Macro-Economics

Analysing Economic policy

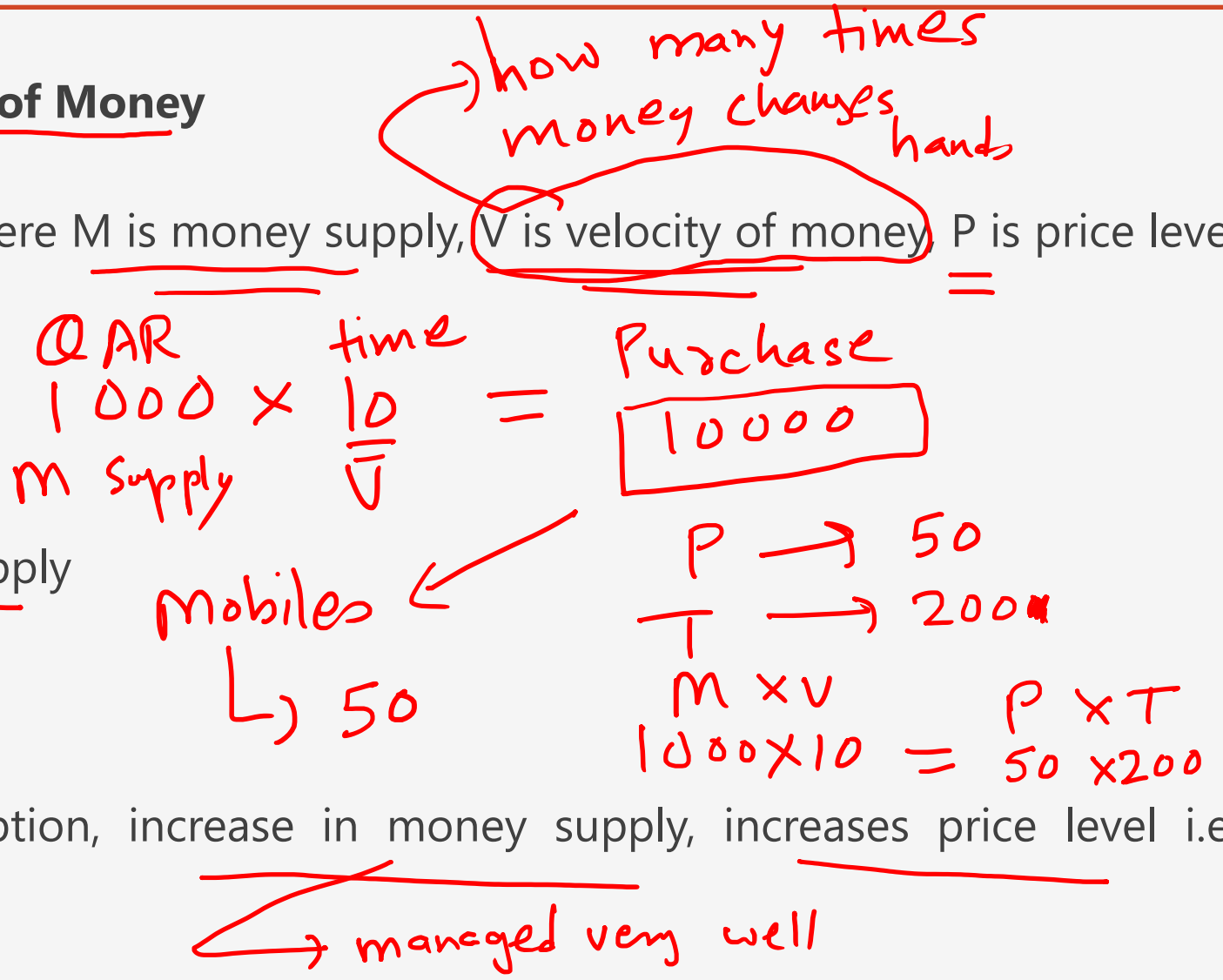
Monetary Policy: Money Multiplier

- Money Stock = Money multiplier * Monetary base
- Due to a fractional banking system, banks create more money from the deposits received. How much money is created from deposits is based on money multiplier which in turn is determined by
  - Proportion of bank reserves to total bank deposits
  - Private sector's desired ratio of cash in circulation to total bank deposits
    - The lower the above ratios, larger will be money multiplier

Analysing Economic policy

Monetary Policy: Quantity Theory of Money

- This can be stated as MV = PT where M is money supply, V is velocity of money, P is price level and T is level of transactions
- **Assumptions**:
  - V and T are fixed w.r.t money supply
  - Supply of money is exogeneous
  - Considering the above assumption, increase in money supply, increases price level i.e. inflation.



Analysing Economic policy

Monetary Policy: Money Demand and Monetary Control

- Three motives for holding money:
  - Transactions → to buy goods & services } level of income +ve related to income
  - Precautionary → emergencies
  - Portfolio or Asset → investing / trading → Return (int rate) & risk
- As income increases, individuals hold larger money balances (for transactions and precautionary purposes), as interest rates increase, there is a lesser demand for money balances (because greater opportunity cost).

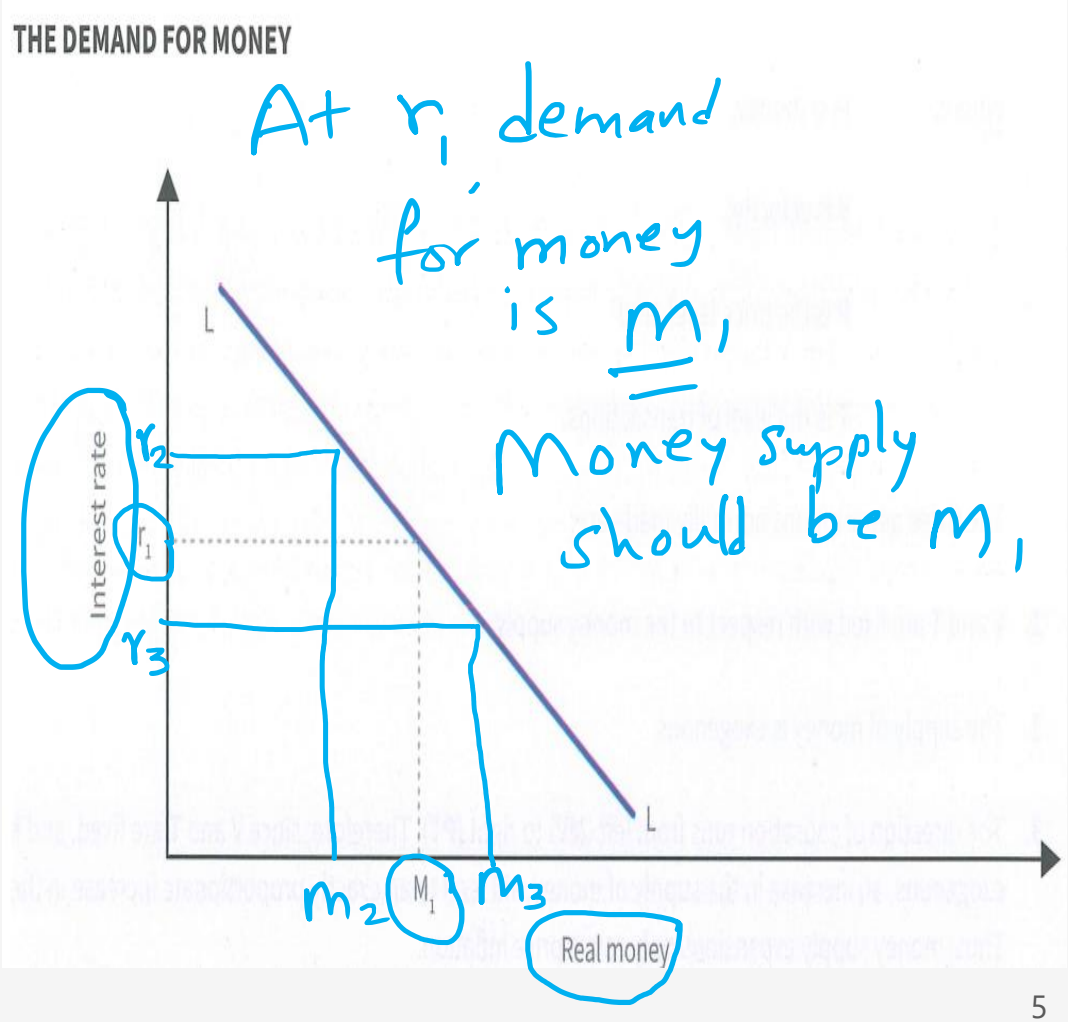
If int rates ↑, demand for money for assets ↓

- Due to financial innovations, new varieties of deposits / securities are available, which creates difficulty in gauging changes in various money supply quantities.

Analysing Economic policy

Monetary Policy: Money Demand and Monetary Control

- The diagrams depicts relationship between demand for money and interest rate which is inverse
- If the central bank wishes to keep interest rate at r_1, then the supply of money must be M_1.
- Financial innovations may shift the demand for money making it challenging for authorities to precisely estimate and maintain money supply at the desired level.



Analysing Economic policy

Interest rate and Aggregate Demand

- Transmission of monetary policy to real economy means how various monetary policy measured adopted by central bank get transmitted to real economy.

- Let us understand following influences on household spending by extending simple consumption function:
  - Bank lending and consumer credit: Many durable items are purchased on credit. Hence interest rates and credit availability affect spending on these goods.
  - "Wealth effect": If financial markets, real estate are doing well, consumers perceive better future. Hence they tend to spend more. This is "wealth effect".

Analysing Economic policy

Interest rate and Aggregate Demand

- Consumption function may be further extended to include expectations of future income and wealth.
  - For example, if tax rates are increased then even before implementation, consumers may cut back spending if they believe tax changes are not temporary. But if tax changes are believed to be temporary, then they may not influence spending drastically.

Analysing Economic policy

Interest rate and Aggregate Demand

- Let us discuss about investment spending now which is done by the firms.
  - If interest rates go up, opportunity cost for the new project is likely to increase and hence lesser projects will be accepted. This will reduce aggregate demand.
  - Hence reduction in interest rate will boost both consumption spending and investment spending. This is "**transmission mechanism**" where money supply changes affects AD.
  - Increased income is likely to increase the demand for money putting upward pressure on interest rates.
  - If this happens, AD may again shift back to lower levels.

Analysing Economic policy

Interest rate and Aggregate Demand

- In this connection let us understand "crowing out effect" again.
  - If government increases spending, AD will shift upwards.
  - This will put upward pressure on interest rates, unless money supply also increases.
  - This increased interest rate is likely to reduce consumption and investment expenditure again, reducing AD.

Analysing Economic policy

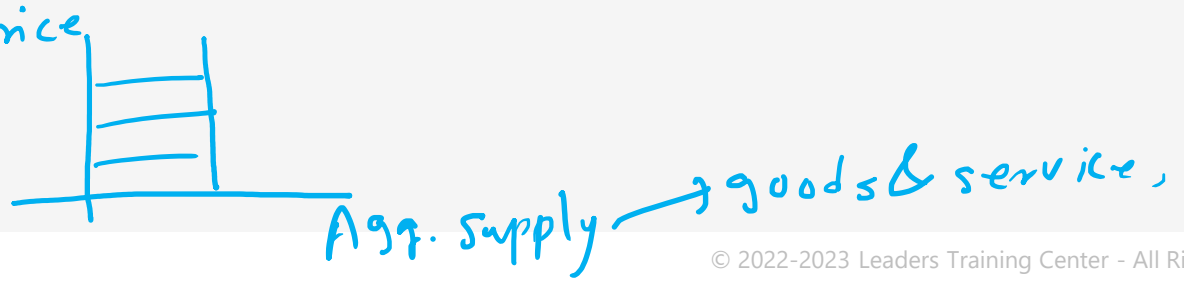
Aggregate Supply and Inflation

- Aggregate supply shows quantity of output producers are willing to sell at different price levels.
- Outputs will depend upon quantity of labour.
- Assuming stock of capital is fixed, if we add more workers the marginal product i.e. their productivity falls. diminishing returns to scale
- More the **real wages**, greater will be the labour supply. The focus is on real wages, so that there is no **money illusion**. $100 $110 → change is 10%
  Inflation ↑ 10%.

Analysing Economic policy

Aggregate Supply and Inflation

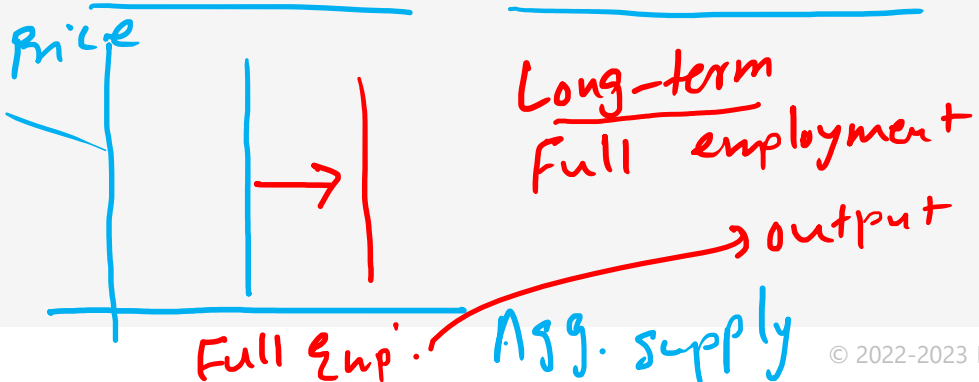
- The classical model of economy assumes fully flexible wages and prices and hence real wages. Given this labour market is in equilibrium always.
- Only real changes such as technology, capital stock, education will change real wages and employment.
- If there is no money illusion, aggregate supply curve will be vertical, implying at all price levels aggregate money supply is constant.
- The output and employment will be determined by labour market equilibrium.
- Hence the price level settles so that there is appropriate real money supply for labour market equilibrium.



Analysing Economic policy

Aggregate Supply and Inflation

- As against the classical model, Keynesian model assumes 'sticky' prices and wages, meaning they are not fully flexible.
- We can say that Keynesian model describes short term adjustment of economy while classical mode describes long term.
- Full employment output levels can only be increased by supply side policies (attitude towards work, education, innovation etc.)



Analysing Economic policy

Unemployment

- In UK, unemployment rate is defined as: Number of people registered as available for work divided by total UK labour force. Unemployment rate can be defined differently by other countries / institutions.

- Types of unemployment:
  - Frictional: Individuals between jobs or not easily employable because of physical or similar problems.
  - Structural: Arises due to changes in demand / production patterns over time. Employees have to re-train, re-skill, relocate.

short term

long term

US textile industry : 1990 → quota system
↳ abolished

Analysing Economic policy

Unemployment

- Types of unemployment:
  - Classical: Too high real wages, labour market is not fully adjusted.
  - Keynesian: Reduced demand for labour due to inflexible wages and prices.
  - Involuntary: Accepting a job at current real wage.
  - Voluntary: Unemployed at full employment
  - Natural rate of unemployment: Rate of unemployment when labour market is in equilibrium.

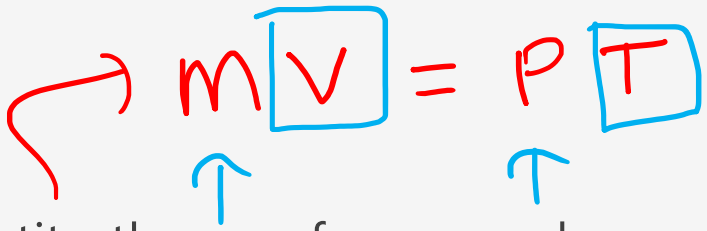
Analysing Economic policy

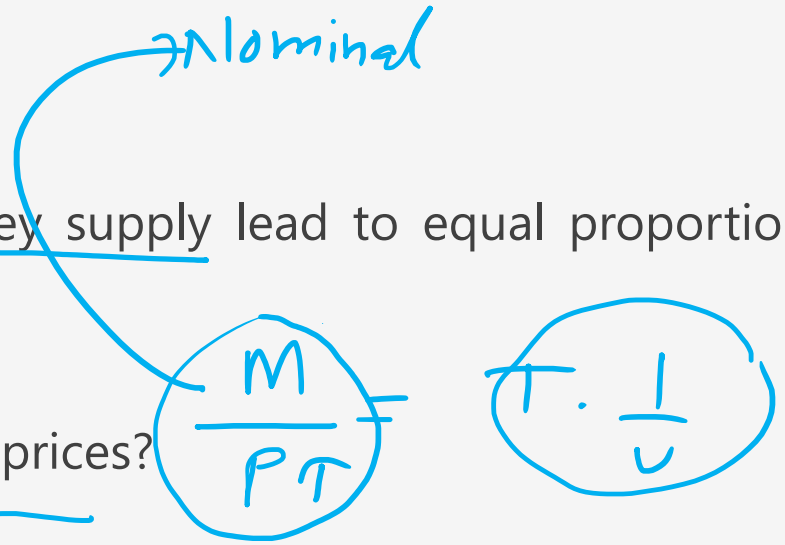
Inflation

- Most central banks try to control the inflation as a part of their economic policies.
- Consumer Price Index (CPI) is generally targeted by most central banks.
- Other measures such as Retail Price Index (RPI), CPI including owner occupiers' housing costs (CPIH) etc have been or proposed to be used as measures of inflation.

Analysing Economic policy

Inflation





- As per quantity theory of money, changes in nominal money supply lead to equal proportional changes in price level with no impact on output.
- The question is whether changes in money supply change the prices?
- Suppose oil prices rise, then real money supply is likely to fall, interest rates will rise and output will fall. If this is to be avoided, nominal money supply should increase which is what accommodative monetary policy seeks to do.
- Generally, high inflation economies will have higher interest rates, this ensures **real interest rates** are stable. Extreme inflation is referred to as **hyper-inflation** in which velocity will be very high.

Analysing Economic policy

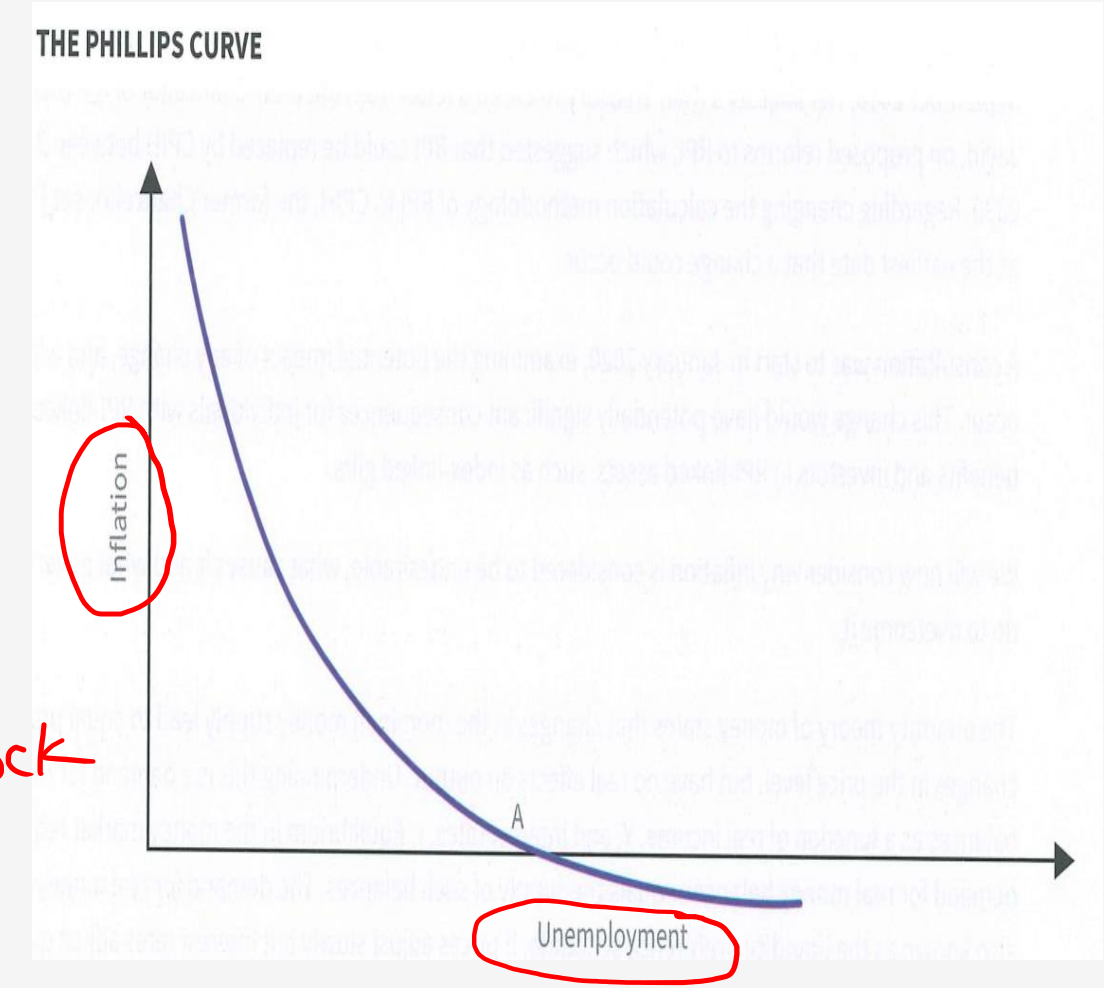
Budget deficits, Inflation and Unemployment

- During 1980s, UK government attempted to reduce budget deficit, since it was believed to be causing higher inflation by increasing money supply. This was known as **medium-term financial strategy (MTFS)**.
- However, there may not be a simple relation between budget deficit and money growth.
- Private sector credit demand may also lead to growth in money supply.

Analysing Economic policy

Budget deficits, Inflation and Unemployment: The Phillips Curve

- Inverse relationship between inflation and unemployment is known as Phillips curve.
- However, in 1970s, both higher unemployment and higher inflation were seen.

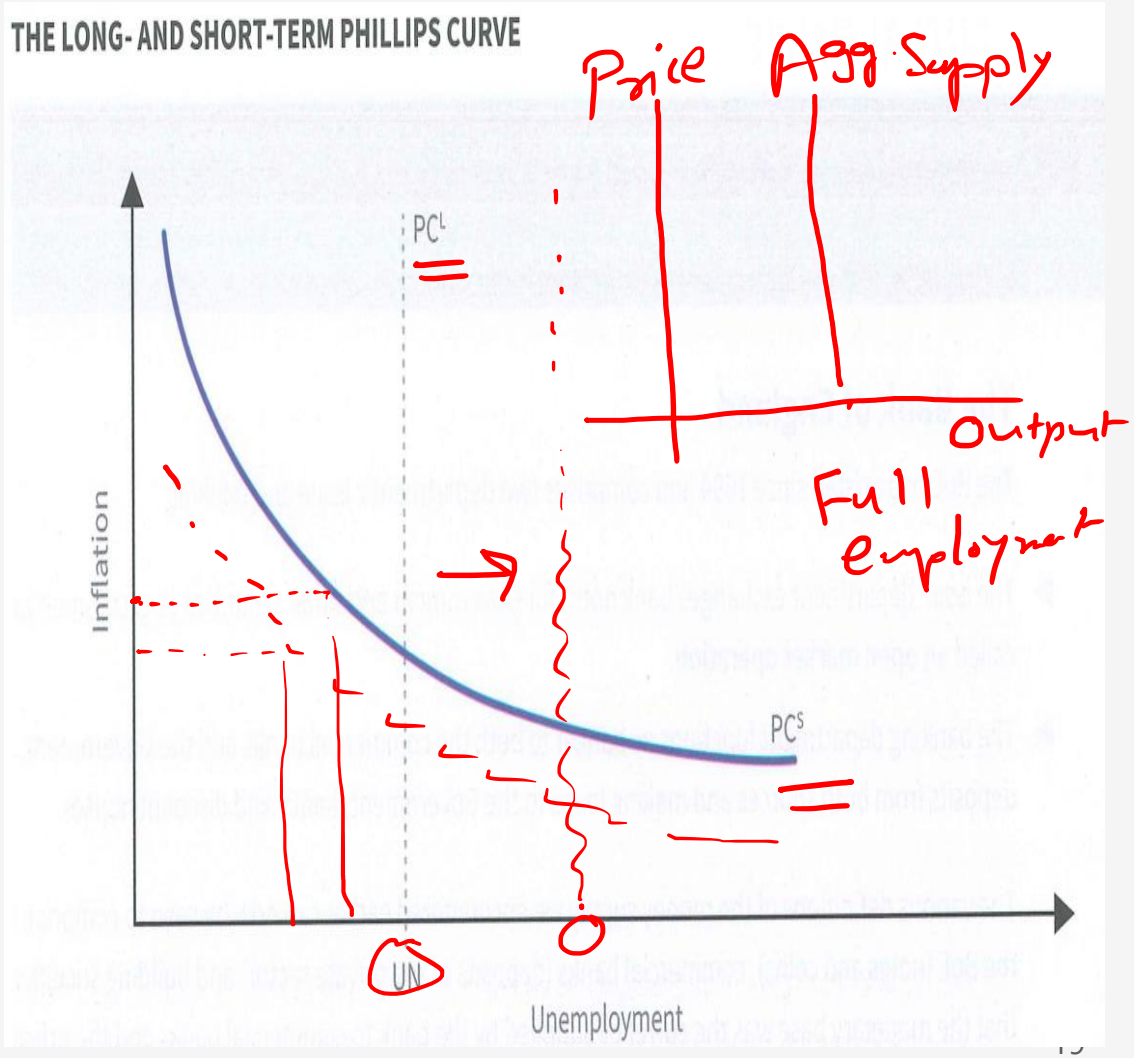


slowdown 1973 → first oil price shock
↳ inflation ↑
↳ ↑ unemployment

Analysing Economic policy

Budget deficits, Inflation and Unemployment: The Phillips Curve

- The vertical line represents long term Phillips curve, considering natural rate of unemployment.
- If individuals believe that money supply fall is sustainable then the short term Phillips curve will shift downward.
- Else, unemployment will worsen with original Phillips curve.



Analysing Economic policy

Inflation: Anticipated Vs Unanticipated

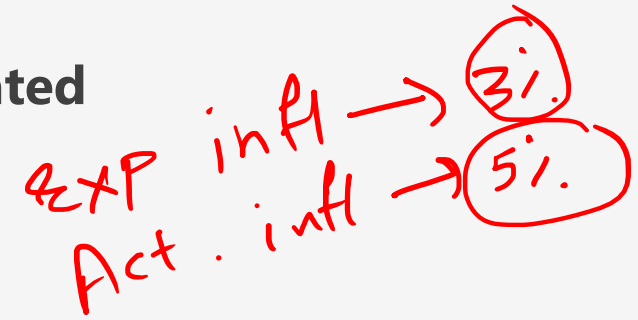
Costs of anticipated inflation:

- Menu costs: Because prices need to be changed frequently
- Shoe leather costs: Costs of frequent cash withdrawals from banks
- If institutions are not fully prepared: Inflation accounting, taxation adjustments may be affected.
- At higher inflation, prices are more variable, causing confusion.

Analysing Economic policy

Inflation: Anticipated Vs Unanticipated

Costs of unanticipated inflation:



- Income and wealth distribution is arbitrary, especially from lenders to borrowers.
- Long term business and investment plans may be adversely affected
- **Taylor rule**: It specifies relation between short term policy rate (Federal funds rate in US), inflation relative to target inflation, and GDP relative to full employment output.
- It is intended to reduce uncertainty about economic policy and provide policy credibility.

Analysing Economic policy

Central Banks

- Read Pages 150 and 151

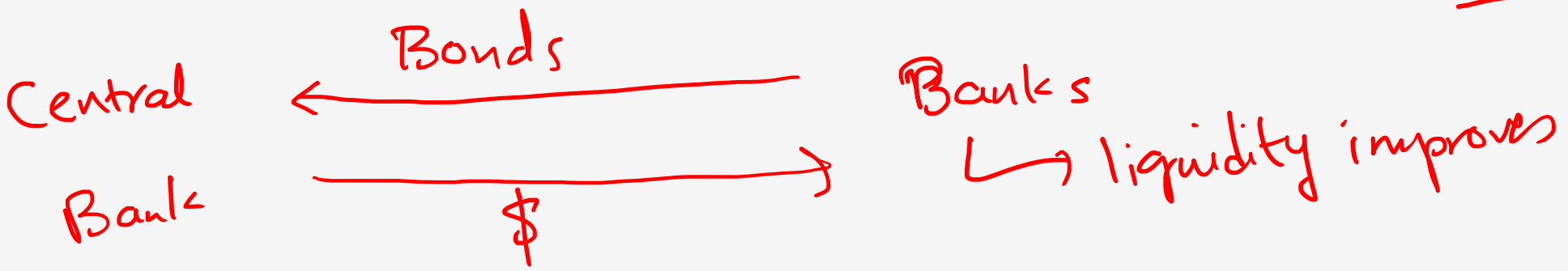
Analysing Economic policy

US Govt → fisc deficit → issue bonds to investors → Banks → Trading

Other central bank tools for managing the economy

- **Quantitative Easing:**
  - In QE, central banks purchase financial assets, mainly the government and corporate bonds from the financial institutions.
  - This keeps demand for these securities high and results in lower interest rates
  - Banking system gets more money from the central bank

2008 crisis



Analysing Economic policy

Other central bank tools for managing the economy

- **Forward Guidance:**
  - Central bank commits to keep interest rate at a certain level into the future up to some date or till some policy variable reaches a certain level
  - This provides some future guidance and clarity to market participants

US Fed Res: Hold meeting every 2·5 months
→ Published in public domain
→ likely action → months

Analysing Economic policy

Other central bank tools for managing the economy

- **Helicopter Money:**
  - Central bank finances fiscal stimulus / expansion by printing money and making it available for purposes such as tax cuts or infrastructure investment.
  - This can be done by
    - direct transfer to government
    - buying government debt that pays no interest or principle or perpetually rolling government debt
    - direct payment to general population

Analysing Economic policy

Other central bank tools for managing the economy

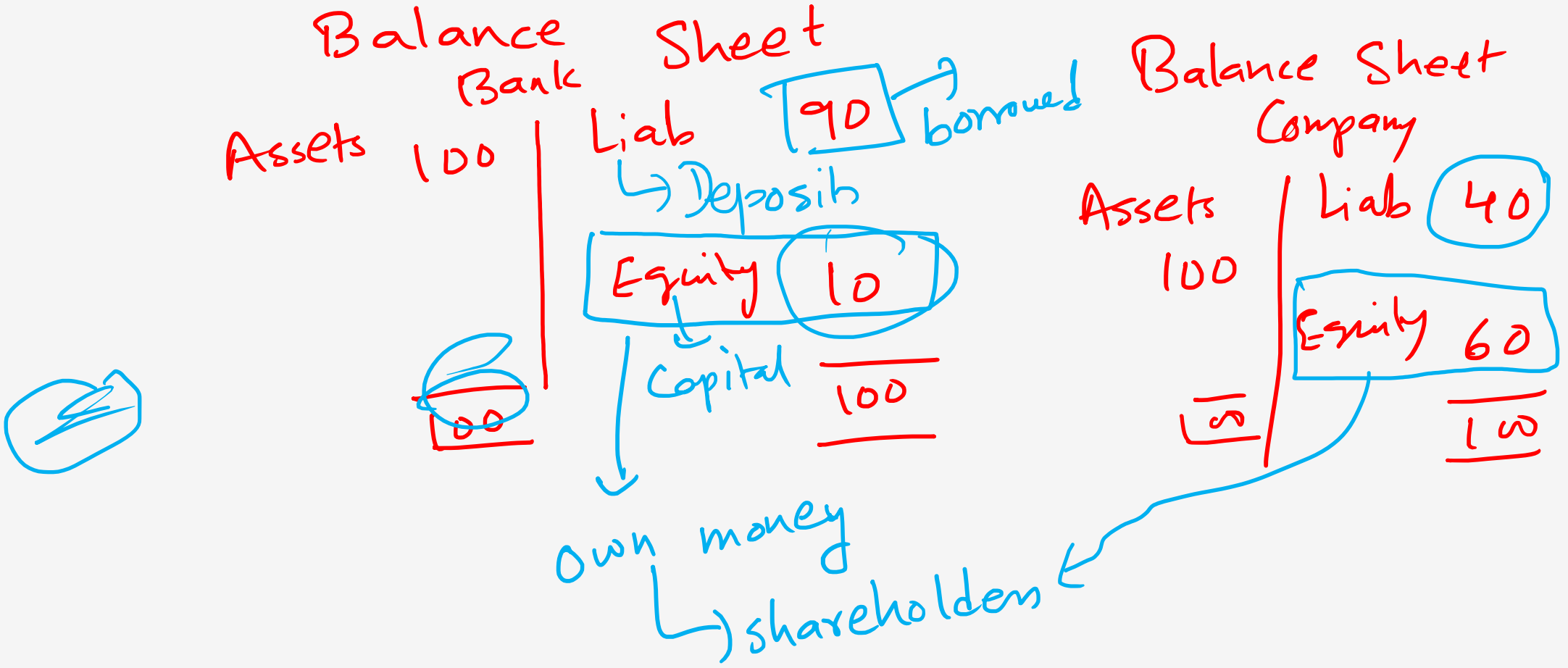
- **Helicopter Money:**
  - This is much more direct than QE
  - Unlike debt financing, monetary financing does not crowd out private investment
  - Critics argue that this creates political influence on central bank, which may compromise central bank independence.

Analysing Economic policy

Bank capital, liquidity requirements and macro-prudential regulation

- Basel I norms require banks to hold capital against risk-adjusted value of assets.
- Basel II was an improved version of Basel I that allowed banks to maintain capital as per enhanced version of Basel I norms or as per Internal models
- Basel III is a very comprehensive capital and liquidity measure that will be implemented in stages by January 2023. These measures were thought of due to financial crisis of 2008.
- These measures aim to improve regulation, supervision and risk management of banks.

Analysing Economic policy



Analysing Economic policy

Bank capital, liquidity requirements and macro-prudential regulation

- It prescribed a maximum **leverage ratio** of 4.5%.
- Basel III norms emphasized on **liquidity management**. In this connection, it introduced new set of **liquidity coverage rules**.
- These rules require banks to keep high quality liquid assets that can be quickly converted into cash.
- This should help banks to meet liquidity needs for 30-calendar-day liquidity stress scenario.

Analysing Economic policy

Bank capital, liquidity requirements and macro-prudential regulation

- In addition, **net stable funding** ratio was introduced.
- This required banks to keep stable funding for their activities.
- In UK, Financial Policy Committee (FPC) was created in Financial Services Act 2012 to monitor systemic threats and with powers to influence policy tools.

Analysing Economic policy

Debt and the business cycle

- If debt in the economy rises too much, it can cause financial troubles, because debt may not be paid and it results in defaults

- If adverse conditions prevail, there could be many bankruptcies / defaults and economy may collapse. This was seen in 2008 global financial crises when world over debt levels had increased substantially.

- Some researchers point out that increased household debt to GDP ratio may lead to lower output growth and higher unemployment over medium term.