The interaction between the money market (represented by the LM curve) and the goods market (represented by the IS curve) to establish the equilibrium level of interest rates and income in an economy is explained by the IS-LM model. The IS-LM framework is very susceptible to the effects of monetary policy, which is the central bank's manipulation of interest rates and the money supply.

Let's examine each impact in more detail:

1. Rise in Money Supply:
   Mechanism:
   An expansionary monetary policy is one that involves a rise in the money supply. By lowering reserve requirements or purchasing government assets, the central bank adds additional money to the economy. The money market equilibrium is represented by the LM curve, which is impacted by this increase in the money supply.

   Effect on LM Curve:
   - Shift of the LM Curve: The LM curve shifts to the right (from LM1 to LM2) because, at every level of income (Y), the interest rate (r) is lower due to the higher money supply.
   - New Equilibrium: The new equilibrium (E2) occurs at a higher level of income/output (Y2) and a lower interest rate (r2).

   Example:

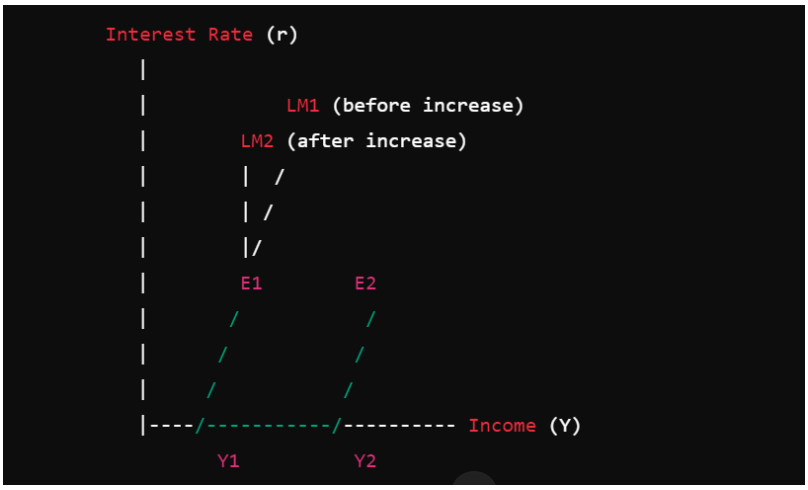
   Consider a scenario where the central bank increases the money supply by 10%. This action lowers the interest rate from 5% to 3%:

   Before the Policy: At interest rate 5%, investment was N200 million, and the national income was N500 million.

   After the Policy: The interest rate drops to 3%, encouraging more investment, say to N250 million. This increase in investment raises the overall income/output to N550 million.

   Result: The LM curve shifts right, leading to a higher national income and lower interest rates.

   Graphical Illustration



2. A Rise in Interest Rate

Mechanism:

A rise in interest rates is typically a result of contractionary monetary policy. The central bank may increase interest rates to curb inflation or cool down an overheating economy. This directly impacts the cost of borrowing and, consequently, investment levels.

Effect on LM and IS Curves:

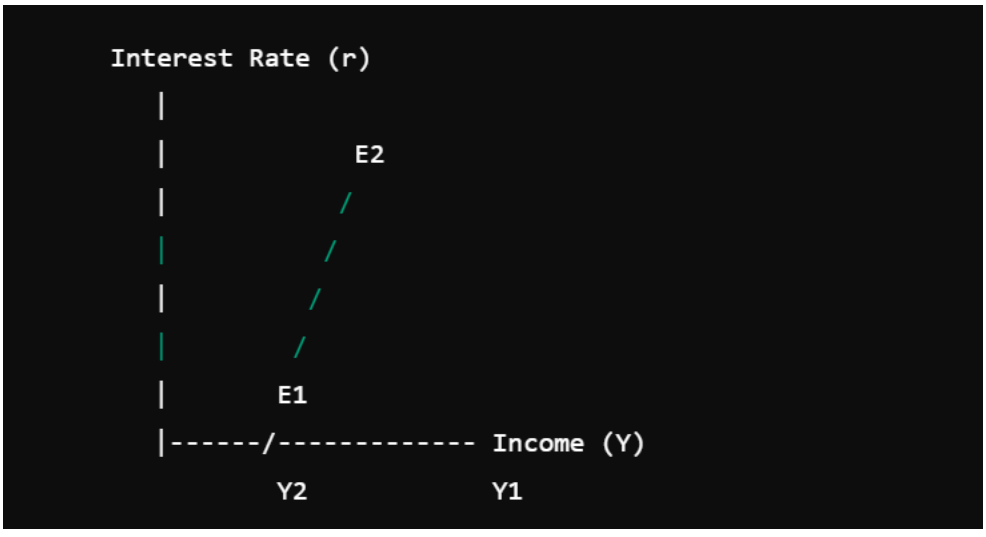
- **Movement Along LM Curve:** Higher interest rates increase the cost of borrowing, leading to lower investment. The economy moves upwards along the LM curve to a new point of equilibrium (E2), where the interest rate (r2) is higher and income/output (Y2) is lower.
- **Effect on IS Curve:** The IS curve itself doesn't shift but the movement along the curve reflects a decrease in income/output as a result of reduced investment.

Example:

Suppose the central bank raises the interest rate from 3% to 6%:

- **Before the Policy:** At 3% interest, businesses were investing $300 million, leading to a national income of $600 million.
- **After the Policy:** The higher interest rate discourages investment, which falls to $200 million, reducing national income to $500 million.
- **Result:** The economy moves to a point on the LM curve with a higher interest rate and lower output.

Graphical Illustration



3. Selling of Treasury Bills

Mechanism:

When the central bank sells treasury bills, it reduces the money supply by withdrawing money from the economy. This is a contractionary monetary policy designed to increase interest rates, typically to control inflation.

Effect on LM Curve:

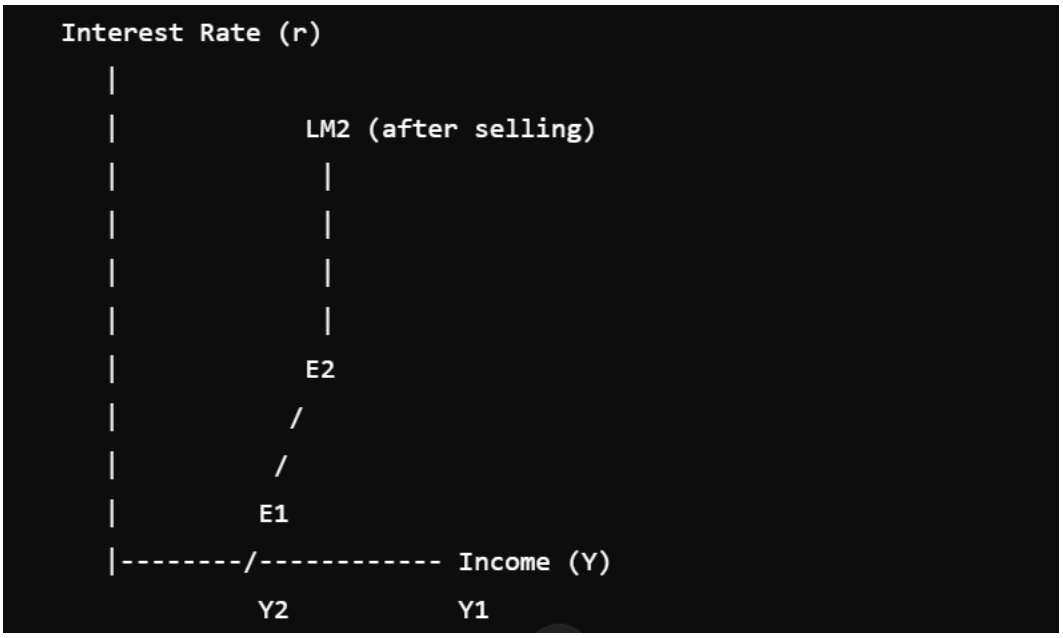
- **Shift of the LM Curve:** The sale of treasury bills reduces the money supply, shifting the LM curve to the left (from LM1 to LM2). The decreased money supply results in higher interest rates for any given level of income.
- **New Equilibrium:** The new equilibrium (E2) is characterized by a higher interest rate (r2) and lower income/output (Y2).

Example:

Suppose the central bank sells $50 billion worth of treasury bills:

- **Before the Policy:** The economy is at equilibrium with an interest rate of 4% and national income of $700 million.
- **After the Policy:** The sale reduces the money supply, pushing interest rates up to 7%. The higher cost of borrowing reduces investment from $250 million to $180 million, leading to a decline in national income to $650 million.
- **Result:** The LM curve shifts left, leading to higher interest rates and lower income/output.

Graphical Representation



Summary:

- **Increase in Money Supply:** Shifts the LM curve to the right, lowering interest rates and increasing income/output.
- **Rise in Interest Rates:** Moves the economy up along the LM curve, resulting in higher interest rates and lower income/output.
- **Selling of Treasury Bills:** Shifts the LM curve to the left, increasing interest rates and decreasing income/output.

  These effects highlight how different types of monetary policy can influence the overall economic equilibrium by altering the interaction between the goods and money markets.