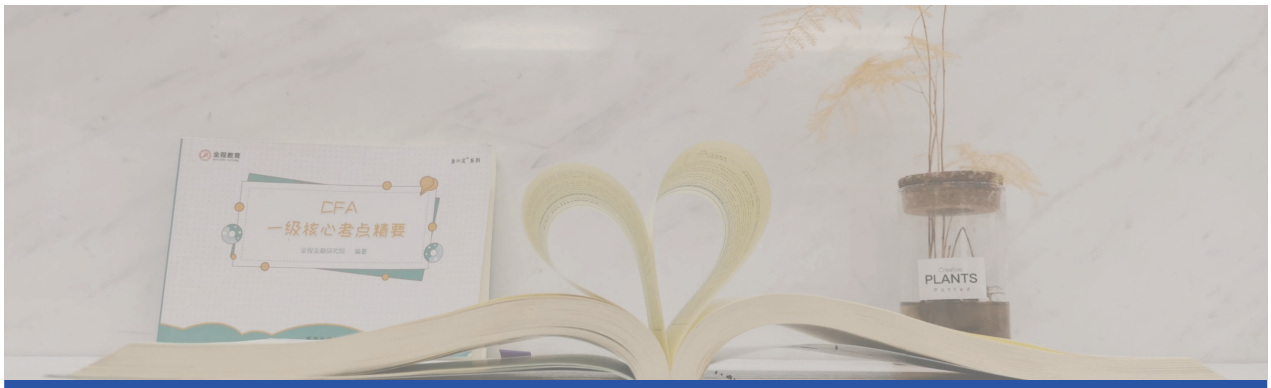


Economics

CFA一级强化班

讲师：林正

林正

6年授课，4000+授课课时

学位证书

- 金程教育资深培训师
- 英国Essex大学硕士
- CFA持证人
- PMP（Project Management Professional）持证人

服务客户

- 中国银行、中国建设银行、民生银行、平安证券、杭州联合银行、杭州银行、国泰君安证券、苏州元禾控股等。

工作背景

- 曾历任某外资银行支行行长，总行战略项目经理，十二年的外企银行工作资历，积累了丰富的金融实战经验。
- 现为金程教育资深培训师，熟悉CFA考试强化班保留，CFA全级别授课。

Economics

1. Firm and Market Structures
2. Understanding Business Cycles
3. Fiscal Policy
4. Monetary Policy
5. Introduction to Geopolitics
6. International Trade
7. Capital Flows and the FX Market
8. Exchange Rate Calculations

Framework

课件使用说明

- **强化班知识点说明和使用指南**

序号	课件元名称（知识点）	必考	高频	低频
1	Profit Maximization	**0**	**1**	**0**
2	Breakeven Point and Shutdown Point	**0**	**1**	**0**
3	Market structure factors and perfect competition	**1**	**0**	**0**
4	Monopolistic Competition	**0**	**0**	**1**
5	Oligopoly	**0**	**1**	**0**
6	Monopoly	**0**	**0**	**1**

- 必考知识点指的是近10年考试中考试频率大于等于75%的考点，在强化班中强化班保留讲解，必须掌握；
- 高频知识点指的是近10年考试中考试频率介于25%到75%的考点，在强化班中强化班保留讲解，必须掌握；
- 低频知识点指的是近10年考试中考试频率小于25%的考点，在基础班中强化班保留讲解，学员可以根据自己的掌握情况在基础班中巩固学习；
- 本学科知识点合计50个，其中必考知识点7个，高频知识点21个，低频知识点22个，掌握必考和高频考点覆盖了近10年89.14%的题目。

Module

Firms and Market Structures

1. Profit Maximization, Revenue and Cost
2. Breakeven Point and Shutdown Point
3. Market Structures

Profit Maximization、Revenue and Cost

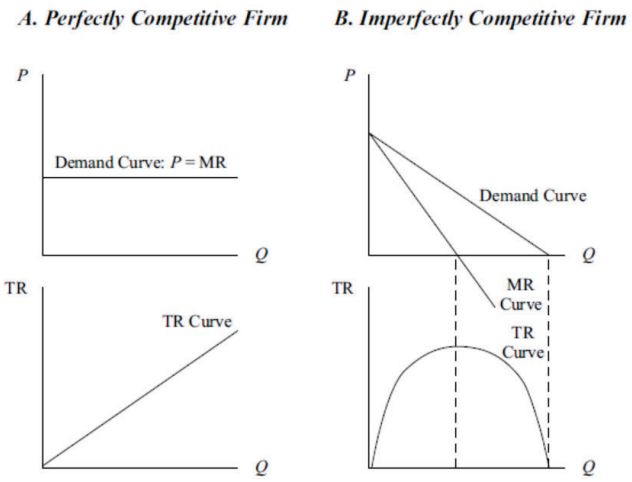
- Profit Maximization
- Revenve
- Cost

Profit Maximization

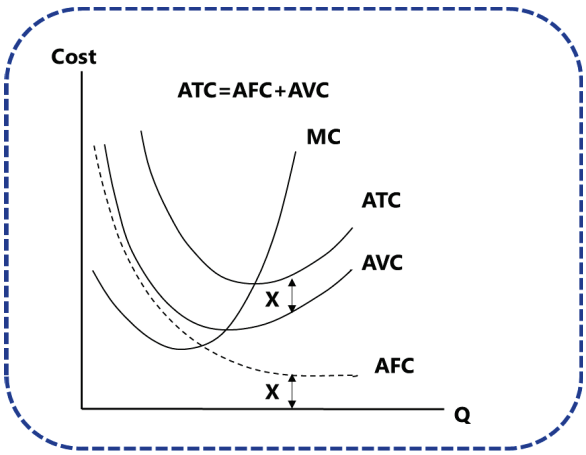
- **Profit maximization** occurs when
  - The difference between total revenue (TR) and total costs (TC) is the greatest;
  - **1) Marginal revenue (MR) equals marginal cost (MC); (MR=MC)**
    - ✓ The revenue value of the output from the last unit of input employed equals the cost of employing that input unit.
  - **2) MC not be falling with output**

Marginal Revenue

- **Perfect competition**
  - MR=price
  - TR curve is linear, with a slope equal to price per unit.
- **Imperfectly competitive**
  - MR=P[1-1/|Ep|]
  - $MR=\Delta TR/(\Delta Q)$
  - TR curve first rises (in the range where MR is positive and demand is elastic) and then falls (in the range where MR is negative and demand is inelastic) with output.



Short Run Costs

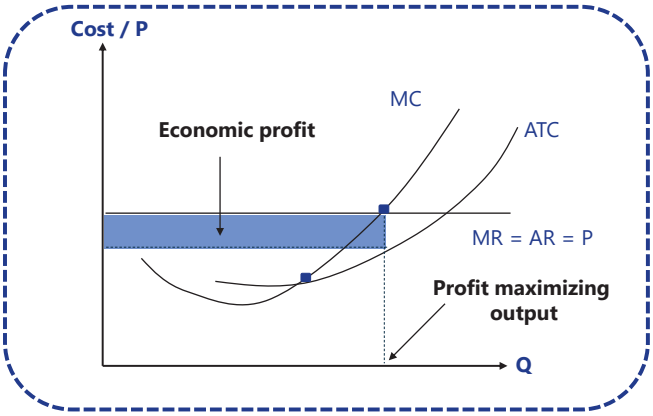


Average and Marginal Costs

- **AFC** slopes downward. AFC=TFC/Q
- Both **ATC and AVC** take on a bowl-shaped pattern in which each curve initially declines, reaches a minimum level, and then increases after that point, reflecting the **law of diminishing marginal returns to labor**.
- The **MC curve** intersects both the ATC and the AVC at their **minimum** points.
  - TFC do not change with the change of output, *so MC reflects the change of total variable cost only*.
  - With the increase of output, *MC declines initially, then increases*.
  - When MC is less than AVC, AVC will be decreasing.
  - When MC is greater than AVC, AVC will be increasing.

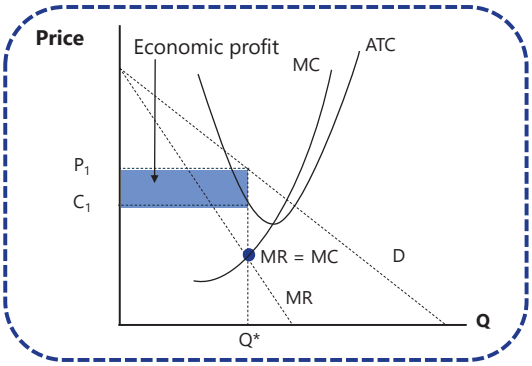
Profit Maximization

- **Perfectly competition**
  - Profit max: MR=MC
  - MR=P=AR



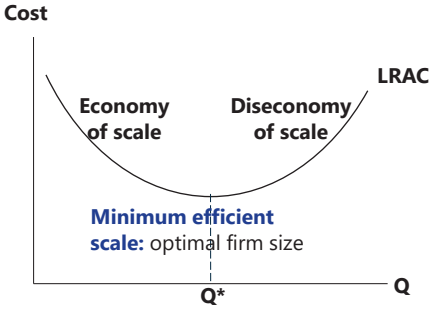
Profit Maximization

- **Imperfectly competition**
  - The **profit-maximizing** choice is the level of output where **MR=MC**.



Economies of Scale and Diseconomies of Scale

- The **downward sloping** segment of the long-run average total cost curve indicates **the economies of scale.**
  - **Reason:** Specialization and bargaining power in input price.
- The **upward sloping** segment of this long-run average total cost curve indicates that **diseconomies of scale** are present when average unit costs rise as the scale of the business increase.
  - **Reason:** Bureaucratic and communication breakdowns and overlap and duplication (i.e., similar or identical automobile models).
  - **Reason:** Supply constrains lead to higher resource price
- **Economies of scale**
  - Decreasing long-run cost per unit as output increases.
  - Should increase production level.
- **Diseconomies of scale**
  - Increasing long-run cost per unit as output increases.
  - Should decrease its production level.



Example

Economies of Scale

- A company is experiencing economies of scale when:
  A. cost per unit increases as output increases.
  B. it is operating at a point on the LRAC curve at which the slope is negative.
  C. it is operating beyond the minimum point on the long-run average total cost curve.

Solution: B

Economies of scale occur if, as the firm increases output, cost per unit of production falls. Graphically, this definition translates into an LRAC with a negative slope.

Breakeven Point and Shutdown Point

- Breakeven Point
- Shutdown Point

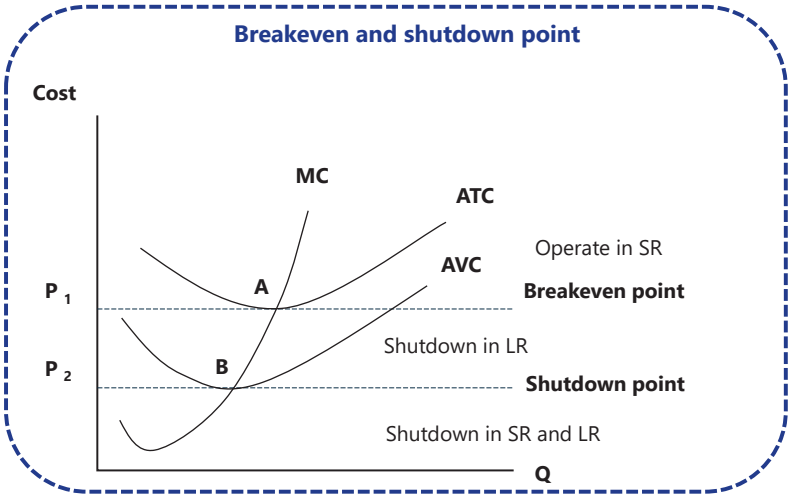
Breakeven Point and Shutdown Point

		Short-Run Decision	Long-Run Decision
TR > TC	AR > ATC	Stay in market	
TR=TC	AR = ATC	**Breakeven point**	
TVC < TR < TC	AVC < AR < ATC	Stay in market	Exit market
TVC=TR	AR = AVC	**Shutdown point**	
TR < TVC	AR < AVC	Shut down production to zero	Exit market

- The breakeven point occurs when TR equals TC, otherwise stated as the output quantity at which average total cost (ATC) equals price (AR).
- If all fixed costs are sunk costs, then shutdown occurs when the market price falls below the **minimum average variable cost**. After shutdown, the firm incurs only **fixed costs** and loses less money than it would operating at a price that does not cover variable costs.

Breakeven Point and Shutdown Point

- **Perfect competition**
  - Economists refer to the **minimum AVC point** as the **shutdown point** and **the minimum ATC point** as the **breakeven point**.
  - Firm must accept whatever price the market dictates. The marginal cost schedule of a company in a perfectly competitive market determines its supply function.



Example

Breakeven Point and Shutdown Point

- Under conditions of perfect competition, a company will break even when market price is equal to the minimum point of the:
  A. average total cost curve.
  B. average variable cost curve.
  C. short-run marginal cost curve.

Solution: A

A company is said to break even if its total revenue is equal to its total cost. Under conditions of perfect competition, a company will break even when market price is equal to the minimum point of the average total cost curve.

Market Structures

- Summary of Market Structure
- Perfect Competition

Market Structure

Type	Number of firms	Degree of difference of products	Barriers to Entry	Pricing Power of Firm	Non-Price Competition	The example in our life
Perfect competition	Many	Homogeneous/ Standardized	Very easy	None	None	Some agricultural products
Monopolistic competition	Many	Differentiated	Low	Some	Advertising and Product Differentiation	Some retail products, toothpaste
Oligopoly	More than one, but not many	Homogeneous/ Standardized	Difficult	Some or Considerable	Advertising and Product Differentiation	Steel, automobile, oil
Pure monopoly	Single	Unique, nearly no substitute	No way	Considerable	Advertising	Public sectors

Example

Market Structure

- A market structure characterized by many sellers with each having some pricing power and product differentiation is best described as::
  A. oligopoly.
  B. perfect competition.
  C. monopolistic competition.

Solution: C

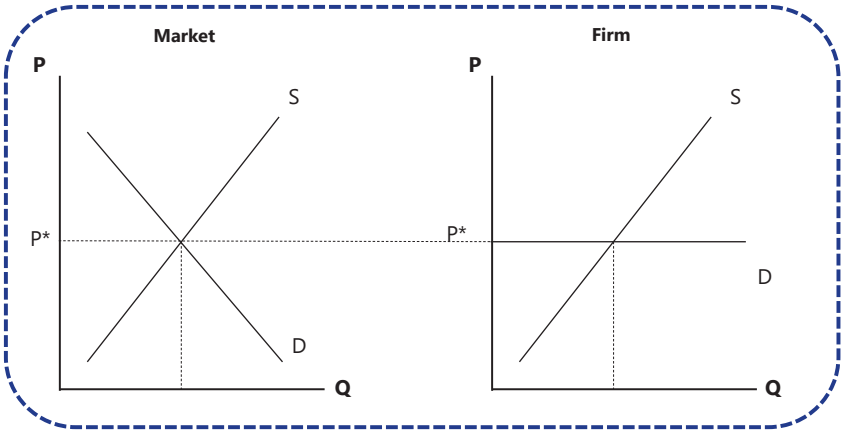
Monopolistic competition is characterized by many sellers, differentiated products, and some pricing power.

Perfect Competition

- **The assumption of perfect competition**
  - There are a large number of potential buyers and sellers;
  - There are few or easily surmountable barriers to entry and exit;
  - The products offered by the sellers are virtually identical;
  - Sellers have no market-pricing power;
  - Non-price competition is low.
    - ✓ For example, advertising.
- A **price taker** is a firm that cannot influence the market price and that sets its own price at the market price.
- Individual firm's **demand schedule** is *perfectly elastic* (horizontal, Price = Marginal Revenue = Average revenue).

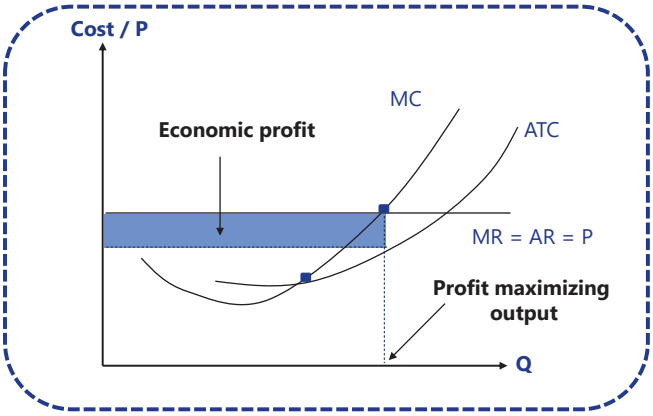
Perfect Competition

- **Firm and Market in Perfect Competition**



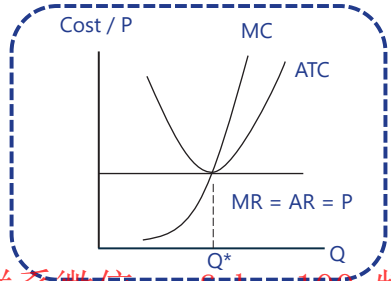
Perfect Competition

- **Perfectly competition firm's short-run equilibrium**
  - Profit max: MR=MC
  - MR=P=AR



Perfect Competition

- **Perfectly competition firm's long-run equilibrium**
  - The **long-run equilibrium** output level for perfectly competitive firms is where MR=MC=ATC, which is where **ATC is at a minimum**. At this output, economic profit is zero and only a normal return is realized.
  - In equilibrium, each firm is producing the quantity for which **P=MR=MC=ATC**, so that **no firm earns economic profits**.
    - ✓ When P>ATC, firms can earn economic profits → New joiners, supply curve shift right, price decrease till P=ATC.



Monopolistic Competition

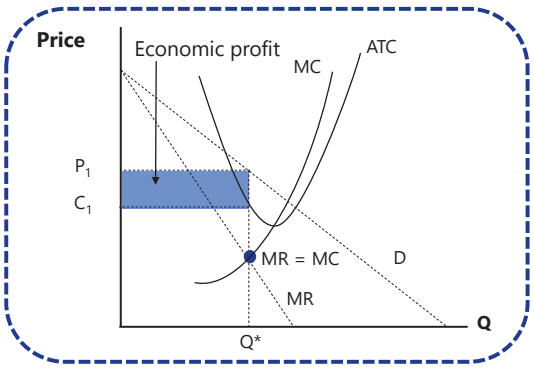
- Monopolistic Competition

Monopolistic Competition

- **The following market and product features define monopolistic competition:**
  - There are a large number of independent sellers.
    - ✓ Each firm has relatively **small** market share.
  - Each seller try to sell **differentiated** product.
    - ✓ The most distinctive factor in monopolistic competition is product differentiation.
      - **Innovation and product development**
      - **Branding**
      - **Advertising**
    - ✓ Have some pricing power.
  - Firms are free to enter and exit with fairly low cost.
  - Firms in monopolistic competition face downward-sloping demand curves and the curves are highly elastic because competing products are perceived by consumers as close substitutes.

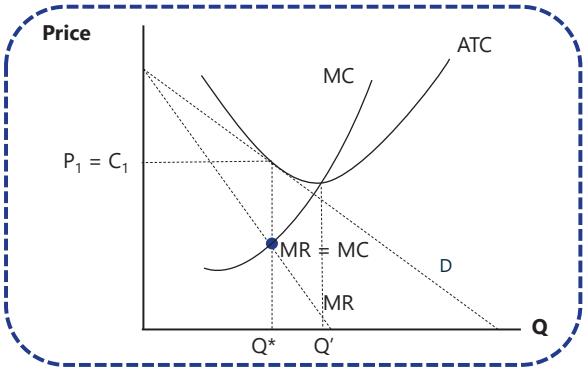
Monopolistic Competition

- **Short-run equilibrium in monopolistic competition**
  - In the short-run, the **profit-maximizing** choice is the level of output where **MR=MC**.
  - Because the product is somewhat different from that of the competitors, the firm can charge the price determined by the demand curve.



Monopolistic Competition

- **Long-run equilibrium in monopolistic competition**
  - In the long run for the monopolistic competitive firm, **economic profit will fall to zero**.
  - In **long-run equilibrium**, output is still optimal at the level where **MR=MC**.



Example

Monopolistic Competition

- Why does a monopolistic competitive market have no excess economic profit in the long run?
  - A. Product differentiation
  - B. Service differentiation
  - C. Entry into and exit from the market are possible with fairly low costs.

Solution: C

Just as with the perfectly competitive market structure, with relatively low entry costs, more firms will enter the market and lure some customers away from the firm making an economic profit. The loss of customers to new entrant firms will drive down the demand for all firms producing similar products. In the long run for the monopolistically competitive firm, economic profit will fall to zero.

Oligopoly

- Oligopoly
- Kinked Demand Curve Model
- Dominant Firm Model

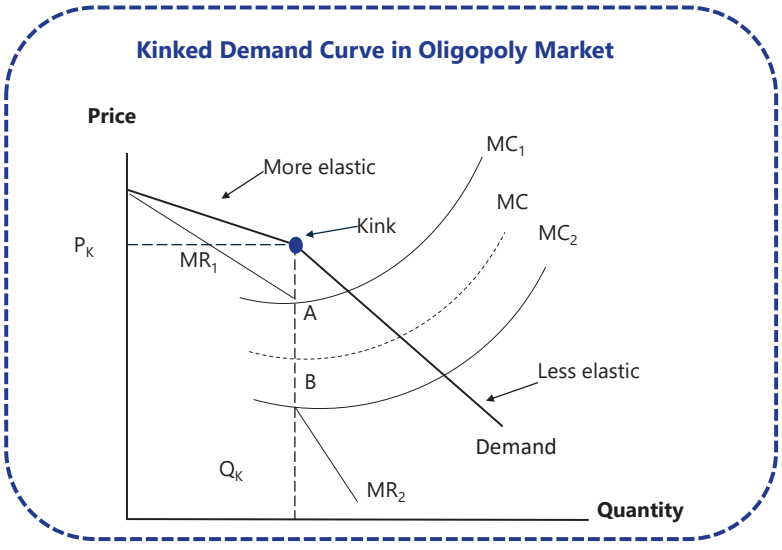
Oligopoly

- **Oligopoly** is a form of market competition characterized by:
  - A small number of sellers;
  - **Interdependence** among competitors;
    - ✓ In contrast to a monopolist, oligopolies are highly dependent upon the actions of their rivals when making business decisions.
  - Significant barriers to entry; Large economies of scale, **substantial pricing power**;
  - Compared to monopolistic competition, an oligopoly market has less elastic firm demand curves;
- **Four pricing models of oligopoly**
  - Kinked demand curve model (Pricing interdependence)
  - Cournot duopoly model
  - Nash equilibrium model
  - Dominant Oligopolist's price leadership

Kinked Demand Curve Model

- **The kinked demand curve model of oligopoly** is based on the assumption that each firm believes that if it raises its price, others will not follow, but if it cuts its price, other firms will cut theirs.
  - Between range A and B, the optimum Q_K is constant, **determine price P_K which is prevailing.**
  - Q_k is the profit-maximizing level of output and the price at which the kink is located is the firm's profit maximizing price.
- **Shortcoming of kinked demand curve model**
  - **Inability to determine** what the prevailing price is from the outset.
    - ✓ Discontinuous marginal revenue structure
      - From MC_1 to MC_2, a wide variety of cost structures passes through the gap in marginal revenue, and consistent with the prevailing price
    - ✓ Because it cannot determine the original prevailing price, it is considered an **incomplete pricing analysis**.

Kinked Demand Curve Model



Nash Equilibrium Model

- **Nash equilibrium** is present when two or more participants in a **non-cooperative game** have **no incentive to deviate** from their respective equilibrium strategies after they have considered and anticipated their opponent's rational choices or strategies.
- **Nash equilibrium** is reached when the choices of all firms are such that there is no other choice that makes any firm better off (increases profits or decrease loss) .
- **Prisoners' Dilemma** is a game that illustrates that the best course of action for an oligopoly firm, when engaging in collusion with another oligopoly firm, is to cheat.

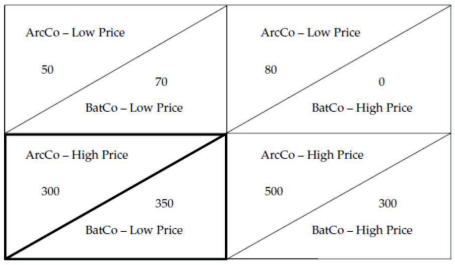
	Prisoner B is silent	**Prisoner B confesses**
Prisoner A is silent	A gets 6 months B gets 6 months	A gets 10 years B goes free
Prisoner A confesses	A goes free B gets 10 years	A gets 2 years B gets 2 years

  - Best overall outcome is for both to remain silent and get sentences of six months. But it is not equilibrium.
  - The Nash equilibrium is for both prisoners to confess, and for each to get a sentence of two years.

Nash Equilibrium Model

- The duopoly result from the Nash equilibrium. Assume there are two firms in the market, ArcCo and BatCo. ArcCo and BatCo can charge high prices or low prices for the product.

	BatCo low price	**BatCo high price**
ArcCo low price	ArcCo 50 BatCo 70	ArcCo 80 BatCo 0
ArcCo high price	**ArcCo 300** **BatCo 350**	ArcCo 500 BatCo 300



Collusion

- **Collusion** is when firms make an agreement among themselves to avoid various competitive practices, particularly price competition. When openly and formally, the firms involved are called **Cartel.**
  - There are **six major factors** that affect the chances of successful collusion :
    - ✓ 1. The number and size distribution of sellers
      - More likely if number of firms decreases or one is dominant
      - More difficult if number increases or the few firms have similar market shares (tend to compete).
    - ✓ 2. The similarity of the products
      - homogeneous → more successful;
      - more differentiated → less likely.
    - ✓ 3. Cost structure
      - The more similar the firms' cost structures, the more likely to collude.

Collusion

- There are six major factors that affect the chances of successful collusion :
  - ✓ 4. Order size and frequency
    - more likely when orders are frequent, received on a regular basis, and relatively small for small opportunity and reward of cheating in collusion.
  - ✓ 5. The strength and severity of retaliation
    - less likely to break the collusive agreement if the threat of retaliation by the other firms in the market is severe.
  - ✓ 6. The degree of external competition
    - less likely to break the collusive agreement if competition is intense.

Dominant Oligopolist's price leadership

- **Dominant firm model**
  - A single firm has a significantly large market share
    - ✓ Greater scale;
    - ✓ Lower cost structure.
  - Market price is essentially determined by the dominant firm.
  - The other competitive firms take this market price as given.
- **Follower firms** follow the pricing patterns of the dominant firm. Why?
  - If the other companies in the market attempts to gain market share by undercutting the price set by the dominant firm, the market share of the dominant firm will increase.
    - ✓ **Reason:** Dominant firm's supremacy often stems from a lower cost of production.

Dominant Oligopolist's price leadership

- **Long-run economic profits are possible for firms operating in oligopoly markets.**
  - Over time, the dominant company's market share tends to **decrease** as profit attract entry by other companies.
    - ✓ Over time, the marginal costs of the entrant firms decrease because they adopt more efficient production techniques, the dominant firm's demand and marginal revenue shrink, and the profitability of the dominant firm declines.
- **When is an oligopoly not an oligopoly?**
  - In practice, if the oligopolists are producing a good or service that can be easily replicated, and is not protected by brand recognition or patents, they will not be able to charge high prices. The easier it is for a new supplier to enter the market, the lower the margins. In practice, this oligopoly will behave very much like a perfectly competitive market.

Example

Oligopoly

- Aquarius, Inc. is the dominant company and the price leader in its market. One of the other companies in the market attempts to gain market share by undercutting the price set by Aquarius. The market share of Aquarius will most likely:
  A. increase.
  B. decrease.
  C. stay the same

Solution: A

As prices decrease, smaller companies will leave the market rather than sell below cost. The market share of Aquarius, the price leader, will increase.

Determining Market Structure

- Concentration Measures

Concentration Measures

- **Concentration measures**
  - **The N-Firm Concentration Ratio:** the sum or the percentage market shares of the largest N firms in a market.
    - ✓ Advantage: simple to compute.
    - ✓ Limitation: it may be relatively insensitive to mergers of two firms with large market shares.
  - **The Herfindahl-Hirschman Index (HHI):** the sum of the squares of the market shares of the largest firms in the market.
    - ✓ Advantage: HHI can **reflect the mergers in industry**.
    - ✓ If there are M firms in the industry with equal market shares, then the HHI equals (1/M).
      - For example, an HHI of 0.20 would be analogous to having the market shared equally by 5 firms.
  - **Limitation**
    - ✓ Both concentration measures do not directly quantify **market power**.
      - Even a firm with high market share may not have much pricing power **if barriers to entry are low and there is potential competition**.
      - The simple presence of a potential entrant may be sufficient to convince the firm to behave like in **perfect competition**.

Example

Concentration Measures

- A market consists of three firms with market shares of 50%, 30%, and 20%. The Herfindahl-Hirschman Index (HHI) is closest to:

  A. 0.38.

  B. 2,500.

  C. 3,800.

Solution: A

$(0.5^2 + 0.3^2 + 0.2^2 = 0.38)$

Summary

Module: Firm and Market Structures

Profit Maximization, Revenue and Cost
Breakeven Point and Shutdown Point
Market Structures

Module

Understanding Business Cycles

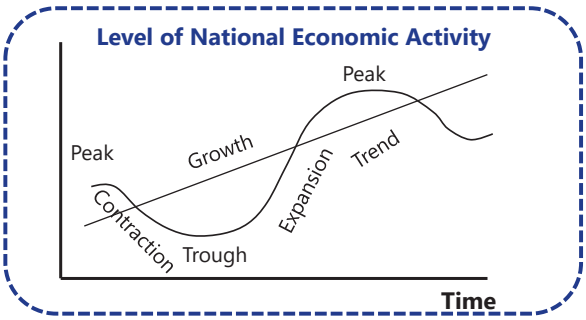
1. Business Cycles
2. Economic Indicators over the Business Cycle

Business Cycles

- Business Cycles

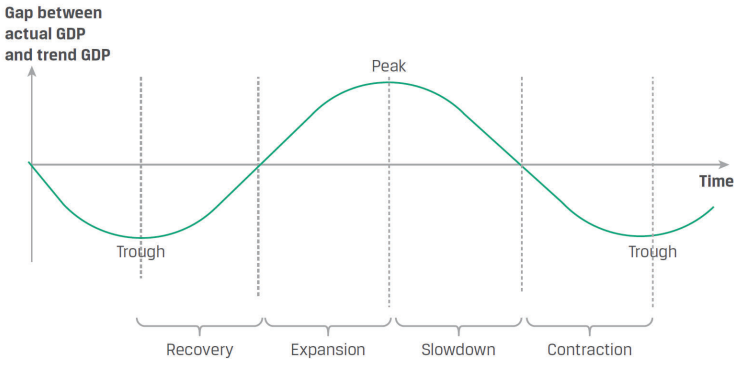
Business cycles

- **Business cycles**
  - recurrent expansions and contractions in economic activity affecting broad segments of the economy.
    - ✓ **Expected sequence of phases**: the expansion（or the upswing）and the contraction（or the downturn);
    - ✓ **Recurrent** but **not periodic**（not all have the exact same intensity and duration), two key turning points: peaks and troughs.



Business cycles

- **Growth cycle** refers to fluctuations in economic activity around the long-term potential or trend growth level.
  - ✓ The wave shows **gaps** between actual output and trend output/potential output.
  - ✓ It dissects overall economic activity into: driven by **long-run trends** and **short-run fluctuations**.
  - ✓ The time periods below and above trend growth are of **similar length.**
  - Recession: when a country experiences two consecutive quarters of negative real GDP growth.



Business cycles

Phase	Recovery	Expansion	Slowdown	Contraction
Description	Economy going through a trough. **Negative output gap** starts to **narrow.**	Economy enjoying an upswing. **Positive output gap opens.**	Economy going through a peak. **Positive output gap** starts to **narrow.**	Economy weakens and may go into a recession. **Negative output gap opens.**
Activity level: consumers and businesses	Activity levels are below potential but start to increase.	Activity measures show above-average growth rates.	Activity measures are above average but decelerating. Moving to below-average rates of growth.	Activity measures are below potential. Growth is lower than normal.
Employment	Layoffs slow. Businesses rely on overtime before moving to hiring. **Unemployment remains higher** than average.	Businesses move from using overtime and temporary employees to hiring. Unemployment rate **stabilizes and starts falling.**	Business continue hiring but at a slower pace. Unemployment rate **continues to fall but at decreasing rates.**	Businesses first cut hours, eliminate overtime, and freeze hiring, followed by outright layoffs. **Unemployment rate starts to rise.**
Inflation	Inflation remains moderate.	Inflation picks up modestly.	Inflation further **accelerates**.	Inflation decelerates but with a lag.

Example

Business cycles

- In the recovery phase of the business cycle, the economy is most likely:
  A. enjoying an upswing and a positive output gap opens.
  B. going through a trough and a positive output gap opens.
  C. going through a trough and a negative output gap starts to narrow.

Solution: C

Because during a recovery "[t]he economy is going through the “trough” of the cycle, where actual output is at its lowest level relative to potential output. Economic activity, including consumer and business spending, is below potential but is starting to increase, closing the negative output gap."

A is incorrect because this describes the expansion phase of an economy. "Expansion: The recovery gathers pace, output increases, and the rate of growth is above average. Actual output rises above potential output, and the economy enters the so-called “boom” phase". "Economy enjoying an upswing. Positive output gap opens."

B is incorrect because an upswing is seen during the expansion phase.

Economic Indicators over the Business Cycle

- Firm’s Perspective
- Economic Indicators

Firm's Perspective

- **1. Unemployment:** Levels of employment **lag** the cycle
  - During recovery
    - ✓ Businesses rely on overtime before moving to hiring
    - ✓ Unemployment remains higher than average
  - During expansion
    - ✓ Businesses move from using overtime and temporary employees to hiring.
    - ✓ Unemployment rate stabilizes and starts falling
    - ✓ Firm may experience a **decrease in availability of qualified workers.**
  - During slowdown
    - ✓ Businesses continue hiring but at a slower pace
    - ✓ Unemployment rate continues to fall but at slowly decreasing rates
  - During contraction
    - ✓ Businesses first cut hours, eliminate overtime, and freeze hiring, followed by outright layoffs
    - ✓ Unemployment rate starts to rise
    - ✓ Firms will run "**lean production**" to **generate maximum output with the fewest number** of workers at the end of contractions.

Firm's Perspective

- **2. Capital spending**
  - During recovery
    - ✓ Capital expenditures focus on **efficiency rather than capacity.**
    - ✓ Upturn most pronounced in orders for **light** producer equipment
      - Typically, the orders initially reinstated are for equipment with a high rate of obsolescence, such as software, systems, and technological hardware.
  - During expansion
    - ✓ Customer orders and capacity utilization increase.
    - ✓ The composition of the economy's capacity may not be optimal for the current structure of demand, necessitating spending on new types of equipment. Companies start to focus on **capacity expansion**.
      - **Heavy** and complex equipment, warehouses, and factories.
  - During slowdown
    - ✓ Companies **continue to place new orders** as they operate at or near capacity.
    - ✓ New orders intended to increase capacity may be an early indicator of the late stage of the expansion phase
  - During contraction
    - ✓ **New orders halted**, and some existing orders canceled
      - Order cancel: light equipment & technology before construction and heavy ones.
    - ✓ Existing physical capital adjusts through aging plus **lack of maintenance**.

Firm's Perspective

- **3. Inventory based on inventory to sales ratio**
  - During recovery
    - ✓ Sales decline slows.
    - ✓ Production upturn follows but lags behind sales growth.
    - ✓ Begins to fall as sales recovery outpaces production.
  - During expansion
    - ✓ Sales increase.
    - ✓ Production rises fast to keep up with sales growth and to replenish inventories of finished products.
    - ✓ Ratio stable.
  - During slowdown
    - ✓ Sales slow faster than production; inventories increase.
    - ✓ Ratio increases. Signals weakening economy.
  - During contraction
    - ✓ Businesses produce at rates below the sales volumes necessary to dispose of unwanted inventories.
    - ✓ Ratio begins to fall back to normal.

Example

Firm's Perspective

- As an economy starts to recover from a trough in the business cycle, the unemployment rate is most likely to:
  A. continue to rise with a decline in the number of discouraged workers.
  B. start to decline with an increase in the number of discouraged workers.
  C. continue to rise with an increase in the number of discouraged workers.

Solution: A

As the economy starts to recover, discouraged workers return to the labor force and start looking for jobs, which increases both the number of unemployed and the size of the labor force. The unemployment rate rises because the rise in the unemployed population is proportionately larger than the increase in the size of the labor force.

Economic Indicators

- **Economic indicators**
  - variables that provide information on the state of the overall economy.
- **Types of economic indicators**
  - **Leading economic indicators:** have **turning points** that usually precede overall economy.
    - ✓ Predicting the economy's future state, usually near-term.
  - **Coincident economic indicators:** have turning points that are usually close to overall economy
    - ✓ Identifying the economy's present state.
  - **Lagging economic indicators:** have turning points that are usually later to overall economy
    - ✓ Identifying the economy's past condition.
- While no single indicator is definitive, a **mix of them** can offer the effective signal of economy performance.

Economic Indicators

Leading	Reason
Average weekly hours, manufacturing	Business will cut overtime before laying off workers in a downturn and increase it before rehiring in a cyclical upturn. Move up and down before the general economy.
Average weekly initial claims for unemployment insurance	A very sensitive test of initial layoffs and rehiring.
Manufacturers' new orders for consumer goods and materials	Because businesses cannot wait too long to meet demands for consumer goods or materials without ordering. Orders tend to lead at upturns and downturns and captures business sentiment.
Manufacturers' new orders for nondefense capital goods	Captures business expectations and offers first signal of movement up or down. Important sector.

Economic Indicators

Leading	Reason
ISM new order index	Reflects the month on month change in new orders for final sales. Decline of new orders can signal weak demand and can lead to recession.
Average consumer expectations for business conditions	Optimism tends to increase spending. Provides early insight into the direction ahead for the whole economy.
Building permits for new private housing units	Signals new construction activity as permits required before new building can begin.

Economic Indicators

Leading	Reason
S&P 500 Stock Index	Useful early signal. When an expansion is expected, the markets will start incorporating higher profit expectations into the prices of corporate bonds and stocks.
Leading Credit Index	A vulnerable financial system can amplify the effects of negative shocks, causing widespread recessions. Aggregates the information from six leading financial indicators, which reflect the strength of the financial system to endure stress.
Interest rate spread between 10-year treasury yields and overnight borrowing rates (federal funds rate)	LT (10 or 30 year) bond yields express market expectations about the direction of short-term interest rates. As rates ultimately follow the economic cycle up and down, *a wider spread*, by anticipating short rate increases, also anticipates an *economic upswing* and vice versa. Inversion of the yield curve occurs when ST interest rate exceed LT rates – meaning that ST rates are expected to fall and *activity is expected to weaken*.

Economic Indicators

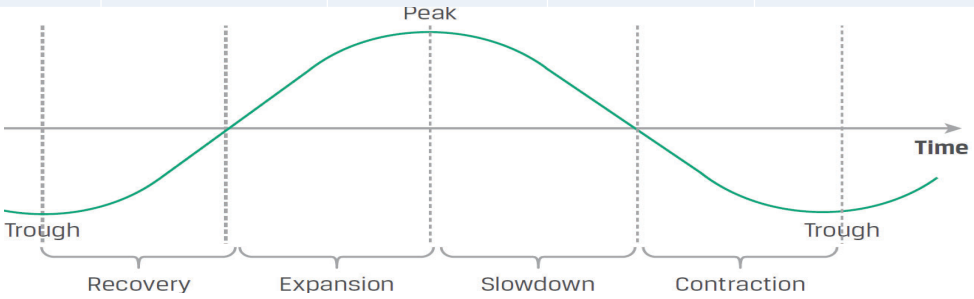
- **Coincident indicators**
  - Industrial production index
  - Manufacturing and trade sales
  - Real personal incomes
  - Employees on non-agricultural payrolls

Economic Indicators

- **Lagging indicators**
  - Average duration of unemployment
  - Inventory to sales ratio
  - Change in unit labor costs
    - ✓ ULC=total labor compensation per hour per worker / output per hour per worker
  - Inflation
    - ✓ Adjusts slower as index includes more stable services component
  - Average prime lending rate
  - Ratio of consumer instalment debt to income
  - Commercial and industrial loans outstanding loans
    - ✓ Frequently support inventory building, lagging the cycle

Summary of indicators

	recovery	expansion	slowdown	contraction
Change in Unit labor cost	↓ (productivity↑)	↑ (Wage↑)	↑ (Wage↑)	↓ (wage↓>productivity↓)
Average duration of unemployment	↑	↓	↓	↑



Example

Business cycles

- Based on typical labor utilization patterns across the business cycle, productivity (output per hours worked) is most likely to be highest:
  A. at the peak of a boom.
  B. into a maturing expansion.
  C. at the bottom of a recession.

Solution: C

At the end of a recession, firms will run "lean production" to generate maximum output with the fewest number of workers.

Example

Economic Indicators

- When the spread between 10-year US Treasury yields and the short-term federal funds rate narrows and at the same time the prime rate stays unchanged, this mix of indicators most likely forecasts future economic:
  A. growth.
  B. decline.
  C. stability.

Solution: B

The narrowing spread of this leading indicator foretells a drop in short-term rates and a fall in economic activity. The prime rate is a lagging indicator and typically moves after the economy turns.

Example

Economic Indicators

- Which of the following is most likely to increase after an increase in aggregate real personal income?
  A. Equity prices
  B. Building permits for new private housing units
  C. The ratio of consumer installment debt to income

Solution: C

Aggregate real personal income is a coincident indicator of the business cycle, and the ratio of consumer installment debt to income is a lagging indicator. Increases in the ratio of consumer installment debt follow increases in average aggregate income during the typical business cycle.

Example

Economic Indicators

- The indicator indexes created by various organizations or research agencies:
  A. include only leading indicators to compute their value.
  B. are highly reliable signals on the phase of business cycles.
  C. evolve over time in terms of composition and computation formula.

Solution: C

The indicator indexes are constantly updated for their composition and methodology based on the accumulation of empirical knowledge, and they can certainly include more than just leading indicators.

Summary

Module: Understanding Business Cycles

Business Cycles
Firm's Perspective
Economic Indicators

Module

Fiscal Policy

1. Introduction to Monetary and Fiscal Policy
2. Fiscal Policy Tools
3. Limitations of Fiscal Policy

Introduction to Monetary and Fiscal Policy

- Monetary and Fiscal Policy

Monetary and Fiscal Policy

- **Fiscal policy refers to** a government's use of spending and taxation to ***influence economic activity***.
  - A **budget surplus** occurs when government tax revenues exceed expenditures.
  - A **budget deficit** occurs when government expenditures exceed tax revenues.
- **Monetary policy refers to** the central bank's actions that affect the ***quantity of money and credit*** in an economy in order to ***influence economic activity***.
  - **Expansionary** when the central bank **increases** the quantity of money and credit in an economy.
  - **Contractionary** When the central bank is **reducing** the quantity of money and credit in an economy.

Fiscal Policy Tools

- Spending Tools
- Revenue Tools
- Fiscal Multiplier

Fiscal Policy

- **Objectives of fiscal policy**
  - **Influencing the level of economic activity and aggregate demand.**
  - **Redistributing wealth and income among segments of the population.**
  - **Allocating resources among economic agents and sectors in the economy.**

Example

Fiscal Policy

- The least likely goal of a government's fiscal policy is to:
  A. redistribute income and wealth.
  B. influence aggregate national output.
  C. ensure the stability of the purchasing power of its currency.

Solution: C

Ensuring stable purchasing power is a goal of monetary rather than fiscal policy. Fiscal policy involves the use of government spending and tax revenue to affect the overall level of aggregate demand in an economy and hence the level of economic activity.

Fiscal Policy Tools

- **Spending Tools**
  - **Transfer payments:** Redistribute wealth, taxing some and making payments to others, transfer payments are not included in GDP computations.
  - **Current spending:** refers to government purchases of goods and services on an ongoing and routine basis.
  - **Capital spending:** refers to government spending on infrastructure such as roads, schools, bridges, and hospitals.
    - ✓ Capital spending is expected to **boost future productivity** of the economy

Fiscal Policy Tools

- **Revenue Tools**
  - **Direct taxes** are levied on income or wealth. These include income taxes, taxes on income for national insurance, wealth taxes, estate taxes, corporate taxes, capital gains taxes, and Social Security taxes. Some progressive taxes.
  - **Indirect taxes** are levied on goods and services. These include excise duties on fuel, alcohol, and tobacco and value-added taxes (VATs). Indirect taxes can be used to reduce consumption of some goods and services. Much more quickly to practice than direct taxes.
- **Desirable attributes of tax policy**
  - **Simplicity** to use and enforce
  - **Efficiency**, having the least interference with market forces and not acting as a deterrent to working.
  - **Fairness** is quite subjective, but two commonly held beliefs are
    - ✓ **Horizontal equality:** people in similar situations should pay similar taxes.
    - ✓ **Vertical equality:** richer people should pay more in taxes.
  - **Sufficiency**, in that taxes should generate sufficient revenues to meet the spending needs of the government.

Fiscal Policy Tools

- **Advantages**
  - **Indirect taxes** can be adjusted almost **immediately** after they are announced and can influence spending behavior **instantly** and generate revenue for the government at **little or no cost** to the government.
    - ✓ Social policies, such as discouraging alcohol or tobacco use, can be adjusted almost **instantly** by raising such taxes.
- **Disadvantages:**
  - **Direct taxes** are more **difficult to change** without considerable notice, often **many months**, because payroll computer systems will have to be adjusted. The same may be said for welfare and other social transfers.
    - ✓ Direct taxes take time to implement, **delaying** the impact of fiscal policy
  - **Capital spending plans take longer to formulate and implement**, typically over a period of years.
    - ✓ For example, building a road or hospital requires detailed planning, legal permissions, and implementation. On the other hand, such policies add to the productive potential of an economy, unlike a change in personal or indirect taxes.

Fiscal Policy Tools

- **Expansionary fiscal policy**
  - Cuts tax
    - ✓ Cuts in personal income tax, raises disposable income, boosts aggregate demand.
    - ✓ Cuts in sales (indirect) taxes to lower prices, raises real incomes, raises consumer demand.
    - ✓ Cuts in corporation taxes to boost business profits, which may raise capital spending.
    - ✓ Cuts in tax rates on personal savings to raise disposable income, raises consumer demand.
  - New public spending on social goods and infrastructure, boosting personal incomes.
- **Budget surplus/deficit**
  - Indicators of whether the fiscal policy is getting tighter or looser.
    - ✓ Increase in a budget deficit would be associated with expansionary fiscal policy.
    - ✓ Economists often look at the **structural (or cyclically adjusted) budget deficit** as an indicator of the fiscal stance. This is defined as the deficit that would exist if the economy was at **full employment** (or full potential output).
- **Pay-as-you-go**
  - you pay for a service before you use it and you cannot use more than you have paid for.
  - **Neutral fiscal policy**

Example

Fiscal Policy Tools

- A contractionary fiscal policy will always involve which of the following?

  A. Balanced budget

  B. Reduction in government spending

  C. Fall in the budget deficit or rise in the surplus

Solution: C

Note that a reduction in government spending could be accompanied by an even bigger fall in taxation, making it be expansionary.

Example

Fiscal Policy Tools

- Which statement regarding fiscal policy is most accurate?
  A. Cyclically adjusted budget deficits are appropriate indicators of fiscal policy.
  B. To raise business capital spending, personal income taxes should be reduced.
  C. An increase in the budget surplus is associated with expansionary fiscal policy.

Solution: A

Cyclically adjusted budget deficits are appropriate indicators of fiscal policy. These are defined as the deficit that would exist if the economy was at full employment (or full potential output).

Fiscal Multiplier

- **Fiscal multiplier**

$$\text{Fiscal multiplier} = \frac{1}{1 - \text{MPC}(1-t)} = \frac{1}{1 - c \times (1-t)}$$

  - **MPC:** Marginal propensity of consumption (b)
  - The fiscal multiplier is **inversely** related to the tax rate and **directly** related to the marginal propensity to consume.
    - ✓ **Example:** Consider an increase in government spending of $100, when the MPC is 80%, and the tax rate is 25%. The fiscal multiplier is 1/[1 - 0.8 (1-0.25)] = 2.5
      - The increase of $100 in government spending increase aggregate demand by $250.
- **The Balanced Budget Multiplier**
  - If a government increases G by the same amount as it raises taxes, the aggregate output actually rises.

Example

Fiscal Policy Tools

- If a government increases its spending on domestically produced goods by an amount that is financed by an equivalent increase in taxes, the aggregate demand will most likely:
  A. decrease.
  B. remain unchanged.
  C. increase.

Solution: C

Limitations of Fiscal Policy

- Crowding-out Effect
- Ricardian Equivalence

Limitation of Fiscal Policy

- **Additional macroeconomic issues may hinder usefulness of fiscal policy:**
  - Misreading economic statistics: The full employment level for an economy is **not precisely measurable**. If the government relies on expansionary fiscal policy mistakenly at a time when the economy is already at full capacity, it will simply drive inflation higher.
  - **Crowding-out effect:** Expansionary fiscal policy may crowd out private investment, reducing the impact on aggregate demand.
  - Supply shortages: If economic activity is slow due to resource constraints (low availability of labor or other resources) and not due to low demand, expansionary fiscal policy will fail to achieve its objective and will probably lead to higher inflation.
  - Limits to deficits: There is a limit to expansionary fiscal policy. If the markets perceive that the deficit is already too high as a proportion of GDP, funding the deficit will be problematic. This could lead to higher interest rates and actually make the situation worse.
  - Multiple targets: If the economy has high unemployment coupled with high inflation, fiscal policy cannot address both problems simultaneously.

Limitation of Fiscal Policy

- **Additional macroeconomic issues may hinder usefulness of fiscal policy:**
  - **Macroeconomic forecasting models** generally do not have a good track record for accuracy and hence cannot be relied on to aid the policy-making process in this context.
    - ✓ Different models embrace differing views on how the economy works, including differing views on the impact of fiscal stimuli.
  - In addition, when discretionary fiscal adjustments are announced (or are already underway), private sector behavior may well change, leading to rises in consumption or investment, both of which will reinforce the effects of a rise in government expenditure. Again, this will make it difficult to calibrate the required fiscal adjustment to secure full employment and use fiscal policy as a stabilization tool.

Ricardian Equivalence

- **Ricardian Equivalence: Increases in the current deficit mean greater taxes in the future.**
  - To maintain their preferred pattern of consumption over time, taxpayers may increase current savings (reduce current consumption) in order to offset the expected cost of higher future taxes.
  - If taxpayers reduce current consumption and increase current saving by just enough to repay the principal and interest on the debt the government issued to fund the increased deficit, there is no effect on aggregate demand.
  - Then, expansionary fiscal policy has no effective results by fiscal multiplicative effect.
- However, if taxpayers **underestimate** their future liability for servicing and repaying the debt, so that aggregate demand is increased by equal spending and tax increases, Ricardian equivalence **does not** hold.

Summary

Fiscal Policy

Spending Tools
Revenue Tools
Fiscal Multiplier
Crowding-out Effect
Ricardian Equivalence

Module

Monetary Policy

1. Central Banks
2. Monetary Policy Tools and Monetary Transmission
3. Limitation of Monetary Policy
4. Interaction of Monetary and Fiscal Policy

Central Bank

- Role and Objectives of Central Bank
- Targets Used by Central Banks

Role and Objectives of Central Bank

- **Role of central bank**
  - **Sole supplier of domestic currency.**
  - Banker to the government and other banks.
  - **Lender of last resort**
  - Supervise banks
    - ✓ Not sole supervisor. In UK, supervision responsibility was assigned to Financial Services Authority (FSA) in 1997 – 2013.
  - Holder of gold and foreign exchange reserves
  - Regulator and supervisor of the payments system
  - Conductor of monetary policy
- **Objectives of a central bank**
  - Control inflation so as to promote ***price stability (Overarching objective)***
  - Stability in exchange rates with foreign currencies
  - Moderate long-term interest rates
  - Full employment
  - Sustainable positive economic growth

Example

Role and Objectives of Central Bank

- A central bank most likely:

  A. will not lend money to banks facing shortages.

  B. is a monopoly supplier of a country's currency.

  C. does not manage a country's foreign currency reserves.

Solution: B

Generally, a central bank is the monopoly supplier of the currency.

A is incorrect because "[m]ost central banks act … as a lender of last resort to banks. Because the central bank effectively has the capacity to print money, it is in the position to be able to supply the funds to banks that are facing a damaging shortage."

C is incorrect because "[m]ost central banks will also be responsible for managing their country's foreign currency reserves."

Targets Used by Central Banks

- Central banks have used various economic variables and indicators over the years to make monetary policy decisions.
  - **1. Interest rate targeting**
    - ✓ Interest rate > target, increasing the money supply
    - ✓ Interest rate < target, decreasing the money supply
  - **2.** Currently, **inflation targeting** is the **most widely used** tool for making monetary policy decisions.
    - ✓ The most common and overarching inflation rate target is 2%, with a permitted deviation of (+/-)1% so the target band is 1% to 3%.
  - **3. Exchange rate targeting**.
    - ✓ Many emerging market economies choose to operate monetary policy by targeting their currency's exchange rate, rather than an explicit level of domestic inflation.

Different Targets Used by Central Banks

- **Exchange rate targeting.**
  - ✓ How a successful exchange rate policy **imports the inflation** of the foreign economy
    - ☐ Assume that the domestic inflation rates are very similar in both countries and that the monetary authorities of the developing economy have set an exchange rate target that is consistent with relative price levels in the two economies. As long as domestic inflation closely mirrors US inflation, the exchange rate should remain close to its target.
  - ✓ Now suppose domestic inflation in the developing economy rises above the level in the United States.
    - ☐ With a freely floating exchange rate regime, the currency of the developing economy would start to fall against the dollar.
    - ☐ To protect the exchange rate target, the developing economy's monetary authority **sells foreign currency reserves** and **buys its own currency**. This has the effect of **reducing** the domestic money supply and **increasing short-term interest rates**.
  - ✓ When the central bank or monetary authority chooses to target an exchange rate, interest rates and conditions in the domestic economy must **adapt to accommodate this target.**
    - ☐ If the target comes under pressure, domestic interest rates may **have to rise, regardless of domestic conditions.**

Monetary Policy Tools and Monetary Transmission

- ☐ Policy Rate
- ☐ Open Market Operations
- ☐ Reserve Requirements
- ☐ Monetary Transmission Mechanism

Tools of the Central Bank

- **1. Policy rate**
  - Suppose that a central bank announces an increase in its official interest rate, commercial banks normally would increase their base rates at the **same time**.
    - ✓ A lower rate reduces banks' cost of funds encourage lending and tends to decrease interest rates.
    - ✓ A higher policy rate increases banks' cost of funds discourage lending and tends to increase interest rates.
  - **Policy rate ↓ → Low financing cost , release liquidity（expansionary monetary policy）**
  - **Policy rate ↑ → High financing costs, tightening liquidity（tighten monetary policy**

Neutral Interest Rate

- The **neutral interest rate** of an economy is the growth rate of the money supply that neither increases nor decreases the economic growth rate.
  - **Neutral interest rate = real trend rate of economic growth + long run inflation target**
    - ✓ Real trend rate/trend rate: an economy's long-term sustainable real growth rate.
  - Policy rate> Neutral rate: **contractionary**
  - Policy rate< Neutral rate: **expansionary**
  - Policy rate= Neutral rate: **stable long-run inflation**

Example

Neutral Interest Rate

- If there is a policy rate of 3%, a real trend rate of growth in the underlying economy of 1%, and long-run expected inflation of 3%, then the central bank policy stance operating within a credible inflation-targeting regime is best described as:

  A. neutral.

  B. contractionary.

  C. expansionary.

Solution: C

A real trend rate of growth of 1%, coupled with 3% long-run expected inflation, suggests a 4% neutral rate of interest that neither spurs on nor slows down the underlying economy. The 3% policy rate is less than the 4% neutral rate of interest. When the policy rate is below the neutral rate, monetary policy is described as expansionary.

Tools of the Central Bank

- **2. Reserve requirements**
  - Reserve requirement ↑ → available funds for lending ↓ → money supply ↓ → interest rate ↑ .
  - This tool only works well to increase the money supply if banks are willing to lend and customers are willing to borrow.

    required reserve ratio ↑ → tighten monetary policy

    required reserve ratio ↓ → expansionary monetary policy
- **3. Open market operations**
  - Central bank buy securities – funds available funds for lending ↑ - money supply ↑ - interest rate ↓.
  - This tool is **the Fed's most commonly used tool** and is important in achieving the federal funds target rate (policy rate). Also **widely used** worldwide.

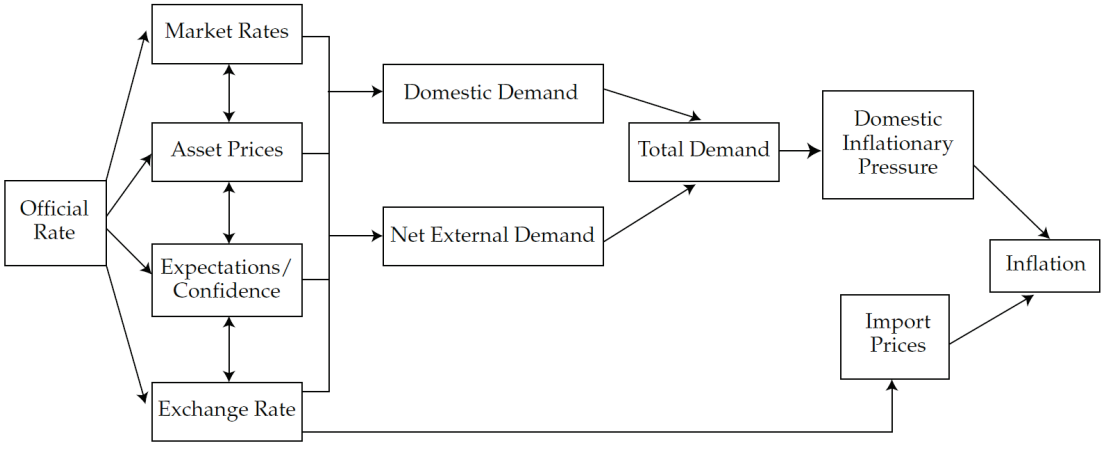
    central bank buy bonds → expansionary monetary policy

    central bank sell bonds → tighten monetary policy

Monetary Transmission Mechanism

- The central bank target policy rate is used to influence short- and long-term interest rates and, ultimately, real economic activity. The **monetary transmission mechanism** refers to how the execution of monetary policy affects the overall economy.
  - Work through following **4 interrelated channels:**
    - ✓ 1: Short-term interest rates
      - policy rate↓→short-term interest rate↓ → businesses and consumers borrow↑→ Higher demand
    - ✓ 2: Changes in the values of key asset prices
      - Decrease in interest rates → lower discount rate → increase in bond, equity and asset prices → Wealth effect : increase in assets value → decrease savings → increase expenditures → Higher demand
    - ✓ 3. Expectation/Economic growth confidence
      - Expectation for future economic growth increase → increase expenditures → Higher demand
    - ✓ 4: The exchange rate
      - Decrease in interest rates → depreciation of domestic currency → increase demand for the export goods

Monetary Transmission Mechanism



Example

Monetary Transmission Mechanism

- When a central bank announces a decrease in its official policy rate, the desired impact is an increase in:
  A. investment.
  B. interbank borrowing rates.
  C. the national currency's value in exchange for other currencies.

Solution: A

Investment is expected to move inversely with the official policy rate.

Example

Tools of the Central Bank

- Which action is a central bank least likely to take if it wants to encourage businesses and households to borrow for investment and consumption purposes?
  A. Sell long-dated government securities
  B. Purchase long-dated government treasuries
  C. Purchase mortgage bonds or other securities

Solution: A

Such action would tend to constrict the money supply and increase interest rates, all else being equal.

Limitations of Monetary Policy

- Limitations of Monetary Policy

Limitation of Monetary Policy

- **1.** A central bank would decrease an official interest rate to stimulate the economy. With **short-term rates near zero**, economic growth still poor, central bank **cannot cut interest rate further**.
- **2.** The **transmission mechanism** for monetary policy does **not always produce the intended results.**
  - **Long-term rates may not rise and fall with short-term rates** because of the effect of monetary policy changes on **expected inflation**.
    - ✓ **Increasing the money supply:** short-term rates fall to stimulate economic activity, also lead to an **increase** in expected inflation rates and long-term bond yields.
    - ✓ Bond market participants that act in this way have been called **bond market vigilantes.**

Limitation of Monetary Policy

- **Liquidity trap:** Even if the central bank implements expansionary monetary policies by expanding the money supply, it is difficult to stimulate investment and consumption in the economy, thus making it difficult to drive economic growth.
  - **1) Increasing** growth of the money supply **will not decrease short-term** rates under these conditions. Because:
    - **(1) individuals and economic agents hold the money in cash** balances instead of investing in interest-bearing securities.
    - **(2)** even with increasing excess reserves, **banks may not be willing to lend**.
  - ✓ **In summary**, central banks **cannot control** the amount of money that households and corporations put in banks on deposit, nor can they easily control the willingness of banks to create money by expanding credit.

Limitation of Monetary Policy

- **2) Deflation**
  - If people anticipate a poor economic outlook in the future or expect prices to fall (**deflationary expectations**), they may postpone consumption and investment, opting instead to hold onto cash or other non-risk assets. In such a scenario, even if there is an increased supply of liquidity, it will not result in more spending and investment.
    - ✓ **Deflation** is **more difficult** for central banks to reverse.
      - Deflation raise the real value of debt.
      - Persistent fall in prices can encourage consumers to put off consumption today, leading to a fall in demand that leads to further deflationary pressure.
      - Interest rates cannot fall significantly below zero.
  - Central banks began a policy termed **quantitative easing**.
    - ✓ Central banks' buying the treasury is actually "printing the money".

Example

Limitation of Monetary Policy

- Which of the following is most likely to limit the effectiveness of monetary policy?
  A. A liquidity trap
  B. The crowding out effect
  C. A time lag to implement government spending

Solution: A

B is Incorrect because crowding out is the reduction in private sector investment due to increased government borrowing and describes a difficulty in implementing fiscal, not monetary, policy.

C is Incorrect because this is the action lag and describes a difficulty in implementing fiscal policy.

Example

Limitation of Monetary Policy

- 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.

Solution: A

The inability to determine exactly the neutral rate of interest does not necessarily limit the power of monetary policy.

Interaction of Monetary and Fiscal Policy

- Tight Monetary Policy / Easy Fiscal Policy
- Easy Monetary Policy / Tight Fiscal Policy

Interaction of Monetary and Fiscal Policy

Monetary policy	Fiscal policy	Interest rate	Private spending	Public spending	Output
Tight	Tight	higher	lower	lower	lower
Easy	Easy	lower	higher	higher	higher
Tight	Easy	higher	lower	higher	higher
Easy	**Tight**	lower	higher	lower	**varies**

- Tight monetary policy/easy fiscal policy: if taxes are cut or government spending rises, the expansionary fiscal policy will lead to a rise in aggregate output. If this is accompanied by a reduction in money supply to offset the fiscal expansion, then interest rates will rise and have a negative effect on private sector demand. We have higher output and higher interest rates, and government spending will be a larger proportion of overall national income.
- Easy monetary policy/tight fiscal policy: if a fiscal contraction is accompanied by expansionary monetary policy and low interest rates, then the **private sector** will be stimulated and will rise as a share of GDP, while the **public sector** will shrink.

Summary

Module: Monetary and Fiscal Policy

Role and Objectives of Central Bank
Targets Used by Central Banks
Monetary Policy Tools
Monetary Transmission Mechanism
Limitations of Monetary Policy
Interaction of Monetary and Fiscal Policy

Module

Introduction to Geopolitics

1. National Government and Political Cooperation
2. Forces of Globalization
3. International Trade Organizations
4. Assessing Geopolitical Actors and Risk
5. The Tools of Geopolitics
6. Incorporating Geopolitical Risk into the Investment Process

National government and political cooperation

- Features of Political Cooperation
- Motivations for Cooperation
- Factors affecting cooperation

Features of Political Cooperation

- **Political Cooperation**
  - Relations between countries can be **cooperative** or **competitive** in nature.
    - ✓ **Cooperation** is the process by which countries work together toward **some shared goal or purpose,** varying from strategic or military concerns to economic influence or cultural preferences.
  - **Cooperative country** is one who **engages and reciprocates in rules standardization**, harmonization of tariffs, international agreements on trade, immigration, or regulation, allows for the free flow of information, including technology transfer.
  - **Non-cooperative country** is one **with inconsistent and even arbitrary rules**, restricted movement of goods, services, people, and capital across borders, retaliation, limited technology exchange.

Inconsistent Rules	Rules Standardization
Arbitrary Rule	Harmonization of Tariffs
Restricted Movement Across Borders	Free Movement Across Borders
Restricted Trade; Capital Controls	Permitted Movement of Goods, Services, and Capital
Retaliation	Reciprocation
Lack of Technology Exchange	Technology Exchange

Non-Cooperation ⟷ Cooperation

Motivations for Cooperation

- Defined by a country's national interest-its goals and ambitions—whether they be **military, economic, or cultural**.
  - **1. National Security or Military Interest**
    - ✓ Protect the country from external threat from military attacks, terrorism, crime, cyber-security, and even natural disasters.
    - ✓ Geographic factors play an important role.
      - Landlocked countries rely extensively on their neighbors for access to vital resources. This reliance may make cooperation more important for sustaining international access and growth, or even for survival.
      - Countries highly connected to trade routes or countries acting as a conduit for trade may use their geographic location as a lever of power in broader international dynamics.（**non-cooperative**）

Motivations for Cooperation

- **2. Economic Interest**
  - ✓ Over time, the concept of national security has expanded to include economic factors, including access to such resources as energy, food, or water.
    - **On a domestic level**, growing national wealth and limiting income inequality can contribute to social **stability**.
    - **On the international level**, the **ability** of national firms to operate on a global scale is increasingly important as well.
  - ✓ Countries that choose to cooperate in support of their economic interest are likely focused on one of **two factors**:
    - Either they would like to secure essential resources through trade.
    - They would like to have a fair global competitive environment for their companies or industries through standardization.

Motivations for Cooperation

- **3. Cultural Considerations and "Soft Power"**
  - ✓ Countries may have cultural reasons for cooperating with others.
    - These could be historical in nature, such as long-standing political ties, immigration patterns, shared experiences, or cultural similarities.
  - ✓ Countries may engage in soft power, a means of influencing another country's decisions without force or coercion.
    - Soft power can be built over time through such actions as cultural programs, advertisement, travel grants, and university exchange.
    - Example of **non-cooperative behavior**, a less extreme means to influence another country's decision without force.

Factors affecting cooperation

- **1. Resource Endowment**
  - Geophysical resource endowment is **highly unequal** among countries.
  - The different geophysical resource endowment creates **power dynamics** that can impact the terms of engagement between states.
    - ✓ A country heavily endowed with a resource→more political leverage when dealing with another country in desperate need of that resource.
    - ✓ A resource-rich country may become **vulnerable** if the use or sale of the resource benefits certain groups more than others, therefore contributing to internal political instability.

Factors affecting cooperation

- **2. The Role of Institutions**
  - An **institution** is an established organization or practice in a society or culture.
    - ✓ Generally, **strong** institutions contribute to **more stable** internal and external political forces, and **longer maturity** of cooperative relationship.
    - ✓ Countries with strong institutions, including organizations and structures promoting government accountability, rule of law, and property rights, allow them to act with more authority.
- **3. Hierarchy of Interests**
  - A country's national interest is thought as a hierarchy of factors, with those essential for survival at the **top** of the hierarchy and nice-but-not-essential elements **lower** in the hierarchy.
    - ✓ Governments use the **hierarchy of interests** to guide their behavior.
      - They will choose to cooperate where it benefits the nation-state, but when two needs result in conflicting cooperation tactics, those higher on the hierarchy are prioritized.
      - In summary, **interest prioritization** determine **the depth and nature** of political cooperation.

Factors affecting cooperation

- **4. Power of the Decision Maker**
  - As basic societal needs are met, the hierarchy of national interests can become more **subjective**.
    - ✓ One government may treat the prioritization of some interests **very differently from its predecessor**.
  - The length of a country's **political cycle** has an important impact on priority designation.
    - ✓ Many countries have political cycles of just a few years, which means that **long**-term risks like climate change or addressing income inequality can be difficult to prioritize against projects or goals that can be achieved in a **short**-term horizon.
  - For the purpose of geopolitical risk analysis, **decision makers' motivations** can impact a country's cooperative and non-cooperative choices.
    - ✓ This introduces a factor of psychology and non-predictability into choices along the hierarchy of a nation's needs that can shape geopolitical relationships.

Example

Political Cooperation

- Which of the following statements regarding a country's political cooperation is most accurate?

A. If a country is engaged in military conflict, there is a higher cost to cooperation.

B. A country with few internal resources is not likely to rely on political cooperation.

C. Interest prioritization does not determine the depth and nature of political cooperation.

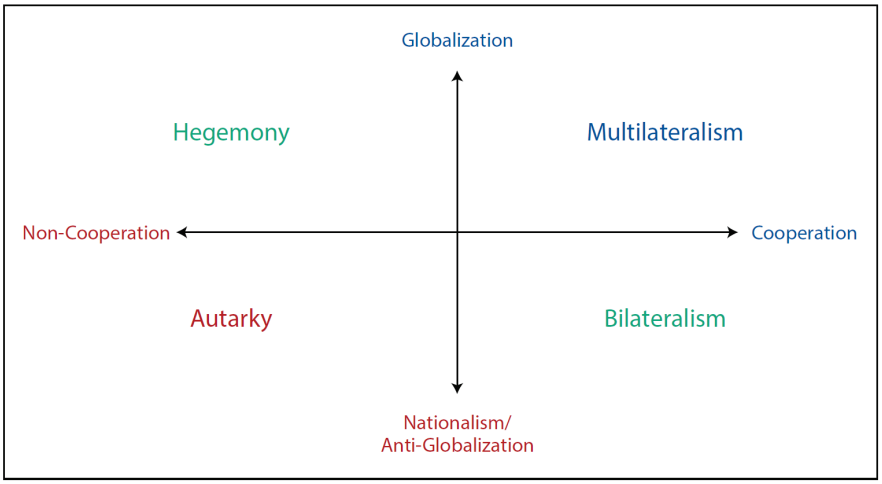
Solution: A

A is correct. If a country is engaged in military conflict, there is a higher cost to cooperation. B is incorrect because a country with few internal resources is likely to rely on political cooperation. C is incorrect because interest prioritization does determine the depth and nature of political cooperation.

- Autarky
- Hegemony
- Multilateralism
- Bilateralism

Archetypes of Globalization and Cooperation

- **Archetypes of Globalization and Cooperation**



Archetypes of Globalization and Cooperation

- **Four archetypes of country behavior:**
  - **Autarky** countries seeking **political self-sufficiency** with little or no external trade or finance.
    - ✓ State-owned enterprises control strategic domestic industries.
    - ✓ Stronger politically, including the ability to exercise complete control over the supply of technology, goods, and services, as well as media and political messaging.
    - ✓ In some cases, periods of autarky can provide a country with swifter economic and political development.
  - **Hegemony** countries tend to be regional or even global leaders and use their political or economic influence of others to control resources.
    - ✓ For itself, economic and political dominance may provide important influence on global affairs.
    - ✓ For the global system, countries aligning with the hegemon's rules and standards may enjoy the rewards provided by the leader.

Archetypes of Globalization and Cooperation

- **Four archetypes of country behavior:**
  - **Multilateralism:** countries that participate **in mutually beneficial trade relationships** and **extensive rules harmonization**.
  - **Bilateralism:** the conduct of political, economic, financial, or cultural cooperation **between two countries**.
    - ✓ One-at-a-time agreements without multiple partners.
    - ✓ It is noteworthy that relatively few countries perfectly fit the bilateral mold.
    - ✓ Typically, countries exist on a spectrum between bilateralism and multilateralism.
      - This is **regionalism**, in which a group of countries cooperate with one another.
  - For geopolitical risk analysis, it matters not only **which quadrant** a country falls in today but also **its stability within that quadrant**.
    - ✓ A hegemon who is working to build more political cooperation **may be less of a threat** to investment results than a multilateral actor trying to break them.

Example

Archetypes of Globalization and Cooperation

- A country seeking nationalism but willing to cooperate with other countries is best classified as:

  A. autarkic.

  B. bilateral.

  C. hegemonic.

Solution: B

Because bilateralism describes a country seeking both nationalism and cooperation. "Bilateralism is the conduct of political, economic, financial, or cultural cooperation between two countries."

Incorporating Geopolitical Risk into the Investment Process

- Types of Geopolitical Risk
- Geopolitical Risk Index

Types of Geopolitical Risk

- **Three basic types of geopolitical risk**
  - **1. Event risk** evolves around set dates known in advance.
    - ✓ Elections, new legislation, holidays or political anniversaries.
      - ☐ Often result in changes to investor expectations related to a country's cooperative stance.
        - Example: Brexit. The United Kingdom's vote to end its European Union membership came as a surprise to many investors. Several asset classes were immediately affected, including equities, the national currency, and government bonds. Investors became concerned about what a rollback in political cooperation might mean for long-term economic growth.
    - ✓ It is useful to note that the predictability of an event **does not necessarily** change its likelihood, its speed of impact, or the size of impact on investors; however, it does give investors **more time to prepare a response**.

Types of Geopolitical Risk

- **Three basic types of geopolitical risk**
  - **2. Exogenous risk**: a sudden or unanticipated risk.
    - ✓ Examples: sudden uprisings, invasions, or the aftermath of natural disasters.
    - ✓ On 11 March 2011, Japan was struck with an earthquake. The natural disaster also caused a significant nuclear accident that resulted in environmental damage and also disrupted supply chains. The initial market response reflected market concern: Equities fell, the currency depreciated, and bond prices rose.
  - **3. Thematic risk**: known risks that evolve and expand over a period of time.
    - ✓ Examples: Climate change, pattern migration, rise of populist forces, ongoing threat of terrorism and cyber risks.
      - ☐ Cyber risks include any attempt to expose, alter, disable, destroy, steal, or gain information through **unauthorized access to** or **unauthorized use of computer systems**. These threats began with the expansion of internet and computer use and have increased in number and scale.

Geopolitical Risk Index (GPR)

- **Geopolitical Risk Index (GPR)**
  - The purpose of the index is to **measure real-time geopolitical risk** as perceived by the press, the public, global investors, and policymakers in a way that is consistent over time
  - Through the construction of the GPR, it found **three important observations**:
    - ✓ High levels of geopolitical risk reduce US investment, employment, and price level of the stock market.
    - ✓ Individual firm's investment falls more in industries positively exposed to geopolitical risk and that firms reduce investment in the wake of **idiosyncratic geopolitical risk events**.
    - ✓ The adverse effect of geopolitical events themselves as well as the threat of adverse events, finding that the threat of events had a **larger** impact over time.

Example

Geopolitical Risk Index (GPR)

- An applicable conclusion drawn from the Geopolitical Risk Index (GPR) is that:
  A. high geopolitical risk results in tangible macroeconomic effects.
  B. recurring geopolitical risk events lead to reduced corporate investment.
  C. the adverse impact of actual events is greater over time than that of the threat of such events.

Solution: A

A is correct. The GPR index creators found that high levels of geopolitical risk reduce US investment, employment, and price level of the stock market. B is incorrect because firms reduce investment in the wake of idiosyncratic events, which would be unlikely to repeat. C is incorrect because the threat of an event was shown to have a larger impact over time than that of the actual events themselves.

Summary

Module: Introduction to Geopolitics

Features of Political Cooperation
Motivations for Cooperation
Factors affecting cooperation
Autarky
Hegemony
Multilateralism
Bilateralism
Types of Geopolitical Risk
Types of Geopolitical Risk
Assessing Geopolitical Threats
Analysis Approach for Geopolitical risks
Geopolitical Risk Index

Module

International Trade

1. Benefit and Cost of Trade
2. Trade Restrictions
3. Trading Blocs and Regional Integration

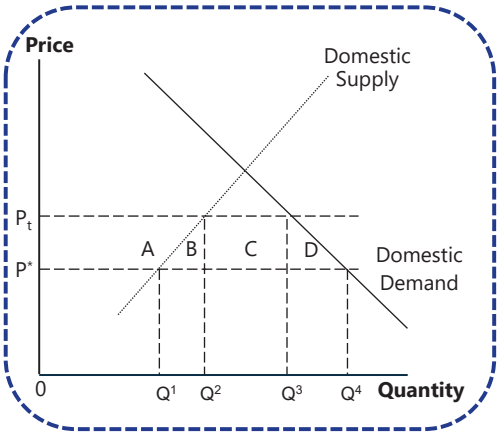
Trade Restrictions

- Tariffs
- Quotas
- Export Subsidies

Types of Trade Restrictions

- **Types of trade restrictions include**
  - **Tariffs:** taxes on imported good collected by the government.
  - **Quotas:** limits on the amount of imports allowed over some period.
    - ✓ **If the import licenses are sold**, the domestic government gains the revenue.
    - ✓ **If the import licenses are free of charge**, the revenue (quota rent) is captured by foreign producer.
  - **Export subsidies:** government payments to firms that exports goods.
    - ✓ Export subsidies benefit producers (exporters) of the good but increase prices and reduce consumer surplus in the exporting country.
  - **Minimum domestic content:** requirement that some percentage of product content must be from the domestic country.
  - **Voluntary export restraint:** a country voluntarily restricts the amount of a good that can be exported, often in the hope of avoiding tariffs or quotas imposed by their trading partner.

Welfare Effects of an Import Tariff or Quota



	Importing Country
Consumer surplus	-(A+B+C+D)
Producer surplus	+A
Tariff revenue or Quota rents	+C
National welfare	-B-D

Effects of Trade Restrictions

	Tariff	Import Quota	Export Subsidy	VER
Impact on	Importing county	Importing country	Exporting country	Importing country
Producer surplus	Increases	Increases	Increases	Increases
Consumer surplus	Decreases	Decreases	Decreases	Decreases
Government revenue	Increases	The import licenses are sold, the domestic government gains the revenue. The import licenses are free of charge, the revenue is captured by foreign producer.	Falls (government spending rises)	No change (rent to foreigners)
National welfare	Decreases in small country	Decreases in small country	Decreases	Decreases
	Could increase in large country (importer)	**Could increase in large country**		

- A **small country** is one that is a price taker in the world market for a product and cannot influence the world market price. When a **large country** imposes a tariff, the exporter reduces the price of the good to retain some of the market share it could lose if it did not lower its prices.

Trading Blocs and Regional Integration

- Types Of Trading Blocs

Types Of Trading Blocs

- **Free trade areas**
  - All barriers to import and export of goods and services among member countries are removed.
    - ✓ The North American Free Trade Agreement (NAFTA) among the United States, Canada, and Mexico.
- **Customs union**
  - All barriers to import and export of goods and services among member countries are removed.
  - All countries **adopt a common** set of trade restrictions with non-members.
    - ✓ In 1947, Belgium, the Netherlands, and Luxemburg ("Benelux") formed a customs union.
- **Common market**
  - All barriers to import and export of goods and services among member countries are removed.
  - All countries adopt a common set of trade restrictions with non-members.
  - All barriers to the **movement of labor and capital goods** among member countries are removed.
    - ✓ The Southern Cone Common Market (MERCOSUR) of Argentina, Brazil, Paraguay, and Uruguay is an example of a common market.

Types Of Trading Blocs

- **Economic union**
  - All barriers to import and export of goods and services among member countries are removed.
  - All countries adopt a common set of trade restrictions with non-members.
  - All barriers to the movement of labor and capital goods among member countries are removed.
  - Member countries establish common institutions and economic policy for the union.
- **Monetary union**
  - All barriers to import and export of goods and services among member countries are removed.
  - All countries adopt a common set of trade restrictions with non-members.
  - All barriers to the movement of labor and capital goods among member countries are removed.
  - Member countries establish common institutions and economic policy for the union.
  - Member countries adopt a single currency.

Example

Types Of Trading Blocs

- With respect to trading blocs, a common market most likely incorporates all aspects of a(n):

  A. customs union.

  B. monetary union.

  C. economic union.

Solution: A

A is Correct because the common market is the next level of economic integration that incorporates all aspects of the customs union and extends it by allowing free movement of factors of production among members.

Summary

Module: International Trade

Tariffs
Quotas
Export Subsidies
Types Of Trading Blocs

Module

Capital Flows and the FX market

1. Basic Concept and Calculation
2. Exchange Rate Regimes

Basic Concept and Calculation

- Foreign Exchange Market
- Foreign Exchange Quotations
- Nominal and Real Exchange Rate
- Spot Rates and Forward Rates
- Percentage Change in Foreign Exchange Rate

Foreign Exchange Market

- **The foreign exchange market is the largest market in the world.**
  - 10 to 15 times larger than daily turnover in global fixed-income markets and about 50 times larger than global turnover in equities
  - The FX market is a truly global market that operates 24 hours a day, each business day.
- **Basic conventions**
  - Individual currencies often are referred to by standardized three-letter codes that the market has agreed upon through the International Organization for Standardization (ISO).
    - ✓ Australian dollar – AUD
    - ✓ Canadian dollar – CAD
    - ✓ Chinese yuan – CNY
    - ✓ Euro – EUR
    - ✓ British pound sterling – GBP
    - ✓ US dollar - USD

Foreign Exchange Quotations

- **Quotation**
  - Using the convention of "A/B," referring to the number of units of currency A that one unit of currency B will buy.
    - ✓ For example, USD/EUR = 1.1700 means that 1 euro will buy 1.1700 US dollars
    - ✓ **Base currency**: the currency in which the quote represents one unit.
    - ✓ **Price currency**: the currency for which the quote represents a number of units.
    - ✓ **Decline** in this exchange rate indicates that the **US dollar** is **appreciating** against the euro or, equivalently, the **euro** is **depreciating** against the US dollar.
  - **Direct quote** is the value of one unit of a foreign currency in units of the home currency. (D/F)
  - **Indirect quote** is the amount of a foreign currency for one unit of the home currency. (F/D)
  - To convert an indirect quote to a direct quote, you simply take the reciprocal of the one that you are given (use the 1/x calculator key).
    - ✓ USD/AUD=0.6, 1AUD=0.6USD
    - ✓ AUD/USD=1/0.6=1.67, 1USD=1.67AUD

Foreign Exchange Quotations

- **Quote convention**
  - In general, however, there is a **hierarchy** for quoting conventions.
    - ✓ For quotes involving the **EUR**, it serves as the base currency (e.g., GBP/EUR).
    - ✓ Next in the priority sequence, for quotes involving the **GBP** (but not the EUR) it serves as the base currency (e.g., USD/GBP).
    - ✓ Finally, for quotes involving the **USD** (but not the GBP or EUR) it serves as the base currency (e.g., CAD/USD).
    - ✓ Exceptions among the major currencies are the **AUD** and **NZD**: they serve as the base currency when quoted against the USD (i.e., USD/AUD, USD/NZD).

Nominal and Real Exchange Rate

- **Nominal exchange rate:** the price that we observe in the marketplace for foreign exchange.
  - **Widely quoted**
- **Real exchange rate:** measures the relative purchasing power of currency.
  - FX real $_{(d/f)}$ = FX nominal $_{(d/f)} \times P_f/P_d$
    - ✓ Foreign price level in domestic currency = $S_{d/f} \times P_f$
  - $\Delta\%Real_{d/f} \approx \Delta\%Nominal_{d/f} + \Delta\%P_f - \Delta\%P_d$
  - When the real exchange rate (d/f) **increases,** it implies a **reduction** in the relative purchasing power of the domestic currency.
    - ✓ Exports of goods and services have gotten relatively less expensive to foreigners, and imports of goods and services from the foreign country have gotten relatively more expensive over time.

Example

Nominal and Real Exchange Rate

- Assume that the nominal spot exchange rate (USD/EUR) increases by 7.5%, the eurozone price level decreases by 4%, and the US price level increases by 2.5%. The change in the real exchange rate (%) is closest to:

  A. 0.7%.

  B. –6.3%.

  C. 14.8%.

Solution: A

Real exchange rate = Nominal spot exchange rate × (CPI of the foreign country/CPI of the domestic country)

Change in the real exchange rate = [(1 + Change in exchange rate) × (1 + Change in price level in foreign country)]/ (1 + Change in price level in domestic country) – 1

= [(1 + 7.5%) × (1 – 4%)]/ (1 + 2.5%) – 1 = 0.7%

Spot Rates and Forward Rates

- **Spot rates** are exchange rates for **immediate delivery** of the currency.
  - **Spot markets** refer to transactions that call for immediate delivery of the currency.
  - In practice, the settlement period is two business days after the trade date. **(T+2)**
- **Forward rates** are exchange rates for currency transactions that will occur in the future.
  - Forward markets are for an exchange of currencies that will occur in the futures. Both parties to the transaction agree to exchange one currency for another at a specific future date.
- In addition to spot transactions, the **FX market** includes forward transactions and FX swaps. These instruments are used for hedging purposes and to raise foreign currency at more favorable rates, and their trading constitutes the **largest daily volume** of the FX market.

Percentage Change in Foreign Exchange Rate

- Consider a X/Y exchange rate that has changed from 2 to 3.
  - 1Y=2X, 1Y=3X
  - The percentage change in the X price of a Y is simply:
    - ✓ (3-2)/2=50%
  - The Y has appreciated 50% with respect to the X.
- To calculate the percentage appreciation of the X, we need to convert the quotes to Y/X.
  - 1X=1/2Y, 1X=1/3Y
  - The change in the Y price of a X as:
    - ✓ (1/3-1/2)/(1/2)=-33.3%
  - The X has depreciated 33.3% with respect to the Y.
- The percentage of appreciation of one currency is **higher** than that of depreciation of another currency relatively.
  - The appreciation range is 50% and the depreciation range is 33.33%, the ratio of the two is 1.5.

Exchange Rates Regimes

- Exchange Rate Regimes

Exchange Rate Regimes

- **Arrangements with No Separate Legal Tender**
  - Use the currency of another **country (dollarization)** not create currency, such as El Salvador, Zimbabwe
  - Become a member of a **monetary union** using a common currency (e.g., Euro)
- **Countries That Have Their Own Currency**
  - A **currency board arrangement** is an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate (Hong Kong, central bank is not the last resort)
    - ✓ This implies that domestic currency will be issued only against foreign exchange and it remains fully backed by foreign assets.
    - ✓ **Limited discretion in monetary policy**
  - Conventional **fixed parity** is a country pegs its currency within margins of **±1 percent** versus another currency or a basket that includes the currencies of its major trading or financial partners
    - ✓ The difference between currency board system and fixed parity.
      - First, there is no legislative commitment to maintaining the specified parity.
      - Second, the target level of foreign exchange reserves is discretionary.

Exchange Rate Regimes

- **Countries That Have Their Own Currency**
  - **Target zone:** the permitted fluctuations in currency value relative to another currency or basket of currencies are **wider (e.g., +/-2 %)**.
  - **Crawling peg:** the exchange rate is adjusted periodically, typically to adjust for higher inflation.
    - ✓ Passive crawling peg: common in the 1980s in Latin America. To prevent a run on the USD reserves, the exchange rate was adjusted frequently (weekly or daily) to keep pace with the inflation rate.
    - ✓ Active crawling peg: aim to influence inflation expectations. Because the domestic prices of many goods is directly tied to import prices, the announced change in the exchange rate would effectively indicate future changes in the inflation rate of these goods.
  - **Fixed parity with crawling bands:** the width of the bands that identify permissible exchange rates is **increased over time.**
  - **Managed floating exchange rates:** the monetary authority attempts to influence the exchange rate in response to specific indicators such as the balance of payments, inflation rates, or employment without any specific target exchange rate or predetermined exchange rate path. Also called **dirty floating** because trading partners respond likely and potentially decreases stability in FX market as a whole.
  - **Independently floating:** the exchange rate is **market-determined**, and foreign exchange market intervention is used only to slow the rate of change and reduce short-term fluctuations, not to keep exchange rates at a certain target level.

The Ideal Currency Regime

- Dollarization is best described as an exchange rate regime whereby a country:
  A. uses the currency of another nation as its medium of exchange.
  B. participates in a monetary union whose members share the same legal tender.
  C. makes a commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate.

Solution: A

A is correct because in case of dollarization the country uses the currency of another nation as its medium of exchange and unit of account. B is incorrect because the IMF identifies two types of arrangements in which a country does not have its own legal tender. In the first, known as dollarization, the country uses the currency of another nation as its medium of exchange and unit of account. In the second, the country participates in a monetary union whose members share the same legal tender. Therefore dollarization is not best described as an exchange rate regime whereby the county participates in a monetary union whose members share the same legal tender. C is incorrect because in case of dollarization the country uses the currency of another nation as its medium of exchange and unit of account. In contrast, a currency board is a monetary regime based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure fulfillment of its legal obligation.

Summary

Module: Capital Flows and the FX market

Foreign Exchange Market
Foreign Exchange Quotations
Nominal and Real Exchange Rate
Spot Rates and Forward Rates
Percentage Change in Foreign Exchange Rate
Exchange Rate Regimes

Module

Exchange Rate Calculations

1. Cross Rate Calculation
2. Forward Rate Calculation

Cross Rate Calculation

- Cross Rate Calculation

Cross Rate Calculation

- **Cross rate calculation**
  - If a particular currency pair is not explicitly quoted, it can be inferred from the quotes for each currency in terms of the exchange rate with a third nation's currency.
    - ✓ For example, given exchange rate quotes for the currency pairs A/B and C/B, we can back out the **implied cross rate** of A/C. This implied A/C cross rate must be consistent with the A/B and C/B rates.

  - Example:
    - ✓ 0.60 USD/AUD , 10.70 MXN/USD
      - MXN/AUD = USD/AUD × MXN/USD = 0.60 × 10.70 = 6.42
    - ✓ 1.7799 CHF/USD , 2.2529 NZD/USD
      - CHF/NZD = (CHF/USD) / (NZD/USD) = 1.7799 / 2.2529 = 0.7900

Example

Cross Rate Calculation

- A dealer report includes the following exchange rate details:

	Spot Rate	Expected Change over Next Year
USD/EUR	1.30	1.75%
CAD/USD	0.95	–0.25%
CHF/EUR	1.22	0.75%

- The expected CAD/CHF cross rate in one year is closest to:

A. 1.04.

B. 0.98.

C. 1.02.

Solution: C

	Spot Rate	Expected Appreciation	Expected Spot Rate in One Year
USD/EUR	1.30	1.75%	1.323
CAD/USD	0.95	–0.25%	0.948
CHF/EUR	1.22	0.75%	1.229
CAD/CHF	=	(USD/EUR) × [(CAD/USD)/(CHF/EUR)]	= 1.020

Forward Rate Calculations

- Forward Discounts and Premiums
- Interest Rate Parity (IRP)

Forward Discount or Premium

- **Forward discount or premium**
  - There is a **premium** on the quoted currency when the forward exchange rate is higher than the spot rate.
  - Forward exchange rates are typically quoted in terms of **points or percentage**.
    - ✓ Example: One-month forward rate EUR/USD is 1.2568, the spot rate is 1.2500, it is a forward premium for USD. The **forward point** is 68 points, or as a **percentage** at 0.544%.

  - Example:
    - ✓ The AUD/EUR spot exchange rate is 0.7313 with the 1-year forward rate quoted at +3.5 points.
      - What is the 1-year forward AUD/EUR exchange rate?
      - Is the euro trading at a forward discount or forward premium relative to the Australian dollar?
  - Correct Answer:
    - ✓ The forward exchange rate is 0.7313 + 0.00035 = 0.73165.
    - ✓ Because the price of Euros in AUD is higher in one year, the euro is trading at a forward premium.

Interest Rate Parity (IRP)

- **Interest rate parity (IRP)** holds when any forward premium or discount just offsets **differences in interest rates** so that an investor will earn the same return investing in either currency. Approximated by equating the difference between the domestic interest rate and the foreign interest rate to the forward premium or discount.
- **Interest rate parity relationship**
  - F (forward), S (spot) X/Y, r_X and r_Y is the nominal risk-free rate in X and Y, both investments are invested at risk-free interest rates, because any foreign exchange risk was eliminated (hedged) by using a forward rate.
  - $\frac{F}{S} = \frac{1+r_X}{1+r_Y}$
  - $\frac{F-S}{S} = \frac{1+r_X}{1+r_Y} - 1 = \frac{r_X - r_Y}{1+r_Y} \approx r_X - r_Y$
- The forward rate of Y will be higher than (be at a premium to) the spot rate if the nominal risk-free rate in X is higher than that in Y.
  - More generally, and regardless of the quoting convention, the currency with the higher (lower) interest rate will always trade at a discount (premium) the forward market.

Interest Rate Parity (IRP)

- **Arbitrage relationships**
  - If $\frac{F}{S} > \frac{1+r_X}{1+r_Y}$, $\frac{F}{S} \times (1 + r_Y) > 1 + r_X$
  - Then borrow X currency, profit will be $\frac{F}{S} \times (1 + r_Y) - (1 + r_X)$
  - If $\frac{F}{S} < \frac{1+r_X}{1+r_Y}$, $\frac{S}{F} \times (1 + r_X) > 1 + r_Y$
  - Then borrow Y currency, profit will be $\frac{S}{F} \times (1 + r_X) - (1 + r_Y)$

Example

Interest Rate Parity (IRP)

- The following information is available:

  New Zealand dollar (NZD) to British pound (GBP) spot exchange rate: 2.0979;

  Libor interest rates for the British pound: 1.6025% ;

  Libor interest rates for the New Zealand dollar: 3.2875% ;

  All Libor interest rates are quoted on a 360-day year basis. The 180-day forward points (scaled up by four decimal places) in NZD/GBP is closest to:

  A. 39.

  B. 348.

  C. 176.

Solution: C

Example

Interest Rate Parity (IRP)

- C is correct. Covered interest arbitrage will ensure identical terminal values by investing the same initial amounts at the respective country's domestic interest rates:

  GBP investment: 1 × (1 + 0.016025 × 180/360) = 1.008013

  NZD investment: 2.0979 × (1 + 0.032875 × 180/360) = 2.13238

  The forward rate is determined by equating these two terminal amounts:

  NZD/GBP forward rate = 2.13238/1.008013 = 2.115429

  Forward points = (Forward – Spot) × 10,000= (2.1155– 2.0979) × 10,000= 175.3 =176 (rounded)

Summary
Currency Exchange Rates

Cross Rate Calculation
Forward Discounts and Premiums
Interest Rate Parity (IRP)

问题反馈

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    - ✓ 所在班级
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心有猛虎，细嗅蔷薇。

In me the tiger sniffs the rose.