DP IB Economics: SL

Your notes

3.5 Demand Management: Monetary Policy

Contents

3.5.1 An Overview of Monetary Policy


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Introduction to Demand-side Policies

- **Demand-side policies** aim to shift **aggregate demand (AD)** in an economy
- There are two categories of demand-side policies
  - **Fiscal policy** and **monetary policy**
- **Fiscal policy** involves the use of government **spending** and **taxation** to influence AD
  - The **government i**s responsible for **setting fiscal policy**
  - Governments usually present their **fiscal policies** to the country each year when they deliver the **Government budget**
- **Monetary policy** involves adjusting **interest rates** and the **money supply** so as to influence AD
  - Central Banks are usually responsible for setting **monetary policy**
  - **Central Bank committees usually** meet 4–8 times a year to set policy

The Goals of Monetary Policy

- **Monetary policy** is used to help the government achieve their **macroeconomic objectives**
- Specifically, the use of monetary policy aims to achieve
  - A low and stable rate of inflation
  - Low unemployment
  - Reduce **business cycle** fluctuations
  - Promote a stable economic environment for long-term growth
  - To control the level of exports and imports (net external balance)
- When a policy decision is made, it creates a **ripple effect through the economy** impacting the macroeconomic objectives of the government

Real Versus Nominal Interest Rates

- In economics, the use of the word **nominal** refers to the fact that the **metric** has **not been adjusted for inflation**
- **The nominal interest** rate is the **headline rate presented by commercial banks**

- There has been **no adjustment** to the interest rate based on **the rate of inflation**

- The **real interest rate** is the nominal interest rate minus the rate of inflation
  - For example, if the **nominal interest rate** for saving money at a commercial bank is 3% and **inflation is 2%** then **the real interest rate is 1%**
  - The value of the savings is effectively increasing by only 1%

- The **real interest rate** can also be calculated using **consumer price index (CPI)** data

Worked Example

Using the data, calculate the real interest rate in 2021 [3 marks]

Year	CPI	Nominal Interest rate
2020	103.2	-
2021	105.9	4%

Answer:

Step 1: Calculate the inflation rate by calculating the % difference between the CPI for 2021 and 2020

$$\text{Inflation rate} = \frac{\text{New CPI} - \text{Old CPI}}{\text{Old CPI}} \times 100$$

$$\text{Inflation rate} = \frac{105.9 - 103.2}{103.2} \times 100$$

$$\text{Inflation Rate} = 2.62\%$$

Step 2: Calculate the real interest rate

Real interest rate = nominal interest rate - inflation rate

= 4% - 2.62%

= **1.38%**

(3 marks for a correct answer or 1 mark for any correct working)

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Expansionary & Contractionary Monetary Policy

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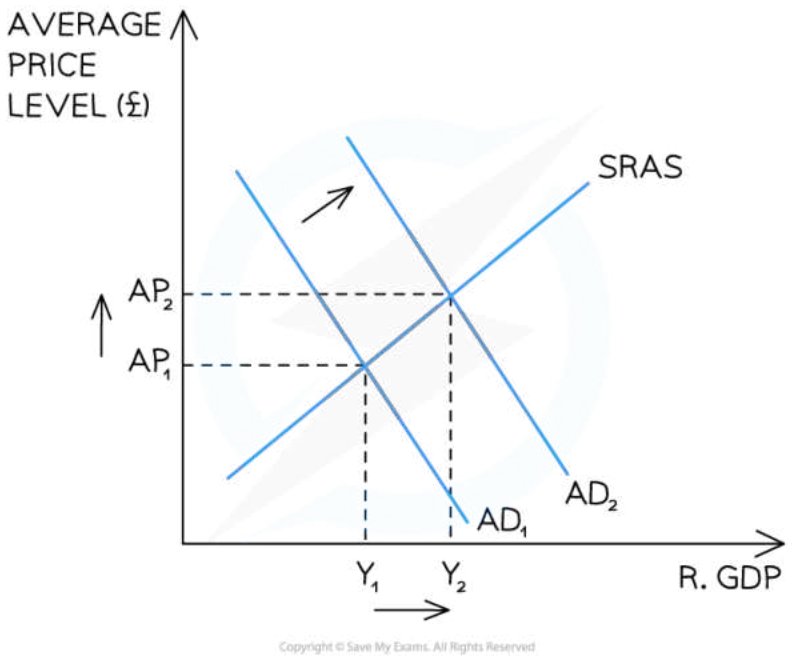
Expansionary Monetary Policy

- **Monetary policy** can be **expansionary** in order to generate further economic growth (also referred to as loose monetary policy)
  - Expansionary policies include reducing interest rates, increasing QE, or **depreciating** the exchange rate

- To understand the **effects of monetary policy** on an economy, it is useful to know how aggregate demand **(AD)** is calculated
  - AD= household consumption (C) + firms investment (I) + government spending (G) + exports (X) - imports (M)
  - AD = C + I + G + (X - M)

- From this, it is logical that **changes to monetary policy** can influence any of these components - and often several of them at once
- **Expansionary monetary** policy aims to shift aggregate demand (AD) to the right



Classical diagram illustrating expansionary monetary policy which increases real GDP ($Y_1 \rightarrow Y_2$) and average price levels ($AP_1 \rightarrow AP_2$)

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Diagram Analysis

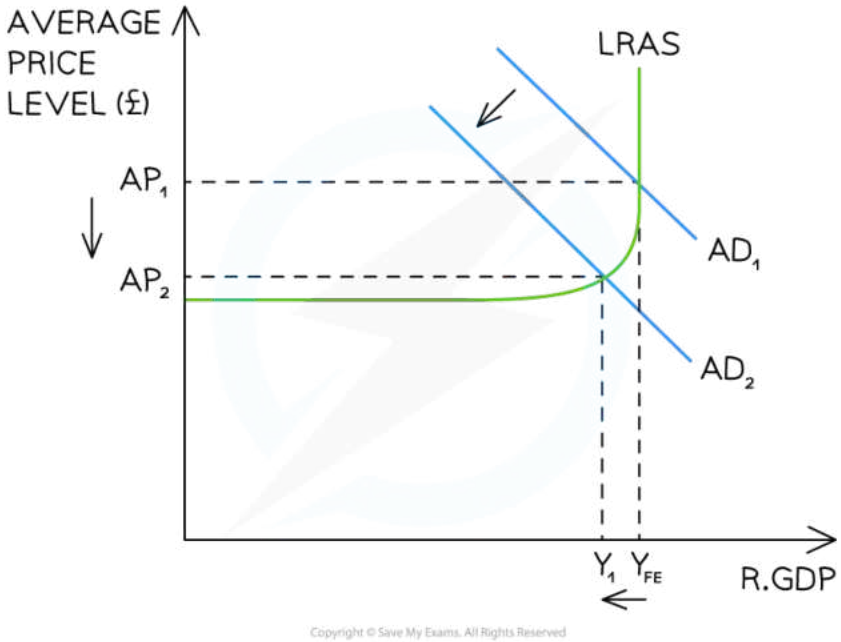
- The economy is initially in **macroeconomic equilibrium** AP_1Y_1
- The Central Bank is wanting to **boost economic growth** and lowers interest rates
- Lower interest rates cause investment and consumption to increase which are components of AD
- Aggregate demand increases from $AD_1 \rightarrow AD_2$
- The economy reaches a new equilibrium at AP_2Y_2 - a higher average price level and a greater level of national output

An Example of how Expansionary Monetary Policy Impacts on the Goals

The USA Federal Reserve Bank commits to an extra $60bn a month of QE	
Effect on the economy	▪ Commercial banks receive cash for their bonds → liquidity in the market increases → commercial banks lower lending rates → consumers and firms borrow more → **consumption and investment** increase → AD increases
Impact on macroeconomic aims	▪ **Economic growth** increases ▪ **Inflation** rises ▪ **Unemployment** may fall as output is increasing and more workers are required ▪ **Net external demand** worsens (with higher price levels exports may decrease and with rising incomes, imports may increase)

Contractionary Monetary Policy

- **Monetary policy** can be **contractionary** in order to slow down economic growth or reduce inflation (also referred to as tight monetary policy)
  - **Contractionary** policies include increasing interest rates, decreasing/stopping QE, or **appreciating** the exchange rate
- **Contractionary monetary policy** aims to shift aggregate demand to the **left**



Keynesian diagram illustrating contractionary monetary policy which decreases the real GDP ($Y_{FE} \rightarrow Y_1$) and average price levels ($AP_1 \rightarrow AP_2$)

Diagram Analysis

- The economy is initially in **macroeconomic equilibrium** AP_1Y_{FE}
- The Central Bank is wanting to **lower inflation towards its target of 2% –** and increases interest rates
- Higher interest rates cause **investment** and **consumption** to decrease
- Aggregate demand decreases from $AD_1 \rightarrow AD_2$
- The economy reaches a new equilibrium at AP_2Y_1 - a lower average price level and a smaller level of national output

An Example of how Contractionary Monetary Policy Impacts on the Goals

The Central Bank increases interest rates	
Effect on the economy	▪ Existing loan repayments for households become more expensive → discretionary income reduces → **consumption** decreases → total demand falls

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	▪ Firms are less likely to borrow → less **investment** in capital takes place → AD falls ▪ **Hot money flows increase** → the exchange rate appreciates → exports more expensive and imports cheaper → net exports reduce → AD decreases
Impact on macroeconomic aims	▪ **Economic growth** slows down ▪ **Inflation** eases ▪ **Unemployment** may increase as output is falling and fewer workers are required ▪ **Net external demand** is likely to worsen as both exports and imports reduce (exports more expensive due to higher exchange rate and imports cheaper - but households have less income for imports)

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Examiner Tips and Tricks

When analysing monetary policy, it is worth noting that monetary policy (4–8 x per year) can be adjusted more quickly than fiscal policy (usually once per year). However, the impact of fiscal policy is more predictable than the impact of monetary policy. For example, households may not borrow more money if their confidence in the economy is low - irrespective of how low interest rates go.

3.5.2 The Effectiveness Of Monetary Policy

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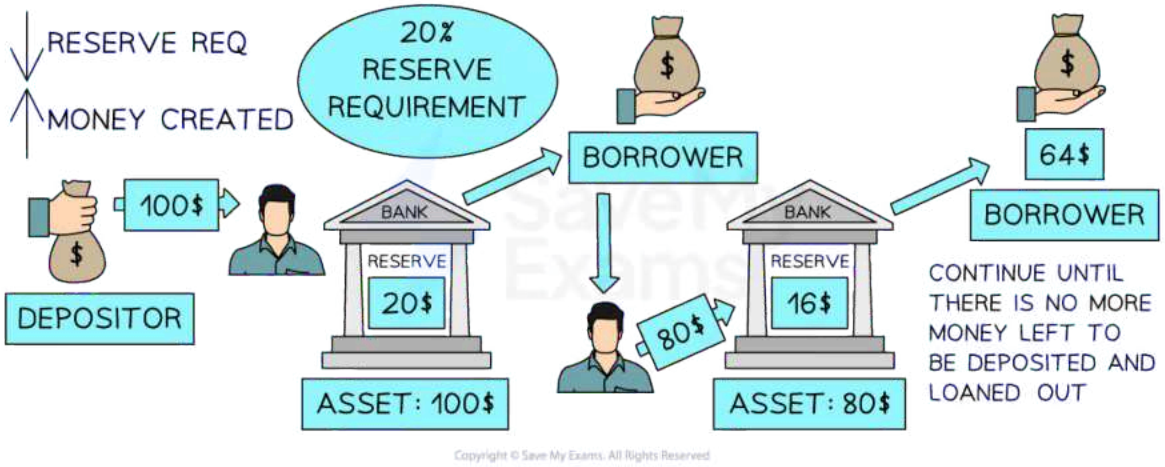
The Process of Money Creation by Commercial Banks

- The process of money creation by commercial banks, also known as **fractional reserve banking**, involves a cycle of **lending and deposit creation**



An initial deposit of $100 is multiplied as successive rounds of borrowing and deposits occur in the banking system

The Money Creation Process (Fractional Banking)

1. Initial Deposit

- A customer deposits $100 into a commercial bank

2. Reserve Requirement

- Banks are required by the **Central Bank** to hold a certain percentage of their deposits as reserves so as to **meet the demands** of customers who **want a portion of their money back**
- In this example the reserve requirement is 20%, so $20 must be retained

3. Lending and Loan Creation

- Banks keeps a **fraction of the deposit (20%)** and lends out the remainder to borrowers

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4. Deposit Expansion

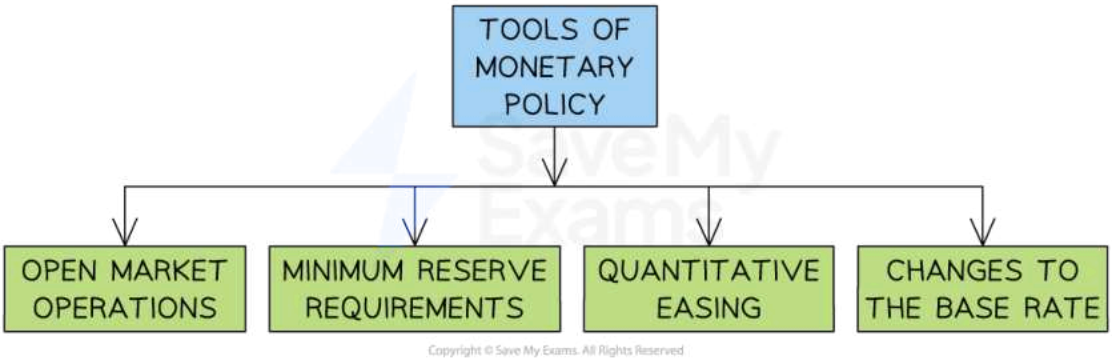
- The loaned amount is then received by the borrower, who **deposit the funds into their own bank account**
- These new deposits can be used by the other bank as the basis for creating **further loans**
- **The cycle continues** as banks retain a portion of the new deposits as reserves and lend out the rest, leading to further loan creation, deposit expansion, and **potential new rounds of lending**

5. Money Supply Expansion

- Through this process, new loans and subsequent deposit creation **increase the overall money supply** in the economy
- The original deposit has **effectively multiplied into multiple deposits** across the banking system

Tools of Monetary Policy: Open Market Operations

- There are four main tools available to the **Central Bank** which can be used to influence the supply of money in an economy



The four tools of monetary policy

Open Market Operations

- This refers to the buying and selling of government securities (e.g. **bonds**), by the Central Bank in the open market
- These transactions are typically conducted with **commercial banks** and other financial institutions such as insurance companies

Impact on the money supply

- By **buying the government bonds** back from private owners, the Central Bank injects money into the system
- Conversely, **selling government bonds withdraws money** from free circulation as private institutions receive the bonds and the Central Bank receives the cash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Impact on interest rates

- When the **Central Bank buys back government bonds**, it increases commercial bank reserves, making it easier for banks to lend money
  - This **increased lending capacity** leads to more funds available in the market, potentially **lowering interest rates**
- When the **Central Bank sells government bonds**, it reduces commercial bank reserves, making it harder for banks to lend money
  - This **decreased lending capacity** can lead to **higher interest rates**

Tools of Monetary Policy: Minimum Reserve Requirements

- **Minimum reserve requirements** refer to the regulations set by the Central Bank that **mandate the minimum percentage** of customer deposits that **commercial banks must hold** as reserves
  - These reserves are typically in the form of cash or **deposits held with the Central Bank**
  - The Central Bank specifies the reserve ratio, which is the percentage of customer deposits that banks must hold as reserves
    - E.g. If the reserve ratio is set at 10%, **a bank with $100 million** in customer deposits would be required to **hold $10 million** as reserves
- The main objective of imposing minimum reserve requirements is to **ensure the stability and soundness of the banking system**
  - By mandating reserves, Central Banks aim to enhance the **liquidity** and solvency of banks
  - This provides a buffer against **deposit withdrawals** or **unexpected financial shocks**

Impact on Money Supply

- **Adjusting minimum reserve requirements** can be used as a **tool to influence the lending capacity of banks** and manage liquidity in the banking system

- When banks are required to hold a **higher reserve ratio**, they have **less money available to lend** or invest and the money supply decreases
- When banks are allowed to decrease their **reserve ratio**, they have **more money available to lend** or invest and the money supply increases

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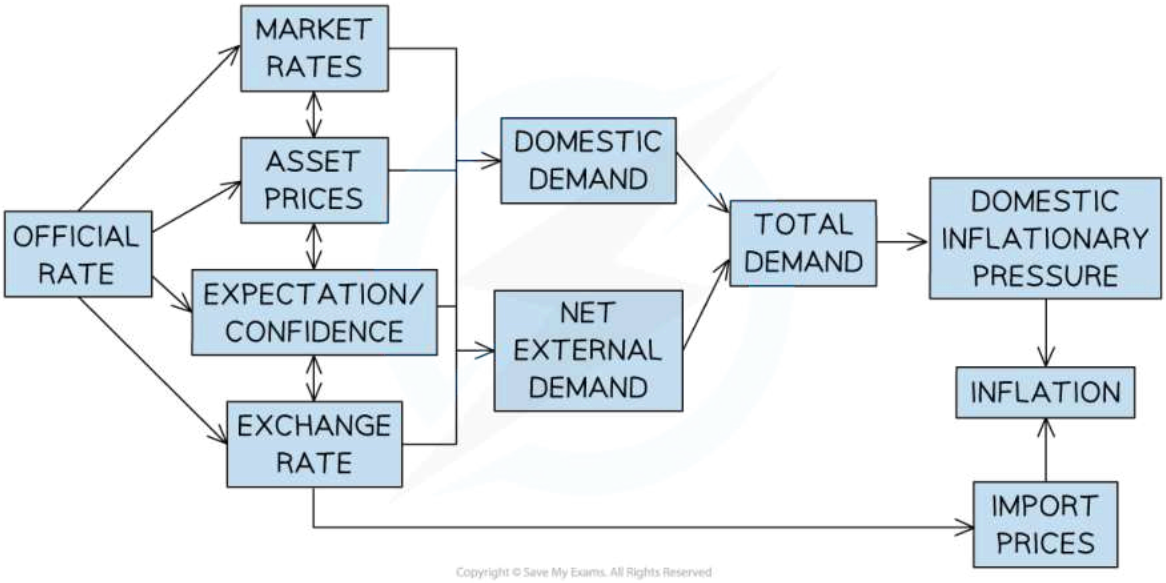
Tools of Monetary Policy: Changes to the Base Rate

- The **base rate** is the interest rate at which the **Central Bank lends money to commercial banks** such as HSBC
  - This rate is then used as the benchmark for interest rates generally
  - The **base rate** is also known as the **official rate**



The transmission mechanisms caused by changes to the base rate

- Changes to the base rate have a ripple effect through an economy
- This ripple effect is referred to as a **transmission mechanism**
  - A transmission mechanism has an **activator and several steps in a process** resulting in a particular outcome

Key Terminology to Understand the Transmission Mechanisms Explained Below

Official Rate	Market Rates	Asset Prices
Exchange Rate	Net External Demand	Inflation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Example 1 - Expansionary Monetary Policy

- Official rate decreases by 0.25% → market rates decrease → loans are cheaper → consumers borrow more → consumption increases → AD increases → inflation increases

Example 2 - Expansionary Monetary Policy

- Official rate decreases by 0.25% → market rates decrease → mortgages are cheaper → property buyers borrow more → demand for houses increases → asset prices increase

Example 3 - Expansionary Monetary Policy

- Official rate decreases by 0.25% → market rates decrease → buyers borrow more → asset prices increase → households with assets feel wealthier → consumption increases → AD increases → inflation increases

Example 4 - Contractionary Monetary Policy

- Official rate increases by 0.25% → **hot money flows increase** → the exchange rate appreciates → exports more expensive and imports cheaper → net exports reduce → AD decreases → inflation decreases

Example 5 - Contractionary Monetary Policy

- Official rate increases by 0.25% → market rates increase → existing loan repayments now more expensive to repay → discretionary income falls → consumption decreases → AD decreases → inflation decreases

Tools of Monetary Policy: Quantitative Easing

- **Quantitative easing (QE) i**s a monetary policy tool used by Central Banks to stimulate the economy when **traditional monetary policy measures**, such as interest rate cuts, have **become less effective**

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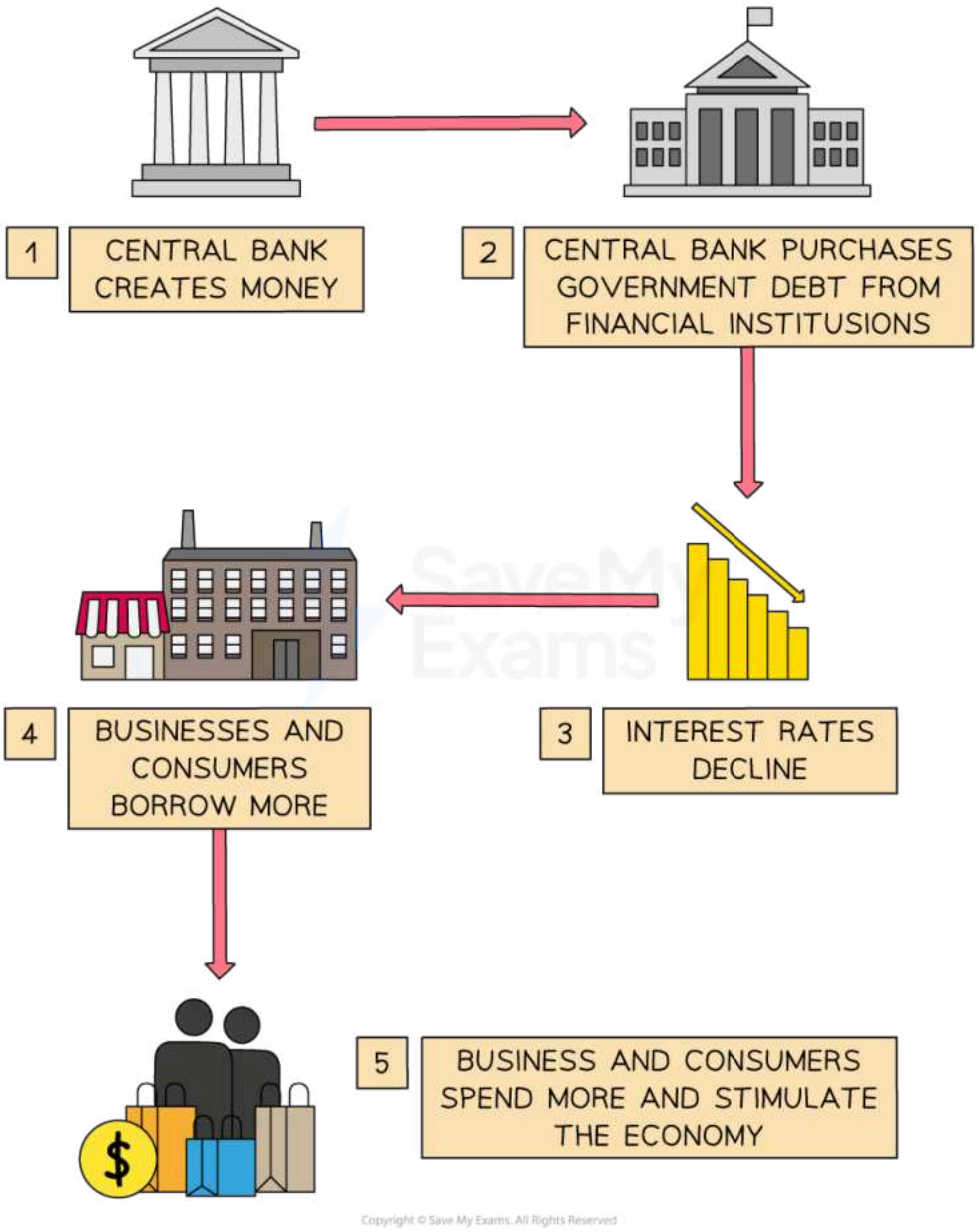

The QE process as an expansionary monetary policy

- The Central Bank creates new electronic reserves (digital money) and purchases government bonds from commercial banks or financial institutions
- These **electronic reserves** are credited (added) to the accounts of the selling institutions, effectively injecting new money into the financial system

- These increased reserves can lead to a **higher capacity for lending and money creation** in the economy
- Interest rates decline due to the added availability of money
- Borrowing increases and AD is stimulated through investment and consumption
- QE is considered an **unconventional monetary policy tool** because it involves the central bank **directly intervening in financial markets** and expanding its balance sheet through large-scale asset purchases
  - It is typically employed when **interest rates are already near zero** and **traditional policy measures are insufficient** to address economic challenges
- The **primary objective** of QE is to increase the money supply, lower long-term interest rates, and encourage lending and investment to **stimulate economic activity**
  - It aims to address issues like low inflation, deflationary pressures, and stagnant economic growth


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Quantitative Easing Transmission Mechanism

- The **Bank of England** commits to buy £60bn of **bonds** a month → commercial banks receive cash for their bonds → **liquidity** in the market increases → commercial banks lower **lending rates** → consumers and firms borrow more → consumption and investment increase → AD increases → inflation increases

An Evaluation of Monetary Policy

Strengths of Monetary Policy

- Central Banks can operate **independently** from the Government (political process)
  - Central Banks can consider the **long-term outlook**
- **Contractionary policy** is often effective when there is an **inflationary gap**
  - Targets inflation and maintains **stable prices**
- The **frequency of policy alterations** (4–8 times per year) allows for constant adjustments to macroeconomic variables
  - Rate changes can **quickly be amended** or reversed if necessary

Weaknesses of Monetary Policy

- **Conflicting goals** e.g economic growth puts upward pressure on **inflation**
- Expansionary policy is **less effective during a deflationary gap**

- The larger the output gap the less effective it can be
- Consumers **may not respond** to lower interest rates when **confidence is low**

- Expansionary policy leads to **cheaper credit** which can **inflate asset prices (houses)** in the long term
- The interest rate has limitations on **downward adjustment**
  - The closer it gets to zero the less effective changes are

- QE may help to solve current issues in the market, but the **extra money supply may lead to rapid inflation** once the market fundamentals have improved

Examiner Tips and Tricks

Quantitative easing may seem very similar to open market operations. The key difference is that for QE, the Central Bank creates new electronic credits. It effectively 'prints' new money to ease liquidity in the market. Traditional open market operations uses existing reserves

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