LM 5 - Monetary and Fiscal Policy

KIA Fresh Graduates Program - Economics

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Learning Outcomes

The candidate should be able to:

1. compare monetary and fiscal policy;
2. describe functions and definitions of money;
3. explain the money creation process;
4. describe theories of the demand for and supply of money;
5. describe the Fisher effect;
6. describe roles and objectives of central banks;
7. contrast the costs of expected and unexpected inflation;
8. describe tools used to implement monetary policy.
9. describe the monetary transmission mechanism;

Learning Outcomes

The candidate should be able to:

10. explain the relationships between monetary policy and economic growth, inflation, interest, and exchange rates;
11. describe qualities of effective central banks;
12. contrast the use of inflation, interest rate, and exchange rate targeting by central banks;
13. determine whether a monetary policy is expansionary or contractionary;
14. describe limitations of monetary policy;
15. describe roles and objectives of fiscal policy;
16. describe the arguments about whether the size of a national debt relative to GDP matters;
17. describe tools of fiscal policy, including their advantages and disadvantages

Overview

Monetary Policy vs. Fiscal Policy

- Monetary policy: Central bank's actions that influence the supply of money (i.e. quantity of money) or interest rates (i.e. price of money).
- Fiscal policy: government's decisions about spending and taxation.
- Both monetary and fiscal policies are used to regulate economic activity over time.

Overview

Definition and Functions of Money

- Money is one of mankind's most important inventions.
- In a world without money, if you wanted to trade, you would have to barter, trading goods and services directly for other goods and services.
- Trades would require a **double coincidence of wants**.
- The existence of money makes trading much easier and allows specialization, an important step for developing an economy.
- Economists consider money to be any asset that people are generally willing to accept in exchange for goods and services or for payment of debts.
- Functions of money:
  - Medium of exchange.
  - Unit of account.
  - Store of value.

Definition and Functions of Money

In order to serve as an acceptable medium of exchange (and hence a potential "money"), a good should have the following characteristics:

- The good must be **acceptable** to most people.
- It should be of **standardized quality** so any two units are alike.
- It should be **durable** so that value is not lost by wearing out.
- It should be **valuable** relative to its weight, so that it can easily be transported even in large quantities.
- It should be **divisible** enough to be used for purchases of both low-priced and high-priced goods.

Types of Money

- Commodity money has value independent of its use as money (e.g. coins made of precious metals).
- Commodity-backed money is money that represents a claim on a commodity (e.g. gold standard).
- Fiat money is any money that does not have to be exchanged for a commodity (i.e. it represents a claim on itself). It's usually authorized by a government to be legal tender.

Measures of the Supply of Money

- Different measures of the quantity of money circulating in an economy exist.
- These measures vary depending on the **liquidity** of assets included.
- The most important measures in most countries are M1 and M2.
- **M1**: a narrow definition of the money supply that includes currency in circulation and checking account deposits in banks.
- **M2**: a broader definition of the money supply that includes M1, plus small-denomination time deposits, savings account deposits, and non-institutional money market fund shares.
- The definitions of M1 and M2 may vary between countries. (e.g. a recent change made saving deposits part of M1 in the US)

Measures of the Supply of Money

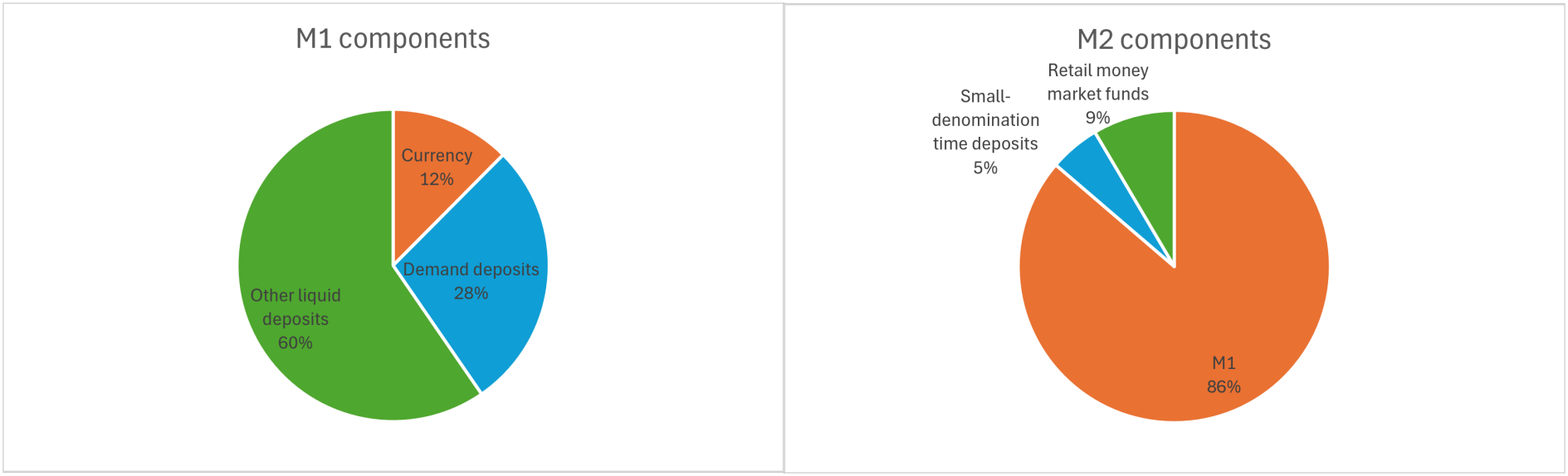

Figure: Money supply composition, US data, March 2024

Money Creation

- In most countries, the ultimate power of money creation lies with the central bank.
- However, there is more money held in checking and saving accounts than there is actual currency in the economy.
- This implies that banks play a critical role in the money supply.
- Part of the money supply is actually created by banks.

Banks' Balance Sheet

Assets	Amount in billions	Liabilities and Stockholders' Equity	Amount in billions
Reserves	$135	Deposits	$1,000
Loans	900	Short-term borrowing	400
Securities	700	Long-term debt	360
Buildings and equipment	15	Other liabilities	275
Other assets	550	Total liabilities	$2,035
-	-	Stockholders' equity	265
Total assets	$2,300	Total liabilities and Stockholders' equity	$2,300

- Banks use money deposited with them to make loans and buy securities (investments).
- Their largest liabilities are their deposit accounts: money they owe to their depositors.

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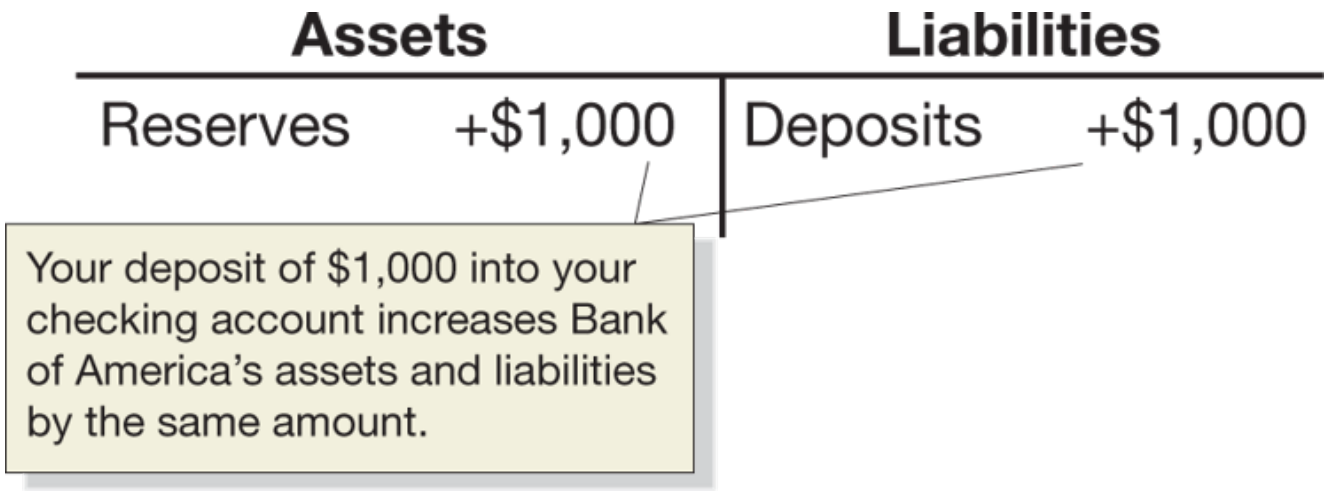
- Reserves are deposits that a bank keeps as cash in its vault or on deposit with the central bank.
- Banks do not keep enough reserves on hand to cover all of its deposits. This is how the bank makes a profit: lending out or investing money deposited with it.
- This system is called **fractional reserve banking**.

Required and Excess Reserves

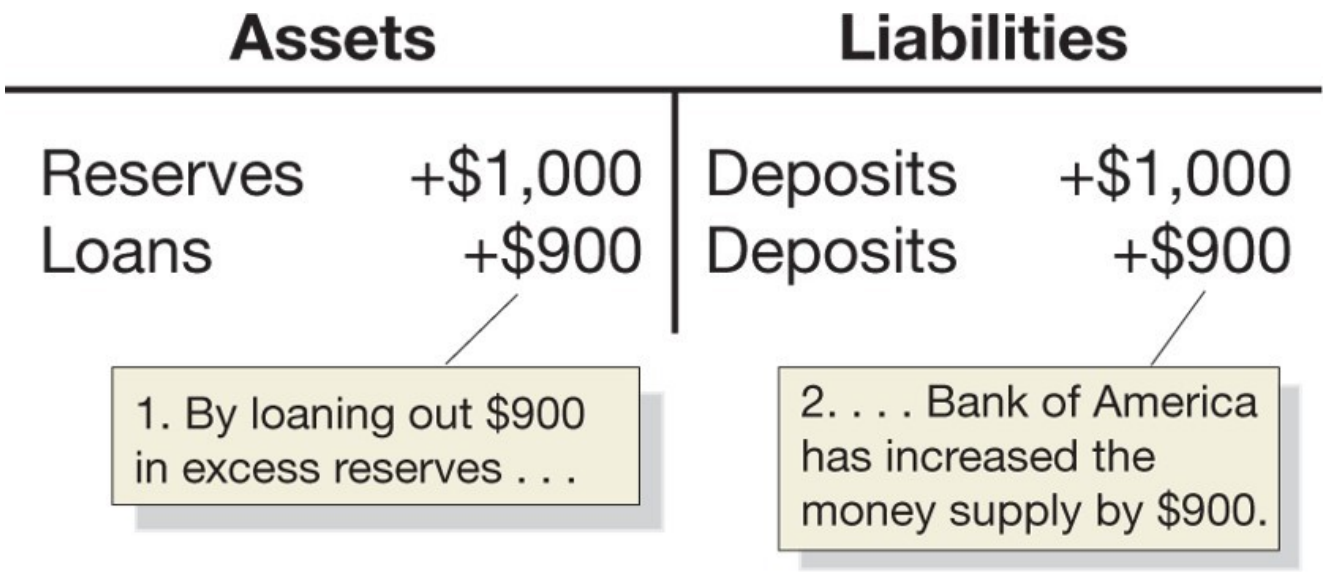
- The bank must keep some cash available for its depositors; it does this through a combination of vault cash and deposits with the central bank.
- Banks in some countries are legally required to hold a minimum amount of reserves based on the amount of deposits they hold: these are called **required reserves**.
- The required reserve ratio (RR): the minimum fraction of deposits banks are required by the central bank to keep as reserves. Currently, the RR is 0% in the US.
- Banks might choose to hold **excess reserves**: reserves that banks hold on top of the legal requirement.

Money Creation: Example



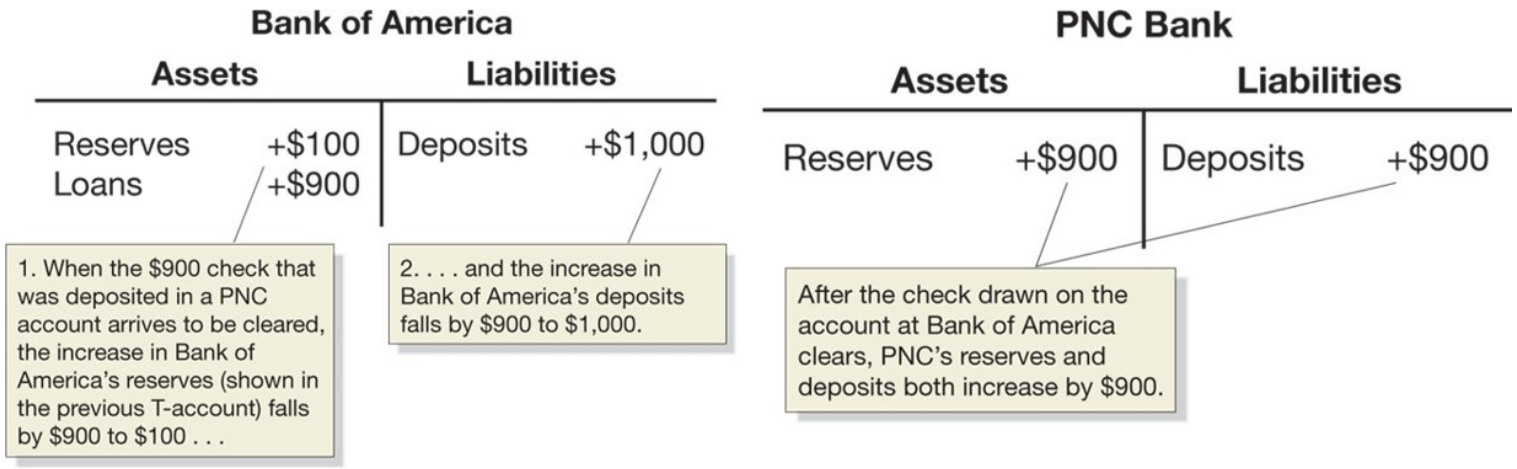
- When a customer deposits 1'000$ in currency at Bank of America, for example, both its reserves and deposits increase by 1'000$.
- The currency component of M1 decreases by 1'000$ and the checking deposits component increases by 1'000$. So there is no change in the money supply so far.

Money Creation: Example



- Bank of America needs to make a profit, so it keeps 10% of the deposit as reserves and lends out the rest, creating a 900$ checking account deposit.

Money Creation: Example



- When the newly created 900$ of deposits is spent, Bank of America will transfer 900$ in currency (or central bank reserves) to the bank at which the 900$ check is deposited, in this example PNC.
- In turn, PNC will lend out part of that money and keep the rest as reserves.

Money Creation: Example

Bank	Increase in the Checking Account Deposits
Bank of America	$\$1,000$
PNC	$+\ 900\ (=0.9\times\$1{,}000)$
Third Bank	$+\ 810\ (=0.9\times\$900)$
Fourth Bank	$+\ 729\ (=0.9\times\$810)$
.	+ [illegible]
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Total change in checking account deposits	$=\$10{,}000$

- Each round, the additional checking account deposits get smaller and smaller as 10% of the deposits are kept as reserves.
- The ratio of the amount of deposits created by banks to the amount of new reserves is given by

$$\text{Simple Deposit (or Money) Multiplier} = \frac{1}{\text{Required Reserves Ratio}}$$

Money Creation: Example

- In this example, the deposit multiplier is 10.
- But in reality, we do not observe this: currency deposits only end up being multiplied by less than 2. In October 2019, the multiplier was about 1.2
- Why this difference?
  - Banks may not lend out as much as we predict, either because they want to keep excess reserves, or they cannot find credit-worthy borrowers.
  - Consumers keep some currency out of the bank; that currency cannot be used as required reserves.

Quantity Theory of Money

- Quantity theory of money asserts that total spending (in money terms) is proportional to the quantity of money:

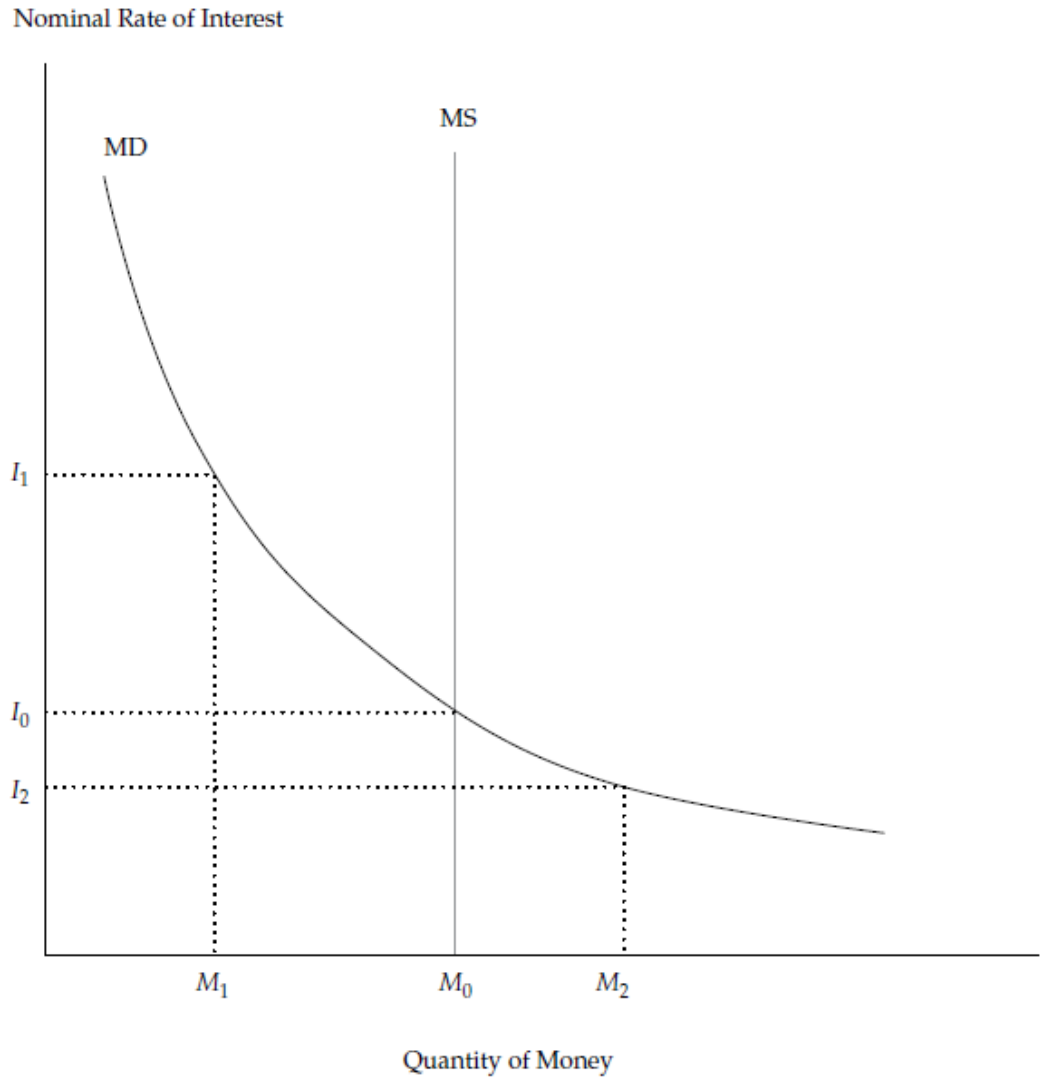
$$M \times V = P \times Y$$

  - M is the quantity of money, V is the velocity of circulation of money, P is the average price level, and Y is real output.
- Money neutrality: an increase in M will cause P to rise by the same proportion (no effect on V or Y).

Demand for Money

- Demand for money is the amount of wealth that the citizens of an economy choose to hold in the form of money—as opposed to bonds or equities.
- three basic motives for holding money:
  - transactions-related;
  - precautionary;
  - speculative/portfolio.

Supply and Demand for Money



Fisher Effect

- Fisher effect states that the real rate of interest in an economy is stable over time so that changes in nominal interest rates are the result of changes in expected inflation.

$$\text{Nominal interest rate} = \text{real interest rate} + \text{expected inflation}$$

- Because of uncertainty about future inflation rates and other economic variables, investors require a risk premium to compensate them for this uncertainty.

$$\text{Nominal interest rate} = \text{real interest rate} + \text{expected inflation} + \text{risk premium}$$

Objectives of Central Banks

- All central banks have price stability (low inflation rates) as an objective. Many have explicit target rates, usually 2% to 3%.
- Some central banks also attempt to:
  - Maintain full employment
  - Promote economic growth
  - Keep exchange rates stable
  - Keep long-term interest rates moderate

Monetary Policy Tools

- To manage the money supply, central banks use mainly four monetary policy tools:
  - Open market operations
  - Discount policy
  - Reserve requirements
  - Interest on reserves
- These tools and others are usually used to manipulate the policy rate to reach a certain target.
- In the US, the Federal Reserve sets a target for the federal funds rate, i.e. the rate that banks charge each other for short-term loans.

Monetary Policy Tools

- **Open market operations**: the buying and selling of government debt securities by the central bank in order to control the money supply.
  - To increase the money supply, the central bank directs its trading desk to conduct an open market purchase of government debt securities—in the US these are Treasury bills, notes, and bonds, which are short-term (1 year or less), medium-term (2-10 years), or long-term (30 years) tradable loans to the U.S. Treasury.
  - To decrease the money supply, the central bank sells its securities—an open market sale.
  - These open market operations can occur very quickly and are easily reversible.

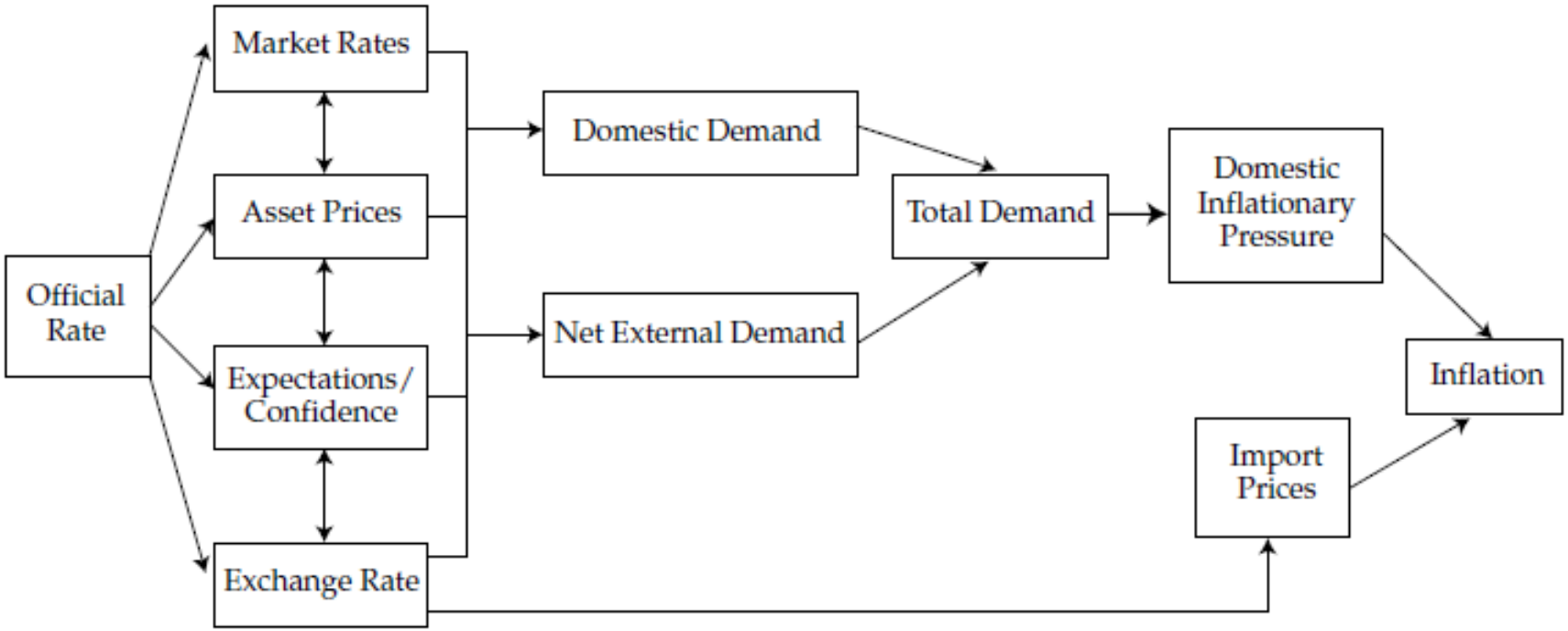
Monetary Policy Tools

- **Discount policy** (discount window): The discount rate is the interest rate paid on reserves banks borrow from the central bank (usually against collateral).
  - By lowering the discount rate, the central bank encourages banks to borrow (and hence lend out) more money, increasing the money supply. Raising the discount rate has the opposite effect.
- **Required reserve ratio**: Seldom changed
  - Lower reserve ratio increases funds banks have to make loans.
- **Interest payment on reserves**: Since 2008, the Fed, the ECB and other central banks have paid banks interest on both their required and excess reserves.
  - A decrease in the interest rate paid will increase the incentive of banks to make loans rather than hold reserves.
  - As banks increase the loans they make, the money supply will increase.

Monetary Policy Effects on Economy

- When a central bank buys securities:
  - Bank reserves increase
  - Interbank lending rates decrease
  - Short-term and long-term lending rates decrease
  - Businesses increase investment
  - Consumers increase purchases of homes and durable goods
  - Domestic currency depreciates, exports increase
- Overall, aggregate demand increases, increasing real GDP, employment, and inflation.

Monetary Transmission Mechanism



Source: Bank of England.

Qualities of Effective Central Banks

- Transparency: The decision-making process should be well known and consistent.
- Independence: Central banks must be free from political influence
- Credibility: The public must believe in the central bank's actions and reasons for acting.

Monetary Policy Frameworks

- Inflation Targeting (IT)
  - Target a certain level of inflation using monetary policy.
  - Consensus is that IT is the best way to control inflation and thereby maintain price stability.
  - Inflation-targeting frameworks are the cornerstone of monetary policy and macroeconomic policy in most advanced economies and some developing economies.
- Exchange Rate Targeting:
  - Sets a fixed level or band of values for the exchange rate against a major currency.
  - The central bank supports the target by buying and selling the national currency in foreign exchange markets.
  - Linking its currency to a stable, low inflation economy, a country can essentially "borrow" the inflation stability of the more established economy.
  - Loss of monetary policy independence: interest rates and the money supply must adjust to support the exchange rate goal.

The Neutral Interest Rate

- Neutral interest rate = trend growth rate of real GDP + target inflation rate
- Policy rate > neutral rate: Contractionary
- Policy rate < neutral rate: Expansionary

Overview

Fiscal Policy

- Keynesian economists believe discretionary fiscal policy can stabilize the economy, increasing aggregate demand to combat recessions and decreasing aggregate demand to combat inflation.
- Monetarists believe that such effects are temporary and that appropriate monetary policy will dampen economic cycles

Fiscal Policy Tools: Spending

1. Transfer payments: Cash payments by government to redistribute wealth
2. Current spending: Purchases of goods and services.
3. Capital spending: To increase future productivity; on infrastructure, or to support research on and development of new technologies

Fiscal Policy Tools: Revenue

- Direct taxes—levied on income or wealth (Take time to implement).
- Indirect taxes—levied on goods and services (Quick to implement to raise revenue or promote social goals, or both (e.g., tobacco tax)).

Fiscal Multiplier

- Increased spending has a multiplied effect as it creates more spending

$$\text{Fiscal Multiplier (FM)} = \frac{1}{1 - \text{MPC}(1 - t)}$$

- An increase in government spending (ΔG) can increase aggregate demand by $\Delta G \times \text{FM}$.
- An increase in taxes (ΔT) can decrease aggregate demand by $\Delta T(\text{MPC}) \times \text{FM}$.

Ricardian Equivalence

- With Ricardian equivalence, an increase in government spending funded by issuing debt will have no impact on aggregate demand.
- This would result if individuals view the additional debt as a future tax liability.
- A decrease in taxes resulting from greater government borrowing would not increase consumption.
- Empirical evidence inconclusive.

Size of National Debt/GDP

- Reasons to be concerned:
  - May lead to higher future taxes.
  - Crowding out (of private investment).
  - Money creation may increase inflation
- Reasons not to be concerned:
  - Debt owed to own citizens.
  - Money used for capital investment.
  - Ricardian equivalence
  - Spending reduces unemployment

Fiscal Policy Lags

- Recognition lag: To identify the need for fiscal policy change.
- Action lag: To enact legislation.
- Impact lag: For the policy change to have the intended effect
- Lags can cause fiscal policy changes to be destabilizing rather than stabilizing

Fiscal Policy Limitations

- If economy is at full employment, fiscal stimulus will result in higher inflation.
- If economy is below full employment due to supply shortages, fiscal stimulus will lead to inflation rather than GDP growth.
- If the economy has high unemployment and high inflation (stagflation), fiscal policy cannot address both.

Analysis of Fiscal Policy

- A full-employment (cyclically adjusted) deficit amount can be used to account for the stage of the business cycle.
- Automatic stabilizers (taxes and transfer payments) tend to increase deficits during recessions and decrease deficits during expansions.

Overview

Question 1:

- According to the theory of money neutrality, money supply growth does not affect variables such as real output and employment in:
  - A. the long run.
  - B. the short run.
  - C. the long and short run.

Question 2:

- Which role is a central bank least likely to assume?
  - A. Lender of last resort.
  - B. Sole supervisor of banks.
  - C. Supplier of the currency.

Question 3:

- The least likely limitation to the effectiveness of monetary policy is that central banks cannot:
  - A. accurately determine the neutral rate of interest.
  - B. regulate the willingness of financial institutions to lend.
  - C. control amounts that economic agents deposit into banks.

Question 4:

- The most likely argument against high national debt levels is that:
  - A. the debt is owed internally to fellow citizens.
  - B. they create disincentives for economic activity.
  - C. they may finance investment in physical and human capital.