of real debt lower aggregate demand; willing borrowers? Slope of AD).