The AD-AS Model and Monetary Policy

Chapter 14

Introduction

- Monetary policy is one of the two main traditional macroeconomic tools to control the aggregate economy.
- While fiscal policy is controlled by the government directly, monetary policy is controlled by the central bank in Canada.
- Monetary policy influences the economy through changes in the money supply and availability of credit.

Effect of Monetary Policy on the Macro Policy Model

- Expansionary monetary policy shifts the AD curve to the right.
- Contractionary monetary policy shifts the AD curve to the left.

Effect of Monetary Policy on the AD/AS Model

- The effect of monetary policy on equilibrium income and the price level depends on whether inflationary pressures are set in motion.
- This depends on how close the economy is to its potential income.

Effect of Monetary Policy on the Macro Policy Model

- Expansionary monetary policy increases nominal income.
- Its effect on real income depends on how the price level responds.

\[
\% \Delta \text{Real Income} = \% \Delta \text{Nominal Income} - \% \Delta \text{Price Level}
\]

Effect of Monetary Policy on the AS/AD Model

- In Keynesian range, real income will rise with expansionary monetary policy and decline with contractionary monetary policy.
- The price level is unaffected.
Monetary Policy When Prices are Fixed

In the intermediate range, both real income and price level change.

Expansionary Monetary Policy in the Intermediate Range

Expansionary Monetary Policy in the Classical Range

Monetary Policy in Classical Range

Only the price level will change since the economy is at potential.

Duties and Structure of the Bank of Canada

A central bank conducts monetary policy and acts as financial adviser to the government.

Central bank – a type of bankers' bank.
**Duties and Structure of the Bank of Canada**

- In some countries the central bank is a part of the government.

- In Canada the central bank is not part of the government—it is a Crown corporation, not under direct day-to-day control of the federal government.

**Structure of the Bank**

- Price stability has often been the goal of monetary policy.

- Price stability is interpreted to mean a low and stable rate of inflation.

**International Considerations**

- The design and implementation of monetary policy is affected by international considerations.

- Exchange rates play a critical role in the process.

**International Considerations**

- An exchange rate expresses the value of one currency in terms of the value of another.
  - It tells us how many units of one currency is needed to buy one unit of another.

- Exchange rate can be expressed in two ways:
  
  - Can$1.18 can buy US$1.
  - US$0.85 can buy Can$1.

**International Considerations**

- Exchange rates matter because international trade is an important part of every economy.

- Monetary policy is important because it will affect international trade through changes in the money supply.

**International Considerations**

- The exchange rate depends on how much of that currency is in circulation.

- Therefore, monetary policy cannot be set without consideration of international issues.
Duties of the Bank

- The Bank of Canada is responsible for:
  - Conducting monetary policy
  - Providing central banking services
  - Issuing bank notes
  - Administering public debt.

Duties of the Bank of Canada

- Conducting monetary policy is the most important job the Bank of Canada has to do.
- Monetary policy – influencing the supply of money and credit in the economy.

Duties of the Bank of Canada

- The Bank of Canada supervises and regulates financial institutions.
- It serves as a lender of last resort to financial institutions.
- It provides banking services to the Canadian government.

Duties of the Bank of Canada

- The Bank of Canada issues the nation’s paper currency.
- It provides financial services such as cheque clearing to financial institutions, such as chartered banks.

Importance of Monetary Policy

- Actual decisions about monetary policy are made by the Governor of the Bank of Canada, with consultation with senior staff.

Conducting Monetary Policy

- Monetary base – vault cash, deposits at the Bank of Canada, plus currency in circulation.
- Bank reserves – either vault cash or deposits at the Bank of Canada.
- Bank reserves are IOUs of the Bank of Canada.
Conducting Monetary Policy

- The Bank of Canada influences the amount of money in the economy and the activities of chartered banks by controlling the monetary base.

Conducting Monetary Policy

- Monetary policy affects the amount of reserves in the banking system.
- The amount of reserves affects interest rates.

Conducting Monetary Policy

- Other things being equal, as reserves decline, interest rates rise.
- As reserves increase, interest rates fall.

Tools of Monetary Policy

- The tools of monetary policy include:
  - Changing the target range for the overnight financing rate.
  - Cash management operations.

Overnight Financing Rate

- All chartered banks are members of the Canadian Payments Association.
- Among other things, this association runs an electronic funds transfer system called the Large Value Transfer system (LVTS), where payments clear and settle daily.

Overnight Financing Rate

- If financial institutions have surplus balances resulting from the clearing process at the LVTS, they can loan them on a very short term basis to those members who are in deficit position.
- These loans occur in the overnight market.
The overnight financing rate is the rate of interest associated with these very short-term loans in the overnight market.

The Bank of Canada has a target range for the overnight financing rate – it falls between the bank rate (maximum) and the rate at which the Bank will pay the LVTS participants who want to leave their surplus funds with the Bank of Canada (minimum).

Changes in the overnight financing rate influence all other rates through the term structure of interest rates – the structure of yields on financial instruments with similar characteristics, but different terms to maturity.

Arbitrage – the buying and selling of similar goods and services across different markets – provides the link between interest rates on dissimilar assets.

The bank rate is the interest rate charged on advances from the central bank.

The main tool of monetary policy in Canada is the target range for the overnight financing rate.

- If the target range for the overnight financing rate is increased, Aggregate Demand will decline.
- By decreasing the target range, Aggregate Demand will increase.
Changing the Target Range

- An increase in the target range makes it more expensive for banks to borrow from the Bank of Canada.

- A decrease in the target range makes it less expensive for banks to borrow from the Bank of Canada.

Cash Management Operations

- Cash management is the second major tool of monetary policy in Canada.

Cash Management Operations

- Cash management techniques include:
  - various open market operations - buying and selling of government bonds and bills.
  - the transfer of government deposits between chartered banks and the Bank of Canada.

Open Market Operations

- Open market operations are the Bank of Canada’s buying and selling of federal government securities.

Open Market Operations

- To expand money supply, the Bank of Canada buys bonds.

- To contract money supply, the Bank of Canada sells bonds.

Open Market Purchase

- An open market purchase is an example of expansionary monetary policy.

- Expansionary monetary policy is a monetary policy that tends to reduce interest rates and raise income.
Open Market Purchase

- When the Bank of Canada buys bonds, it deposits the money in federal government accounts at a bank.
- Bank cash reserves rise, encouraging banks to lend out the excess.
- The money supply rises.

Open Market Sale

- An open market sale is an example of contractionary monetary policy.
- *Contractionary monetary policy* is a monetary policy that tends to raise interest rates and lower income.

Open Market Sale

- In return for the bond, the Bank of Canada receives a cheque drawn against a bank.
- The bank’s reserve assets are reduced and money supply falls.

Bond Prices and Interest Rates

- The Bank of Canada raises the demand for bonds when it buys bonds in an open market purchase.
- Bond prices rise and interest rates fall.
- Remember, bond prices and bond interest rates are inversely related.

Open Market Purchase

- The Bank of Canada increases the supply of bonds when it sells bonds in the open market.
- Bond prices fall and interest rates rise.
**Open Market Sale**

- A transfer of government deposits from the chartered banks and other financial institutions to the Bank of Canada reduces the amount of liquidity in the banking system.
- This puts upward pressure on interest rates.

**Government Deposits**

- A transfer of government deposits from the chartered banks and other financial institutions to the Bank of Canada reduces the amount of liquidity in the banking system.
- This puts upward pressure on interest rates.

**Monetary Policy in the AD/AS Model**

- In AD/AS model, monetary policy works primarily through its effect on interest rates.

**Contractionary Monetary Policy**

- The Bank of Canada decreases the money supply.
- The interest rates go up.
- As interest rates go up, the quantity of investment goes down.

**Contractionary Monetary Policy**

- As investment goes down, aggregate demand goes down.
- Equilibrium aggregate demand and income go down by a multiple of the decrease in investment.
Contractionary Monetary Policy

- The AD curve shifts to the left by a multiple of the shift in investment.
- Income and output decrease.

\[ M \downarrow \rightarrow i \uparrow \rightarrow k \downarrow \rightarrow Y \downarrow \]

Expansionary Monetary Policy

- Expansionary monetary policy works in the opposite direction.

\[ M \uparrow \rightarrow i \downarrow \rightarrow k \uparrow \rightarrow Y \uparrow \]

Emphasis on the Interest Rate

- A rising interest rate indicates a tightening monetary policy.
- A falling interest rate indicates a loosening of monetary policy.

A natural conclusion is that the Bank of Canada should target interest rates in setting monetary policy.
Real and Nominal Interest Rates

- There is a problem in using interest rates as a measure of the tightness or looseness of monetary policy.
- We need to distinguish between real and nominal interest rates.

Real and Nominal Interest Rates

- Nominal interest rates are those you actually see and pay.
- Real interest rates are those adjusted for expected inflation.

Real and Nominal Interest Rates

- The real interest rate cannot be observed since it depends on expected inflation, which cannot be directly observed.

\[ \text{Nominal interest rate} = \text{Real interest rate} + \text{Expected inflation rate} \]

Real and Nominal Interest Rates and Monetary Policy

- Most economists believe that a monetary regime, not a monetary policy, is the best approach to policy.
  - Expansionary monetary policy will lead to expectations of increased inflation.
  - Increased inflation expectations will lead to higher nominal interest rates, leaving real interest rates unchanged.

Real and Nominal Interest Rates and Monetary Policy

- A monetary regime is a predetermined statement of the policy that will be followed in various situations.
- Monetary policy is a policy response to events which is chosen without a predetermined framework.
Real and Nominal Interest Rates and Monetary Policy

- The Bank of Canada is currently following a monetary regime that involves feedback rules that centre on the overnight financing rate.

- If inflation is above its target the Bank raises the target range, decreasing the money supply.
- If inflation is below its target, and if economy is going into recession, the Bank lowers the target range, increasing the money supply.

Problems in the Conduct of Monetary Policy

- The five problems of monetary policy:
  - Knowing what policy to use.
  - Understanding the policy you’re using.
  - Lags in monetary policy.
  - Political pressure.
  - Conflicting international goals.

Knowing What Policy to Use

- The potential level of income must be known.
- Otherwise you don’t know whether to use expansionary or contractionary monetary policy.

Understanding the Policy You’re Using

- You must know whether the policy being used is expansionary or contractionary in order to use monetary policy effectively.
- The money multiplier is influenced by both the amount of cash people hold as well as the lending process at the various banks.
- Neither of these are stable numbers.
Understanding the Policy You’re Using

- Then there are interest rates.

- If interest rates rise, is it because of expected inflation or is it that the real interest rate is going up?

Lags in Monetary Policy

- Monetary policy takes time to work.
  - The Bank of Canada must recognize what the situation in the economy is.
  - Then it must develop a consensus for action.
  - Then businesses and individuals have to react to the policy change.

Lags in Monetary Policy

- Just because the Bank of Canada drops interest rates, that does not necessarily mean that people or businesses will go out and borrow money.

- *Liquidity trap*—a situation in which increasing reserves does not increase the money supply, but simply leads to excess reserves.

Political Pressure

- The Bank of Canada is not totally insulated from political pressure.

- Prime Ministers place pressure on the Bank of Canada to use expansionary monetary policy, especially during an election year.

Conflicting International Goals

- Monetary policy is conducted in an international arena.

- It must be coordinated with other countries’ monetary policies.

Inflation Targeting

- Since 1991, low and stable inflation has been the Bank of Canada’s main concern.
  - In 1991, inflation was 5.9%
  - In 1993, inflation was 2%
  - It has kept inflation in the 1-3% range since then.
Inflation erodes purchasing power.

It hurts people on fixed incomes.

It raises transactions costs.

It erodes the value of the country’s currency internationally.

The principal goal of monetary policy is long-run price stability.

Most inflation rate targets are around 2%.

Monetary policy should be transparent.

This will align people’s expectations of monetary policy and inflation with actual policies and results.

The Bank of Canada is accountable if the inflation target is not reached.

The Bank of Canada announces the target for the overnight rate on eight predetermined dates over the year.

This avoids surprises in financial markets.

The Bank of Canada uses the Monetary Conditions Index (MCI) to track its monetary policy.

- The higher the value of MCI, the tighter the monetary policy is.
- The lower the value of MCI, the looser the monetary policy is.

The MCI indicates that, despite loose monetary policy since 1991, inflation is low and fairly stable.

Some economists suggest that Canada may be experiencing a liquidity trap, where aggregate demand is relatively unresponsive to changes in interest rates.
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End of Chapter 14