TOPIC 8. MONETARY POLICY

Plan

1. The money supply and methods of its measurement. Demand for money.

2. Central Bank as a subject of monetary policy.

3. The essence of monetary policy, its strategy.

4. Consequences of monetary policy in IS-LM model.

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1. The money supply and methods of its measurement. Demand for money.

Money supply (money mass) is the quantity of **money** available in an economy for immediate use. It equals the currency held by public plus demand deposits at banks.

Monetary base is the sum of total currency in circulation and the amount held by banks as reserves.

1. The money supply and methods of its measurement. Demand for money.

- **MONETARY BASE –** is the total amount of a currency that is either in general circulation in the hands of the public or in the commercial bank deposits held in the central bank's reserves.

MONETARY BASE

- MB = C+ R
- C (currency) – total currency circulating in the public
- R (reserves) – commercial bank's reserves that consist of the commercial bank's accounts with its central bank

1. The money supply and methods of its measurement. Demand for money.

- Bank reserves consist of two components: compulsory reserves and surplus reserves.
- **Compulsory reserves** are the minimum amount of reserves that each bank must hold. The amount of mandatory reserves is regulated by the Central Bank through the rules on deposits. Types of deposits usually differentiate them.

1. The money supply and methods of its measurement. Demand for money.

Money supply of Ukraine:

- M0 = cash in circulation (outside the banking system);
- M1 = M0 + transferable funds in national currency (funds in national currency, that can be exchanged for cash on demand);
- M2 = M1 + foreign currency transferable funds and other funds (includes funds in foreign currency that can be exchanged for cash on demand., term deposits and savings certificates);
- M3 = M2 + securities.

1. The money supply and methods of its measurement. Demand for money.

To measure the money supply, **monetary aggregates** are used: MO, M1, M2, M3 (in order of reduction of liquidity level).

- M0 (physical paper and coin) – cash outside banking system,
- M1 (M0 + savings and current accounts),
- M2 (M1+ deposits on demand, term deposits);
- M3 (M2+ banks' own debt securities)

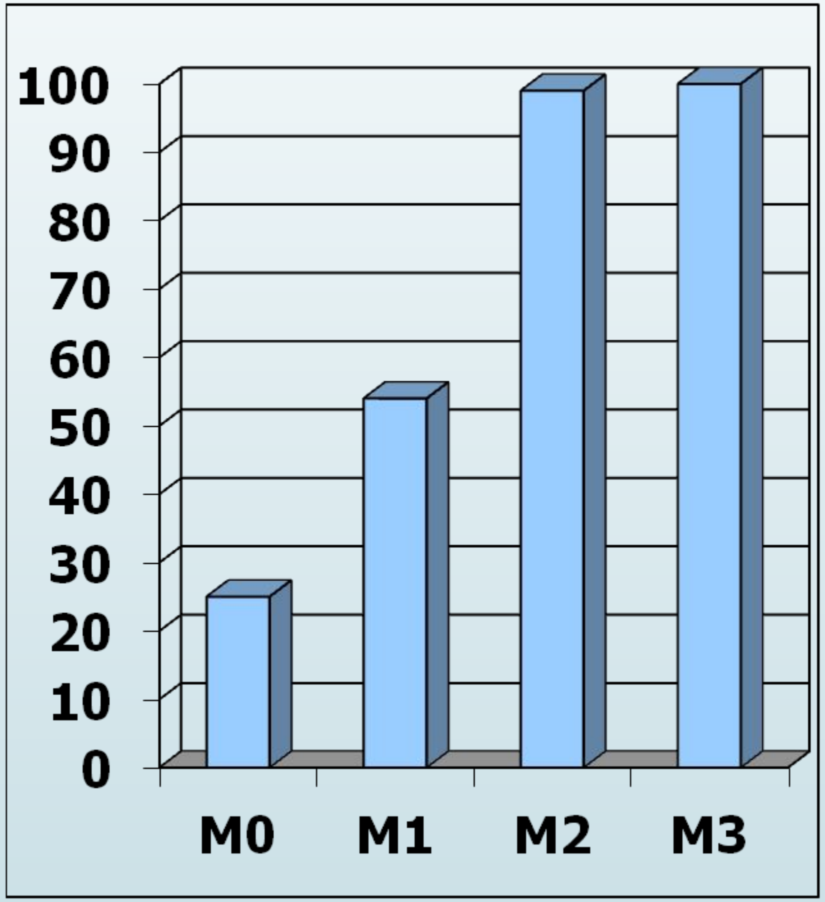
The structure of the money supply in Ukraine, 2020.

M3=1476,8 bln.UAH (100 %)

M2=1473,9 bln.UAH (99,8 %)

M1=769,8 bln.UAH (52 %)

Mo=374,3 bln.UAH (25 %)



1. The money supply and methods of its measurement. Demand for money.

The quantitative theory of money determines the demand for money by means of the equation of exchange: **MV = PQ.**

where:

- M - mass of money in circulation;
- V - average speed of money circulation;
- P - average price of goods and services;
- Q - quantity of goods and services presented on the market.

1. The money supply and methods of its measurement. Demand for money.

- **Monetization in the economy (ME)** - is a macroeconomic indicator that characterizes the **level of money availability** necessary for making payments, and reflects the security of the processes of production and consumption by the corresponding money supply.

1. The money supply and methods of its measurement. Demand for money.

- *The main factor of the dynamics of the level of ME is the* ***demand for real money, which, in turn, depends on the degree of confidence of the subjects of the economy to the national monetary unit****: the higher the level of monetization, the greater, on other equal terms, there is demand for real money.*
- *Ultimately, the level of ME determined by the level of economic development.*
- Indicator of economic security of the country **monetization level : M3/GDP> 50%**

The level of monetization in Ukraine 2014-2018

2014 - 60,97

2015 - 50,21

2016 - 46,26

2017 - 40,52

2018 - 35,79

Quite low values of the coefficient of monetization of the economy confirm the crisis processes of the economic system of the country. Normal value of this indicator is in within the range of 70-80%. For Ukraine the monetization coefficient varies within 50%

THE LEVEL OF MONETIZATION IN DIFFERENT COUNTRIES

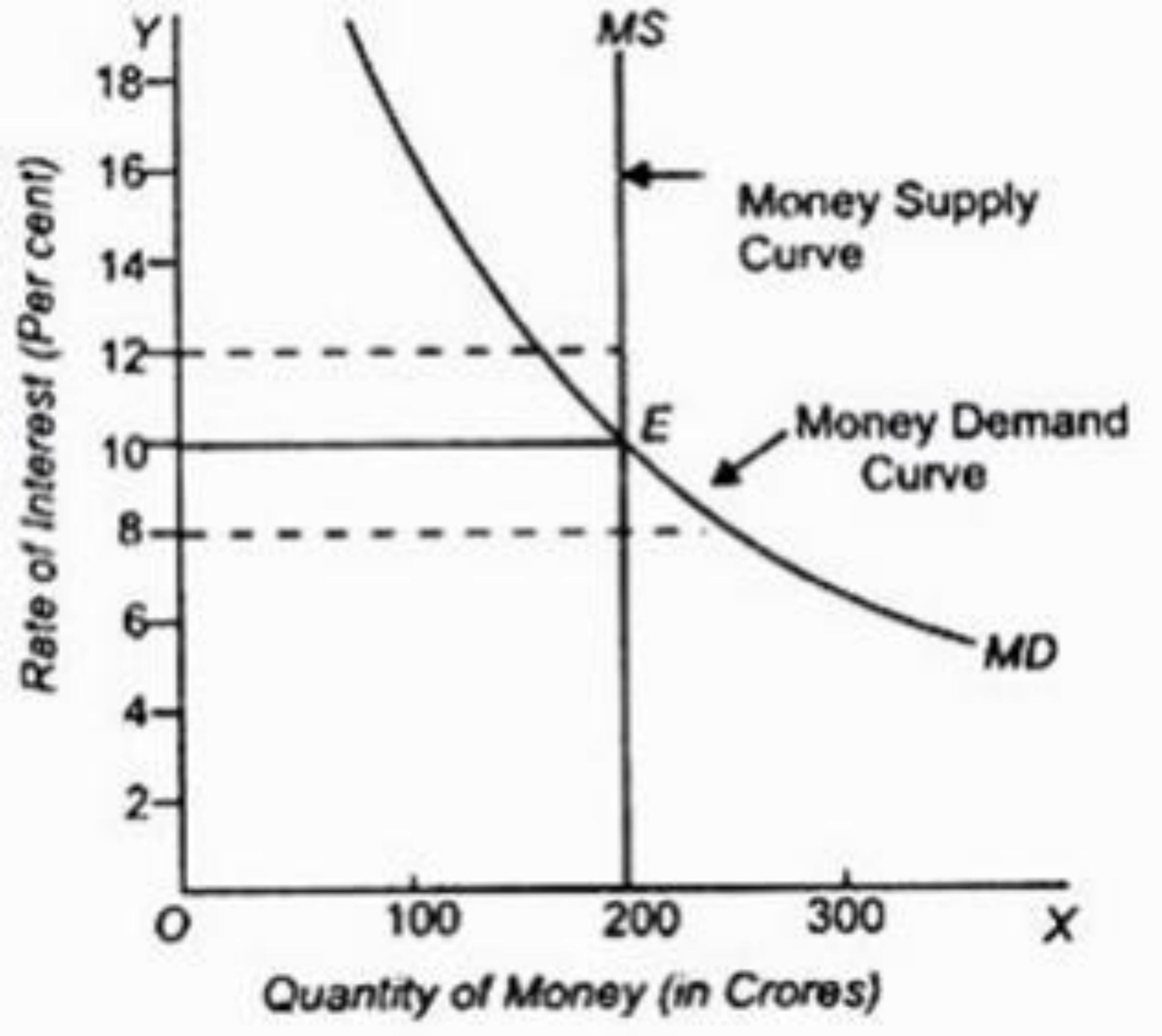
RUSSIA	±43%
INDIA	±18%
JAPAN	±180%
GERMANY	±89%

The average level of monetization of developed countries exceeds the level of monetization of the developing countries, which shows the dependence between the level of monetization and the level of development of the country.

Demand for money and the factors that determine it

- **Operational or transactional demand for money (M1)** - the demand for money to buy goods and services - depends on the general price level, the volume of goods and services produced and the velocity of the currency: $M1 = pY / v$
- **Demand for money as a financial asset or speculative demand for money (M2)** - varies depending on the demand for securities (stocks and bonds) and inversely depends on the interest rate
- $M^d = M_1 + M_2$

Equilibrium of the money market



2. Central Bank as a subject of monetary policy

CENTRAL BANK - is a monopolized and often nationalized institution given privileged control over the production and distribution of money and credit.

- The banking system in a market economy is, as a rule, two-tier and includes the Central Bank (emission) and commercial banks of different types.

The main functions of commercial banks are:

- Managing operational activities of commercial firms
- Credit-deposit operations

2. Central Bank as a subject of monetary policy

The main functions of the central bank:

- manages a state's currency - In contrast to a commercial bank, a central bank possesses a monopoly on increasing the monetary base in the state, and usually also prints the national currency.
- manages money supply,
- manages discount rate - This is the rate at which the central bank of the country sells credit resources to commercial banks.
- oversees the commercial banking system (issues the banking license)

2. Central Bank as a subject of monetary policy

There are several main monetary policy instruments using which the central bank regulates monetary sphere:

1) it sets a **reserve requirement**, which tells banks how much of their money they must have on reserve each night. If it weren't for the reserve requirement, banks would lend 100 percent of the money deposited. Not everyone needs all their money each day, so it is safe for the banks to lend most of it out.

2) **Issue of money** - providing the economy with means of circulation, payment, accumulation, and also cover the state budget deficit.

2. Central Bank as a subject of monetary policy

There are several main monetary policy instruments using which the central bank regulates monetary sphere:

3) **Changing the discount rate** is the establishment of the interest rate by the central bank.

4) **Open market operations**. When buying securities* from economic entities, the state seems to provide them with credit and thus increases the amount of money in circulation, which stimulates economic activity.

***governmental bonds** (ukr - Облігації внутрішньої державної позики (ОВДП) – securities issued by Ministry of Finance of Ukraine at a higher interest than normal deposits).

2. Central Bank as a subject of monetary policy

Discount rates in the world in 2021

Australia	0,25
Canada	0,25
Norway	0,25
Eurozone	0
USA	0,25
China	4,05
Turkey	9,75
India	4,4
Saudi Arabia	1,00
Argentina	38
Russia	6,0
Ukraine	6,0
Belarus	8,75

3. The essence of monetary policy, its strategy

- **MONETARY POLICY** – **consists of the actions of a central bank that determine the size and rate of growth of the money supply, which in turn affects interest rates.**

Monetary policy goals:

- *The ultimate goal* - economic growth, full employment, price stability, sustainable balance of payments.
- *Intermediate target points* - money supply, interest rate, exchange (currency) rate.
- *The ultimate* goals are realized by monetary policy as one of the directions of the economic policy of the state as a whole. *Intermediate* goals are directly related to the activities of the Central Bank.

3. The essence of monetary policy, its strategy

MONETARY TRANSMISSION MECHANISM - is a chain of economic variables, through which the central bank, changing the supply of money, purposefully affects business activity:

- *1) initial link - change the supply of money,*
- *2) intermediate level - changes in market instruments (money mass, interest rate, investments, etc.);*
- *3) the final link - changes in aggregate demand and GDP.*

NBU and monetary policy in Ukraine

The discount interest rate is 6% from October 23, 2020.

Mandatory reservation rates:

3% (for time deposits);

6.5% (on demand deposits).

Main problems:

- high cost of credit resources and low lending;
- distrust of NBU policy;
- high risks of banking activity and instability of the banking system;
- reducing the number of banks;
- growing share of state and foreign banks;
- high share of overdue loans.

3. The essence of monetary policy, its strategy

Monetarist model of monetary transmission mechanism

- At the center of the equation is the quantitative theory of money:
- $P \cdot Y = M \cdot V$
- According to Friedman's quantitative theory of money, the velocity of money circulation (V) is a stable value.

Basic equation of transmission mechanism:

- $MS \uparrow \rightarrow AD \uparrow \rightarrow Y \cdot P \uparrow$
- An increase in money supply directly determines the aggregate demand growth.
- Since there is no mediating link between the increase in money supply (Ms) and the increase in aggregate demand (AD), this means that money is source of changes in aggregate demand.

3. The essence of monetary policy, its strategy

TYPES OF MONETARY POLICY

- ***EXPANSIONARY (STIMULATING) MONETARY POLICY*** *OR THE POLICY OF "CHEAP" MONEY – is when a central bank uses its tools to stimulate the economy. That increases the money supply, lowers interest rates, and increases aggregate demand. It boosts growth as measured by gross domestic product.*

3. The essence of monetary policy, its strategy

TYPES OF MONETARY POLICY

- ***CONTRACTIONARY (RESTRICTIVE) MONETARY POLICY*** *OR POLICY OF "EXPENSIVE" MONEY – is when a central bank uses its monetary policy tools to fight inflation. Since inflation is a sign of an overheated economy, the bank must slow economic growth. It will raise interest rates to make lending more expensive*

The use of monetary policy instruments

Monetary policy instruments	Contractionary monetary policy (policy of "Expensive" money)	Stimulating monetary (policy of "Cheap" money)
Discount rate	Increase	Decrease
Reserve requirement	Increase	Decrease
Open market operations	Selling	Buying

3. The essence of monetary policy, its strategy

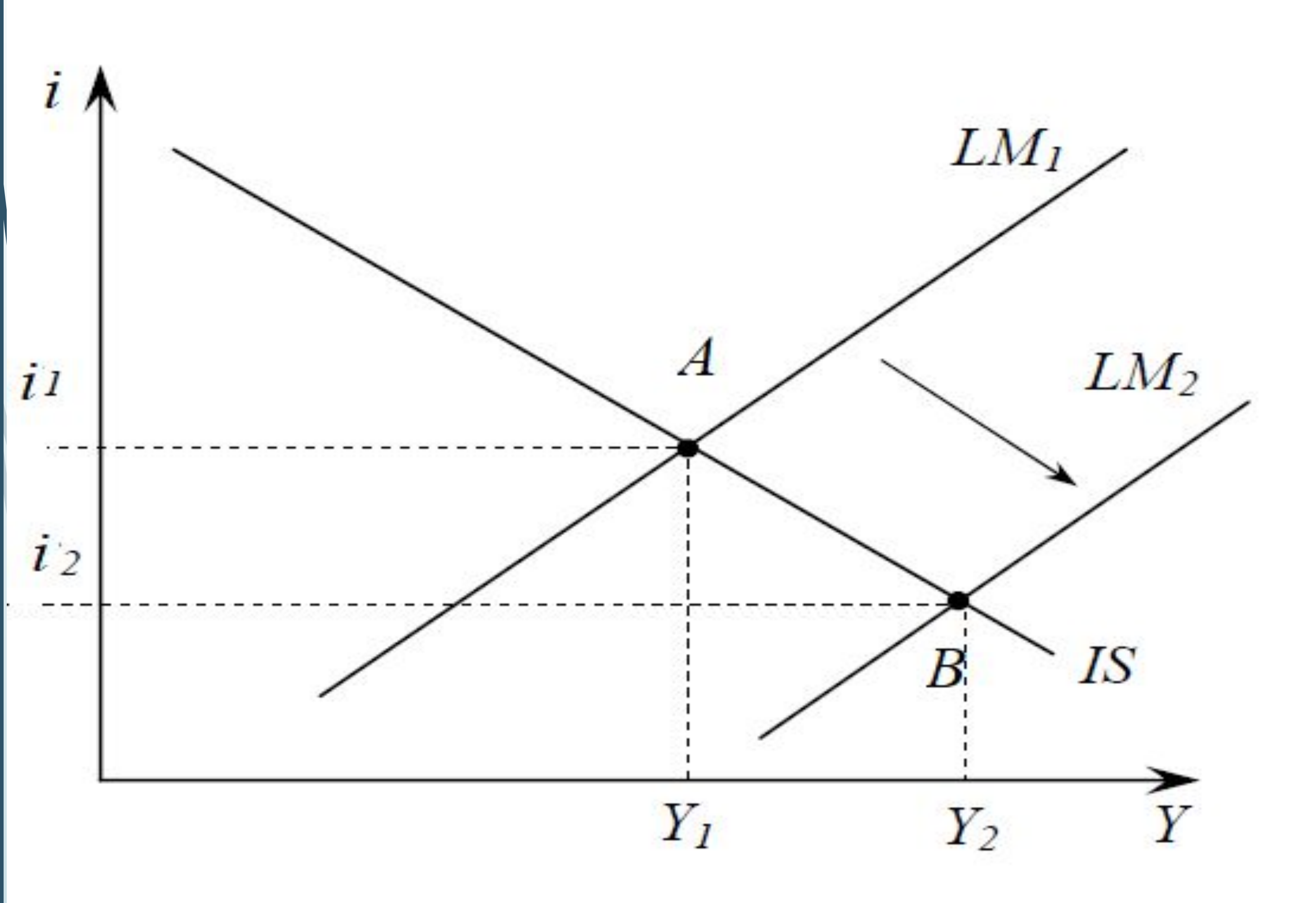
Keynesian model of monetary transmission mechanism according to model AD-AS.

1. According to the Keynesian theory, the influence of monetary policy on aggregate demand is realized through several channels, among which the most influential is the channel "interest rate-investment".

2. **The basic equation**: $Ms\uparrow \rightarrow i\downarrow \rightarrow I\uparrow \rightarrow Y\uparrow$

- An increase in money supply ($Ms\uparrow$) reduces the interest rate ($i\downarrow$).
- According to the investment function, this causes an increase in investment as a component of aggregate demand ($I\uparrow$), which ultimately causes growth of real GDP ($Y\uparrow$).
- Monetary expansion leads to rising prices, and therefore its result is an increase in nominal GDP ($Y \cdot P\uparrow$).

4. Consequences of monetary policy shown in IS-LM model

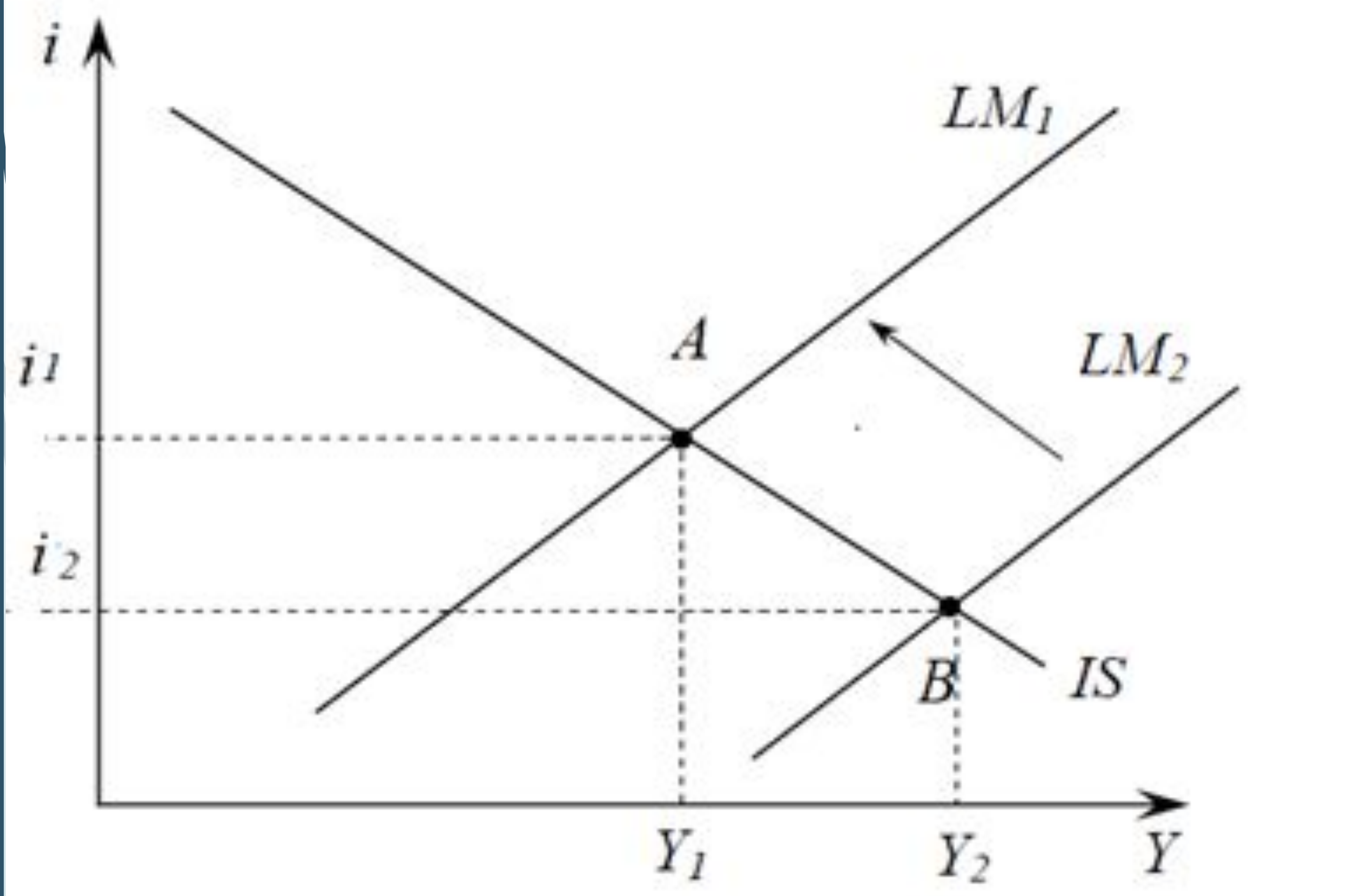


Explanations to the schedule:

- Suppose that the central bank increased the supply of money.
- If the supply of money increases, then this leads to a decrease in the interest rate to i2, which stimulates investment growth and increase income (GDP) to Y2.
- Therefore, the curve LM moves to the right in position LM2, and the equilibrium in the economy - to the point B.

Fig. 8.1 Influence of **stimulating monetary policy** on national market equilibrium in IS-LM model

4. Consequences of monetary policy shown in IS-LM model



Explanations to the schedule:

- *A restrictive monetary policy in the short run leads to a decrease in the real volume of production. In the context of decreasing the supply of money, the shift of the LM curve is left up.*
- *According to the Keynesian transfer mechanism, this increases the interest rate, its growth causes a reduction in planned investments and, accordingly, reduces equilibrium level of income in the economy*

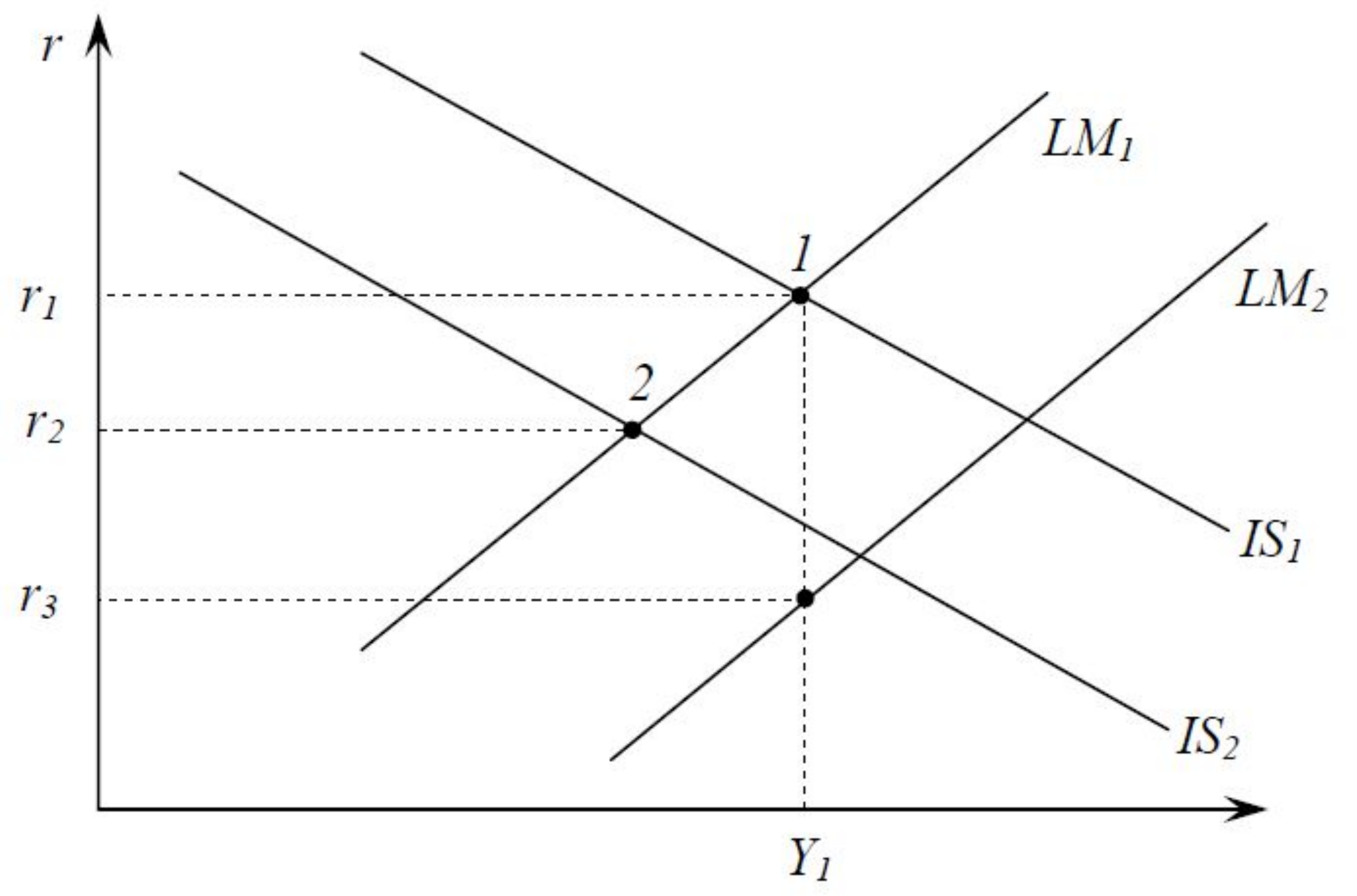
g. 8.2 Influence **of restrictive monetary policy** on national market equilibrium in model IS-LM

4. Consequences of monetary policy shown in IS-LM model

Conclusions of the analysis:

- **Stimulating monetary policy** leads to increase of money supply and therefore a decrease in the interest rate, which stimulates investment growth and increase GDP.
- ***A restrictive monetary policy*** *decreases money supply which leads to a decrease in the real volume of production.*

4. Consequences of monetary policy shown in IS-LM model

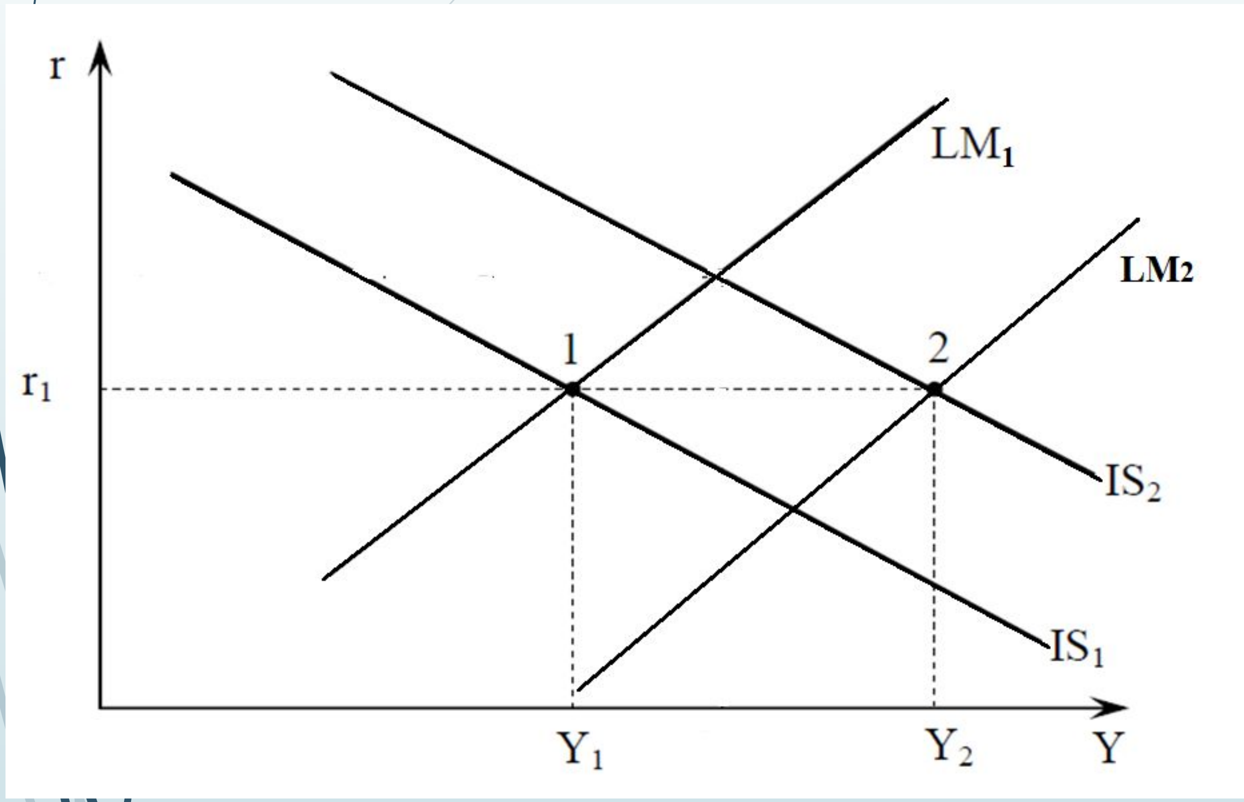


Explanations to the schedule:

- If the government has decided to increase taxes to balance the state budget, then, as a result, the macroeconomic situation will depend on what measures the Central Bank will take in a situation of taxes growth.
- If The aim of the Central Bank is to maintain a level of output in the economy at a stable fixed level (in this case, Y1). To achieve this, the Central Bank increases the amount of money in the economy (LM), which results in the shift of the curve from LM1 to the position of LM2 with the corresponding effects r3 <r2.

Fig. 8.3 Interaction of **fiscal and monetary policy in the IS-LM model provided that they are agreed upon**

4. Consequences of monetary policy shown in IS-LM model

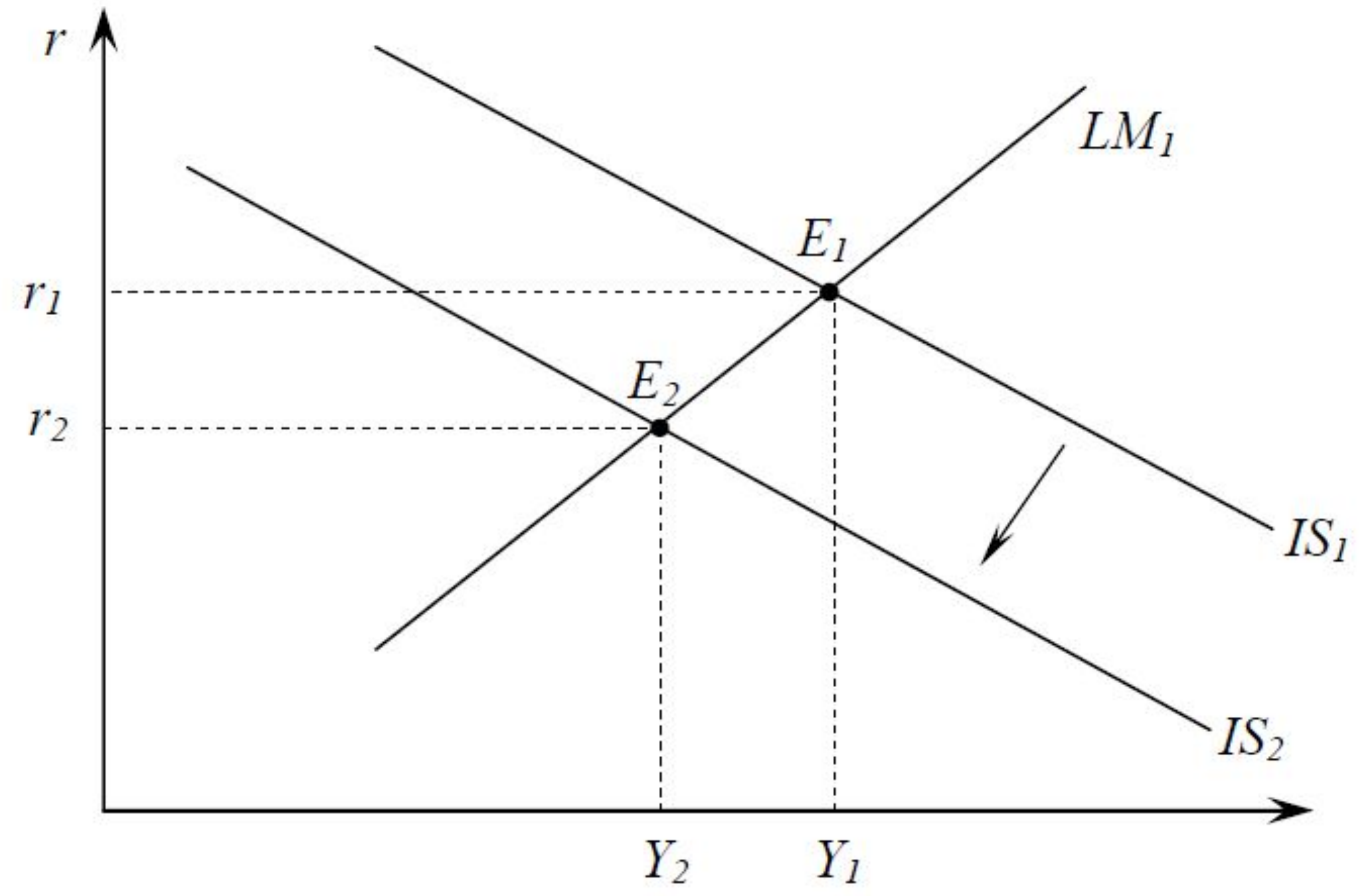


Explanations to the schedule:

- If the government has decided to decrease taxes, the macroeconomic situation will depend on what measures the Central Bank will take.
- If The aim of the Central Bank is output growth, the Central Bank increases the amount of money in the economy (LM), which results in the shift of the curve from LM1 to the position of LM2 with the same level of interest rate r1.

Fig. 8.3 Interaction of **fiscal and monetary policy in the IS-LM model provided that they are agreed upon.**

4. Consequences of monetary policy shown in IS-LM model



Explanations to the schedule:

- If the government has decided to increase taxes to balance the state budget, then, as a result, the macroeconomic situation will depend on what measures the Central Bank will take in a situation of taxes growth.
- If the Central Bank does not start effective stimulus measures, then the output in the economy will decrease to level Y2, and the interest rate will decrease to r2. In fig. 4 shows shifts of IS curve from IS1 to IS2.

Fig. 8.4 Interaction of fiscal and monetary policy in the IS-LM model in the absence of agreed goals.

4. Consequences of monetary policy shown in IS-LM model

Conclusions of the analysis: *if the government rises taxes without agreed actions of Central bank the output of the economy will decline.*

5. NBU and Monetary Policy in Ukraine

The main directions of monetary policy in Ukraine at the present stage are:

- Low and stable inflation. The medium-term inflation target (the growth of the consumer price index in annual terms) is set at 5% with a tolerance range of ± 1 pp and will be reached during 2018-2020;
- support of financial stability will be aimed at promoting stability of the financial market of Ukraine as a whole and its separate segments;
- Support for sustainable economic growth and economic policy of the Government of Ukraine;
- The National Bank will continue to implement monetary policy within the framework of the inflation targeting regime. Its main objective is to ensure the stability of Ukraine's monetary unit by achieving and maintaining price stability in the state.

5. NBU and Monetary Policy in Ukraine

In accordance with the set goals, the NBU uses the following instruments of influence on money supply and regulation of the money market:

- discount rate set by the National Bank Board that reflects the state of monetary policy;
- other interest rates- interest rate corridor for overnight credits for the purpose of managing short-term interest rates in the interbank market.
- refinancing tenders and tenders for depositing certificates
- purchase and sale of government securities, etc .;
- compulsory reserves by commercial banks.