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Economics

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Economics

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Summary and Framework

SS 1

Complementary knowledge

Module 1 The Firm and Market Structures

SS 2

Module 2 Understanding Business Cycles

Module 3 Fiscal Policy

Module 4 Monetary Policy

SS 3

Module 5 Introduction to Geopolitics

Module 6 International Trade

Module 7 Capital Flows and the FX Market

Module 8 Exchange Rate Calculations

Framework

Microeconomic Analysis	M1 The Firm and Market Structures
Macroeconomic Analysis	M2 Understanding business cycles
	M3 Fiscal Policy
	M4 Monetary Policy
Economics in a Global Context	M5 Introduction to Geopolitics
	M6 International trade
	M7 Capital Flows and the FX Market
	M8 Exchange Rate Calculations

Module 1

THE FIRM AND MARKET STRUCTURES

重要结论：公司短期&长期的生产决策 ★★

Revenue-Cost Relationship	Short-Run Decision	Long-Run Decision
TR ≧TC	Stay in market	Stay in market
TR < TFC + TVC but TR > TVC	Stay in market	Exit market
TR < TVC	Shut down production to zero	Exit market

Shutdown point	TR = TVC； AR = AVC
Profit maximization	MR＝MC
Breakeven point	TR = TC； AR = ATC

Conclusion for pure competition:

- ✓ If P >ATC, the firm can realize economic profit
- ✓ Economic loss occurs if P<ATC.
- ✓ In the short run, economic profit is maximized when marginal revenue=marginal cost =price (MR=MC=P)

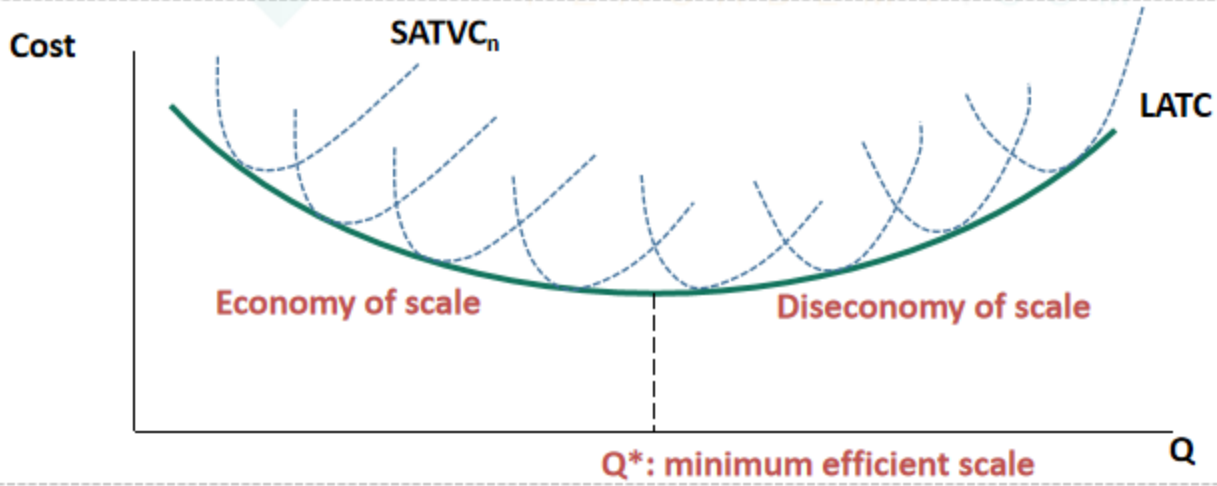
Economies of Scale and Diseconomies of Scale ★★

Envelope curve:

- long-run average total cost (LRAC) curve →the envelope curve of all possible short-run average total cost curves

Economies of Scale and Diseconomies of Scale

- The ***downward sloping segment*** of the long-run average total cost curve indicates the ***economies of scale***. The ***upward sloping segment*** of this long-run average total cost curve indicates that ***diseconomies of scale*** are present.
- The ***minimum point*** on the ***LRAC*** curve is referred to as the ***minimum efficient scale***.



各种市场结构基本特征 ★★

Market Structure	Number of Sellers	Degree of Product Differentiation	Barriers to Entry	Pricing Power of Firm	Non-price Competition
Perfect competition	many	Homogeneous/ Standardized	Very Low	None	None
Monopolistic competition	many	Differentiated	Low	Some	Advertising and Product Differentiation
Oligopoly	Few	Homogeneous/ Standardized	High	Some or Considerable	Advertising and Product Differentiation
Pure monopoly	One	Unique Product	Very High	Considerable	Advertising

Perfect Competition ★

Short-run equilibrium	• P=MR=MC • DWL=0, 市场实现最优配置
long-run equilibrium	• 短期有profit，会有新厂商进入；短期有loss，会有原厂商退出 • 长期均衡：profit=0 →P=MR=MC=ATC (breakeven point)

Monopolistic Competition

特点	• Downward-sloping demand curves • The curves are highly elastic
Short-run output decision	• MR=MC • Price is slightly higher than under perfect competition.
Long-run output decision	No economic profit →P=ATC (因为厂商可以自由进出)
Product development and marketing★	• Innovation and product development • Advertising • Brand names

Oligopoly

Kinked demand curve	特点：提价→弹性大；降价→弹性小 缺点：it is incomplete because what determines the market price (where the kink is located) is outside the scope of the model.
Nash Equilibrium★★	Prisoners' Dilemma: Confess/confess
Collusion	• 合谋之后，市场就变成monopoly firm • 合谋更容易成功的情况： ✓ fewer firms、more similar product、more similar cost structure、relatively small and frequent purchases、more severe penalty for cheating、less actual or potential competition
Dominant firm model	• Dominant firm has a significantly large market share ✓ greater scale & lower cost structure • market price is essentially determined by the dominant firm
The Cournot Assumption	• each firm determines its profit-maximizing production level by ***assuming that the other firms' output will not change.*** • ***long-run equilibrium***: ***No change in price or output***

Concentration Measures

名称	计算	Limitation ★
N-Firm Concentration Ratio	largest N firms市场份额相加	Relatively insensitive to mergers of two firms with large market shares.
HHI	The market shares of the top N companies are first squared and then added.	Both of our simple concentration measures is that barriers to entry are not considered in either case. Does not consider the elasticity of demand.

Module 2

UNDERSTAND BUSINESS CYCLES

Overview of The Business Cycles

Definition: ***Recurrent expansions and contractions*** in economic activity affecting broad segments of the economy, happen again and again over time ***but not in a periodic way.***

- ***Classical cycle:*** Fluctuations in the ***level of economic activity*** (GDP in volume terms).
- ***Growth cycle:*** fluctuations in economic activity ***around the long-term potential*** or trend growth level.
- ***Growth rate cycle:*** fluctuations in the ***growth rate of economic activity*** (GDP growth rate).

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 levels: 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***.

Credit Cycles

Credit Cycles and Their Relationship to Business Cycles

- Loose private sector credit has contributed to a number of ***financial crises***. In a world with financial frictions, ***business cycles can be amplified***.
- Credit cycles tend to be ***longer***, ***deeper***, and ***sharper*** than business cycles. But ***they are not always synchronized with the traditional business cycle.***

Business Cycle Fluctuations from a Firm's Perspective

The Workforce and Company Costs: Levels of Employment

Phase	Recovery	Expansion	Slowdown	Contraction
Employment (Levels of employment lag the cycle)	***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***.	Businesses ***continue hiring*** but at a ***slower pace***. ***Unemployment*** rate continues to ***fall*** but at ***slowly decreasing*** rates.	Businesses ***first cut hours, eliminate overtime, and freeze hiring, followed by outright layoffs. Unemployment*** rate starts to ***rise***.

Fluctuations in Capital Spending

Phase	Recovery	Expansion	Slowdown	Contraction
Business conditions and expectations	*Excess capacity during trough*, *low utilization*, *little need for capacity expansion.* *Interest rates low* to support investment.	*Capacity utilization increases* → reach limits → Increasing earnings and cash flow support the increase in investment spending. *Composition of capacity may not be optimal for current demand* → *spending* on *new* types of equipment.	Business conditions at peak, with *healthy cash flow*. *Interest rates higher* (reducing overheating).	*Fall in demand*, profits, and cash flows.
Capital spending	*Low* but *increasing*. *Capex focus on efficiency rather than capacity*. Orders increase first for light producer equipment (Software, systems, and hardware (high rates of obsolescence))	*Capacity expansion (Heavy and complex* equipment, warehouses, and factory). *Capital equipment orders precede actual shipments* → orders widely watched indicator of the future direction of capital spending.	*New orders* may be an *early indicator* of the late stage of the expansion phase. Companies continue to place new orders as they operate at or near capacity.	*New orders halted*, some existing orders canceled → further intensify contraction. Maintenance scaled back. Technology and light equipment with short lead times get cut first, construction and heavy equipment follow.

Fluctuations in Inventory Levels

	Recovery	Expansion	Slowdown	Contraction
Sales and production	*Sales decline slows* → subsequently *recover* → *Production increases but lags behind sales* growth → Over time, production approaches normal levels as excess inventories from the downturn are cleared.	*Sales increase*. *Production rises fast to meet sales growth and to provide inventories* of finished products. The demand for intermediate products increase. "Inventory rebuilding or restocking stage."	*Sales slow faster than production; inventories increase*. Economic slowdown leads to production cutbacks and order cancellations.	Businesses produce *at rates below* the sales volumes necessary to dispose of unwanted inventories.
Inventory–sales ratio	Begins to *fall* as sales recovery outpaces production.	*Ratio stable*.	*Ratio increases*. Signals *weakening* economy	Ratio begins to *fall back to normal.*

Economic Indicators ★

Leading	1. Average weekly hours, manufacturing 2. Average weekly initial claims for unemployment insurance 3. Manufacturers' new orders for consumer goods and materials 4. ISM (Institute for supply management) new order index 5. Manufacturers' new orders for non-defense capital goods 6. Building permits for new private housing units 7. S&P 500 Stock Index 8. Leading credit index 9. Interest rate spread between 10-year treasury yields and overnight borrowing rates 10. Average Consumer Expectations for Business and Economic Conditions
Coincident	1. Employees on non-agricultural payrolls 2. Aggregate real personal income (less transfer payments) 3. Industrial Production Index 4. Manufacturing and trade sales
Lagging	1. Average Duration of Unemployment 2. Inventory—sales ratio 3. Change in unit labor costs 4. Average bank prime lending rate 5. Commercial and industrial loans outstanding 6. Ratio of consumer installment debt to income 7. Change in consumer price index for services

Module 3

FISCAL POLICY

Fiscal Policy

- ***Keynesians:*** fiscal policy can have ***powerful effects*** when there is spare capacity in an economy; ***Monetarists:*** fiscal changes ***only have a temporary effect*** on AD; ***not to advocate using monetary policy for countercyclical adjustment***

Tools	1. Spending Tools： Transfer payments、Current spending、Capital spending 2. Revenue Tool： Direct taxes、Indirect taxes • Indirect taxes： Quick implementation、lower additional costs • Direct taxes and welfare and other social transfers, Capital spending: delay the impact and take longer to implement
Fiscal multiplier ★★	$\text{Fiscal multiplier} = \frac{1}{1-\text{MPC}(1\text{-t})} = \frac{1}{1-\text{b}\times(1\text{-t})}$ 计算
Expansionary or Contractionary?	Automatic stabilizer Discretionary fiscal policy： Recessions →Expansionary; Inflationary →Contractionary
Limitation ★★	• Ricardian Equivalence: Increases in the current deficit mean greater taxes in the future. • Debt ratio: ***High levels of debt to GDP →higher future tax rates →disincentives to economic activity;*** markets lose confidence in a government→central bank may have to print money to finance a government deficit→high inflation • Crowding-out effect： Expansionary fiscal policy may crowd out private investment • Time lag： Recognition lag、Law-making lag、Impact lag • Misreading economic statistics, Supply shortages(raise the risk of inflation)

Module 4

MONETARY POLICY

Monetary policy

1. How Do the Banks Create Money ? ★★

$$\text{money multiplier} = \frac{1}{\text{reserve requirement}}$$

2. Central Banks
   - Role: supplier of the currency(***legal tender\fiat money***); banker to the government and bank; The lender of last resort; The supervisor of the banking system; The conductor of monetary policy
   - Effective: ***Independence, Credible, Transparent***

Tools	Policy rate： lower rate →Expansionary Reserve requirements： higher Reserve requirement →Contractionary Open market operations： Central bank buy securities →Expansionary
Expansionary or Contractionary?	Neutral interest rate = real trend rate of economic growth + inflation target★★ • Policy rate> Neutral rate: contractionary • Policy rate< Neutral rate: expansionary
Limitation ★★	1. Long-term rates may not rise and fall with short-term rates because of the effect of monetary policy changes on expected inflation. 2. liquidity trap: Increasing growth of the money supply will not decrease short-term rates • Deflation is more difficult for central banks to reverse • 此时，可以选择quantitative easing

Module 6

INTERNATIONAL TRADE

Regional Integration and Trade Restrictions

Regional Integration	eliminate trade and investment barriers among a small group of countries → easier, politically less contentious, and quicker than multilateral trade negotiations under the WTO	
	Advantage	• Member countries toward freer trade → more efficient allocation • **Trade Creation**: ***the replacement of higher-cost domestic production by lower-cost imports from other members***
	Disadvantage	• trade from a ***lower-cost non-member to a higher-cost member*** →leads to a ***less-efficient allocation*** of resources and could reduce welfare • **Trade diversion**: ***lower-cost imports from non-member countries are replaced with higher-cost imports from members***.
Trade Restrictions	protect established domestic industries, new industries, domestic employment, strategic industries for national security; generate revenue from tariffs	

国家间的合作

Free trade areas：两国之间没有任何贸易限制
＋common set of trade restrictions with non-members →Customs union
＋labor and capital goods可以自由流动→Common market
＋common institutions and economic policy →Economic union
＋adopt a single currency →Monetary union

Effects of Trade Restrictions

	Tariff	Import Quota	Export Subsidy	VER
Impact on	Importing country	Importing country	Exporting country	Importing country
Price	Increases	Increases	Increases	Increases
Domestic consumption	Decreases	Decreases	Decreases	Decreases
Domestic production	Increases	Increases	Increases	Increases
Trade	Imports decrease	Imports decrease	Exports increase	Imports decrease
Government revenue	Increases	Mixed (基于quota是谁定的)	Falls (government spending rises)	No change (rent to foreigners)
National welfare	Decreases in Small country	Decreases in small country	Decreases (a larger decline in large country)	Decreases
	increase in large country	increase in large country		

Module 7

CAPITAL FLOWS AND THE FX MARKET

X:Y =1.8 → 1.8 Y/X

The Foreign Exchange Market and Exchange Rates★★

1. Real exchange rate:

$$\text{FX real(USD/EUR)} = \frac{\text{FX nominal (USD)/CPI(USD)}}{\text{1 (EUR)/CPI(EUR)}}$$

the relative purchasing power of EUR income: $\%\Delta R_{(USD/EUR)} \approx \%\Delta S_{(USD/EUR)} + \%\Delta P_{EUR} - \%\Delta P_{USD}$

2. 1.8 X/Y： Y→base currency； X →price currency
   - Percentage Change in A Currency(比如计算%ΔUSD): ***Firstly invert from USD/GBP to GBP/USD***
3. Participants in The Foreign Markets
   - ***Sell*** side: ***large multinational banks*** (FX dealing banks)
   - ***Buy*** side: Corporate accounts/Investment accounts(real money accounts/ leveraged accounts)/Governments and government entities/Retail market
     - The most important FX market participants in terms of average daily turnover are found not among corporations engaged in international trade but among ***huge investment managers***. Most FX trading volume is not related to international trade: ***Portfolio flows (cross-border capital movements) and speculative activities*** dominate.

Exchange Rate Regimes

1. Countries That Do Not Have Their Own Currency
2. Countries That Have Their Own Currency
   - A currency board arrangement
   - conventional fixed peg arrangement
   - Target zone
   - Crawling peg
   - Management of exchange rates within crawling bands
   - Managed floating exchange rates
   - Independently floating

The Ideal Currency Regime
- Independent monetary policy
- exchange rates are credibly fixed
- currencies are fully convertible.

Independent monetary policy is not possible if exchange rates are credibly fixed and currencies are fully convertible. There can be no ideal currency regime.

The Trade Balance ★★

公式	• $X - M \equiv (S - I) + (T - G) = [S+(T - G)] - I$
应用	• Trade surplus: $X - M > 0$ → Private savings plus government savings exceed domestic investment in physical capital (plant and equipment). →***a capital flow into foreign financial assets to offset the trade surplus.*** • Trade deficit: $X – M < 0$ → The combination of government savings and private savings will be less than domestic investment. →***some of that investment must be funded by other countries' purchases of domestic financial asset.***

Capital Restrictions ★★

原因	• meet some objective regarding employment or regional development, or it may have a strategic or defense-related objective.

缺点	• Benefit of free movement:
	  • bring in not only much needed capital but also new technology, skills, and advanced production and management practices as well as create spillover benefits for local firms;
	  • create a network of local suppliers;
	  • increased competition from foreign firms in the market may force domestic firms to become more efficient.
	• Cost of effective implementation of capital restrictions
	  • non-trivial administration costs;
	  • postpone necessary policy adjustments;
	  • more costly and difficult to access foreign funds

优点	• macroeconomic crisis, →capital flight out of the country, especially if most of the inflow reflects short-term portfolio flows rather than foreign direct investment • perfect capital mobility →governments cannot achieve domestic and external policy objectives

Module 8

Exchange Rate Calculations

Cross Rate

- 0.60 USD/AUD, 10.70 MXN/USD →乘法(消掉USD): 0.60*10.70 = 6.42 MXN/AUD
- 0.85 EUR/USD, 0.74 GBP/USD →除法(消掉USD): 0.85/0.74 = 1.1486 EUR/GBP

Forward Rate Calculations

Forward discount(*"weak"*) or premium(*"strong"*): F – S; in percentage = (F – S)/S

Interest Rate Parity (IRP) ★★

1. 计算F或者forward premium:

$$\frac{F}{S}=\frac{1+r_X}{1+r_Y} \qquad \frac{F-S}{S}=\frac{1+r_X}{1+r_Y}-1=\frac{r_X-r_Y}{1+r_Y}\approx r_X-r_Y$$

2. Arbitrage:

$$If\ \frac{F}{S}>\frac{1+r_X}{1+r_Y},\ \frac{F}{S}\times(1+r_Y)>1+r_X \rightarrow \text{borrow X currency, the profit will be } \frac{F}{S}\times(1+r_Y)-(1+r_X)$$

$$If\ \frac{F}{S}<\frac{1+r_X}{1+r_Y},\ \frac{S}{F}\times(1+r_X)>1+r_Y \rightarrow \text{borrow Y currency, the profit will be } \frac{S}{F}\times(1+r_X)-(1+r_Y)$$

Module 5

Introduction To Geopolitics

State Actors

逻辑： Actors的行为→International relation→Geopolitics risk

	Non-Cooperation	*Cooperation*
Features of Political Cooperation ★	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

Motivations for Cooperation	National security or national defense	• Landlocked countries (Switzerland) • Conduit for trade (Panama不合作)
	Economic Interest	Trade/Standardization

Regulatory Cooperation	Process Standardization	Operational Synchronization
BCBS	SWIFT	Containerization

影响合作的因素★	• Resource Endowment, • Standardization, • Soft Power	• 标准化举例★
		• Soft power without force or coercion
	• The Role of Institutions	• Stronger institutions make cooperative relationships more durable
	• Hierarchy of Interests and Costs of Cooperation	• Tariff harmonization may benefit the country • Military conflict → higher cost to cooperation • Interest prioritization determines the depth and nature of political cooperation
	• Decision Maker & Political Non-Cooperation	• The length of a country's political cycle has an important impact on priority designation

Non-State Actors

private sector→ drive the exchange of products or ideas even ***without government*** support or harmonized rules.★

Nationalism	Globalization
Limited Trade	Trade of Goods and Services
Limited Capital Flows	Capital Flows
Restricted Currency Exchange	Currency Exchange
Receipt of payments from foreigners	Cultural and Information Exchange

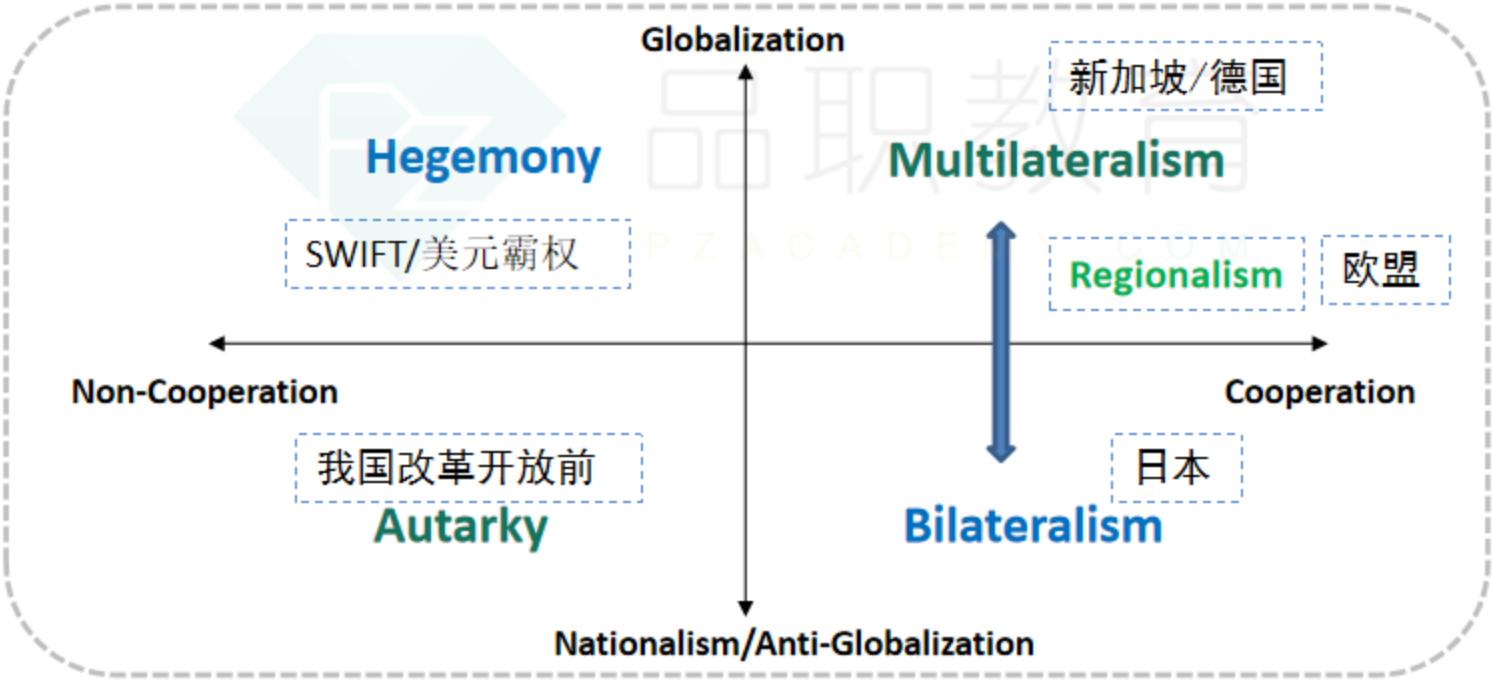
全球化特点	• Globalization（new markets, talent, or learning） • Nationalism
Motivations for Globalization	• Increased profits, • Access to resources (Talent or raw materials) • Intrinsic gains
Potential drawbacks	• Unequal economic and financial gains • Lower ESG Standards • Political Consequences • Interdependence → supply chain disruption

全球化不可能逆转，但会出现新的趋势★

- Reshoring the essentials
- Re-globalizing production
- Doubling down on key markets

Assessing Geopolitical Actors and Risk

- interdependent nature (more dependent on cross-border goods and capital flows)→ reduce the likelihood that collaborative countries attacks on one another.
  - However, interdependence can make cooperative actors more ***vulnerable*** to geopolitical risk than those less dependent on cooperation and trade.
- Dynamic: not only which quadrant a country falls in today, but also its stability within that quadrant ★



Tools of Geopolitics

种类	促进合作：增加流动 → 条约、协定、移民	
	加剧冲突：减少流动 → 关税、配额、军事冲突	
性质★	*National security tools*	Non-cooperative: Armed conflict /espionage
		Cooperative: NATO
	Economic tools	Non-cooperative: Tariff/Quota/Nationalization
		Cooperative: Multilateral trade agreements
	Financial tools	Non-cooperative: limiting access to local currency markets and restricting foreign investment
		Cooperative: the free exchange of currencies across borders and allowing foreign investment
		If the tool becomes too dominant, it may introduce vulnerabilities: The dominance of the US dollar, SWIFT
	Multi-Tool Approaches	Cabotage

★Geopolitical Risk can tilt Comparative Advantage → Countries or regions with limited geopolitical risk exposure may attract more labor and capital

Incorporating Geopolitical Risk into The Investment Process

Types of Geopolitical Risk★	***Event risk***	Set date, known in advance ***United Kingdom's referendum on European Union membership***	ST: high velocity
	Exogenous risk	Unanticipated, sudden risk ***sudden uprisings, invasions,*** or the aftermath of ***natural disasters***	
	Thematic risks	• Period/known risk • Climate change/migration/cyber threats	LT: low velocity

Assessing ★	***Likelihood***	• Highly collaborative and globalized countries → less geopolitical risk • Interconnectedness → vulnerable to certain risks
	Velocity	• ST: high → Flight to quality (Tactical changes) • MT: → adjust investment in specific sectors • LT: low → Asset allocation
	Impact	• Greater impact on markets experiencing a contraction or economic downturn

Scenario analysis

Sign post
- green
- amber
- Red: 行动

Signal & noise

Acting on Geopolitical Risk

风险表现	Velocity	• High-velocity risks manifest in market volatility via prompt changes in asset prices. • Low-velocity geopolitical risks can have a more prolonged impact on investor inputs.
	Emerging and frontier markets	• Risk of geopolitical disruption • 补偿增加 → discount rate增加 → 资产价格走低
	Geopolitical risk index ★	• High levels of geopolitical risk results in tangible macroeconomic effects: reduce US investment, employment, and price level of the stock market • Individual firm's investment falls more in industries positively exposed to geopolitical risk. Firms reduce investment in the wake of idiosyncratic geopolitical risk events • Threat of events had a larger impact over time than that of the actual events themselves
Acting on Geopolitical Risk	• SAA: Taking a top-down approach • Factor in multi-factor models • Appropriate for investor goals, risk tolerance, and time horizon	

国际组织 ★

IMF	• Supports exchange rate stability and an open system of international payments • Lends foreign exchange to members when needed
World Bank	Help developing countries fight poverty and enhance environmentally sound economic growth
WTO	Global rules of trade between nations


Thank
You!