High Yield Summary - Economics

1. Currency Exchange Rates: Determination & Forecasting

Bid–offer spread

Size of bid–offer spread depends on:

- **Primary factors:**
  1. Currency pair involved
  2. Time of the day
  3. Market volatility
- **Secondary factors:**
  1. Size of the transaction
  2. Relationship between dealer & client
  3. Client's credit profile

Triangular arbitrage

- Exists if either:
  - cross-rate bid < implied rate from 2 other currencies
  - cross-rate offer > implied offer rate

Spot rates & forward rates

- **Spot rate:** current market rate
- **Forward rate:**

$$F_{B/S} = S_{B/S}\left(\frac{1 + i_B \cdot \frac{d}{360}}{1 + i_P \cdot \frac{d}{360}}\right)$$

Mark-to-market value of a forward contract:

- Profit/loss that would be realized from closing out the position at current market prices

International Parity Conditions

1. **Covered interest rate parity:**
   - If FX investment is completely hedged, IRP holds
   - Arbitrage depends on interest rates
2. **Uncovered interest rate parity:**
   - Return on un-hedged FX position
   - Return on similar domestic currency position

$$\Delta S_E \approx i_P - i_B$$

3. **Forward rate parity:**
   - If (i) and (ii) true:

$$\Rightarrow \text{expected spot rate} = F_{P/B}$$

4. **Ex-ante PPP (Purchasing Power Parity):**
   - Expected changes in spot = inflation differential

$$\Delta S \approx \pi_P - \pi_B$$

5. **International Fisher Effect:**
   - If (ii) and (iv) hold:

$$\Rightarrow F_{P/B} = \frac{1+\pi_P}{1+\pi_B} \approx \frac{1+i_P}{1+i_B}$$

Balance of Payments & Exchange Rates

- **Current account (CA):**
  - Trade in goods/services
- **Capital account (KA):**
  - Financial/investment flows

$$\text{CA} + \text{KA} = 0 \quad \text{or} \quad \text{CA} = -\text{KA}$$

- CA has no long-term impact on exchange rate
- KA = "short-term"

Exchange Rate Channels

- **Flow supply/demand channel:**
  - CA surplus ⇒ high demand for currency ⇒ appreciation
- **Portfolio balance channel:**
  - Deficit CA ⇒ surplus KA (borrowing)
- **Debt sustainability channel:**
  - CA deficit + high debt ⇒ currency depreciation

Carry Trade

- Works only if uncovered interest rate parity does **not** hold
- **MRR:** market reference rate

2. Effect of Monetary & Fiscal Policy on Exchange Rates

Mundell–Fleming Model

- **MP**: monetary policy **FP**: fiscal policy
- Monetary models of exchange rate determination:
  - Assume that output is fixed
  - Two variations:
    1. Basic monetary approach
    2. Dornbusch model

The Portfolio Balance Approach

- Goodness for real changes

Capital Control & Central Bank (CB) Intervention

- Effectiveness of gov. intervention depends on the ratio of:
  - CB FX reserves stock vs. turnover
  - Low ratio ⇒ low impact (developed markets)

Warning Signs of a Currency Crisis

- Liberalized capital markets
- Large inflow of foreign capital
- Preceded by banking crises
- FX reserves decline
- Currency value rises compared to historical mean
- M2 money supply increases
- Inflation rises
- Fixed exchange rate (expands problems)

High Capital Mobility / Low Cap. Mobility

	Expansionary MP	**Restrictive MP**
Expansionary FP	Od ↑	Od ↓
Restrictive FP	Od ↓	Od

- **MP:** Monetary Policy
- **FP:** Fiscal Policy
- **Od:** depreciation in domestic currency

PPP – Purchasing Power Parity

- PPP holds ⇒ money supply ⇔ inflation ⇔ domestic currency

FDI – Foreign Direct Investment

$$\text{Let } FDI = FDI^{\text{in}} - FDI^{\text{out}}$$

Policy Flow Logic

- Expansionary fiscal policy ⇒ ↑ gov. dept ⇒ ↑ money supply ⇒ Od
- Short-run vs. long-run impacts differ

Exchange Rate Mechanics

Bid–offer definitions:

- Bid: price at which dealer **buys** the currency
- Offer: price at which dealer **sells** the currency

Examples:

- EUR/USD: bid = 0.8645, offer = 0.8655
- USD/EUR = $\frac{1}{0.8645}$ to $\frac{1}{0.8655}$ = 1.1558 to 1.1569
- Bid–offer spread shown in dealer quotes
- Used in forex markets, important for arbitrage

3. Economic Growth and the Investment Decision

Factors That Enable Growth

- Saving & investment
- Financial markets
- Political stability
- Education & health care
- Free trade & free capital flow

Aggregate Value of Output

$$P \cdot Y = GDP = E = P \cdot F$$

- P: aggregate price of goods
- E: aggregate earnings
- F: quantity of factors of production

Sustainable Growth Rate of Economy

Potential GDP

- Measure of productive capacity
- Actual GDP growth < Potential GDP growth implies underutilization

Long-run growth:

- Driven by labor market appreciation and productivity

Capital Deepening

- ↑ capital per labor ⇒ ↑ productivity

Technological Progress

- Leads to higher total factor productivity (TFP)
- Illustrated via output per worker (Y/L)

Growth Accounting

- To analyze performance of an economy
- Growth rate of output:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha\frac{\Delta K}{K} + (1-\alpha)\frac{\Delta L}{L}$$

  - $\frac{\Delta A}{A}$: rate of tech. change
  - $\frac{\Delta K}{K}$: growth rate of capital
  - $\frac{\Delta L}{L}$: growth rate of labor
  - α: elasticity of output w.r.t. capital

Labor Productivity Growth

- Growth rate in potential GDP:

$$\text{growth rate of labor force} + \text{growth rate in labor productivity}$$

Access to Natural Resources

- Important for economic growth
- Ownership is not essential (e.g., Dutch disease from currency appreciation)

Growth in Labor Supply Depends On:

1. Population growth
2. Labor force participation rate
3. Net migration
4. Average hours worked

Theories of Economic Growth

1. **Classical model:**
   - Growth in real GDP per capita is temporary
2. **Neo-classical model:**
   - Growth rate of output per capita:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A}$$

   - Growth rate of output:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha\frac{\Delta K}{K}$$

- Output per unit of capital:

$$\frac{Y}{K} = \frac{A}{(1-\alpha)} \left(\frac{s}{\delta + n} \right)^{\alpha/(1-\alpha)}$$

Where:

- A: growth rate of total factor productivity
- α: elasticity of output w.r.t. labor
- n: growth rate of labor
- s: saving rate
- δ: depreciation of capital

3. **Endogenous growth theory:**

- Focus on explaining technological progress

$$\frac{\Delta Y_e}{Y_e} = \frac{\Delta K_e}{K_e} = s \cdot C - \delta$$

Where:

  - Y_e: output per worker
  - K_e: capital per worker
  - s: saving rate
  - C: constant to capital ratio
  - δ: depreciation of capital

Convergence Hypotheses

Absolute convergence

- Local convergence

Conditional convergence

- Local convergence if saving rate, production, and population growth are similar

Club convergence

- If inside the club ⇒ convergence
- Outside club ⇒ **non-convergence trap**
- Institutional/regulation sets matter

Endogenous growth theory:

- Investment in R&D has positive externalities

Open & trade-oriented economies grow faster

Classical Model

- Growth in real GDP per capita is temporary
- GDP per capita subsistence level increases with:
  - Population
  - Capital per worker

Neo-Classical Model

- Steady state: growth in capital per worker results in growth in output per worker
- Long-run growth depends only on exogenous technology
- Capital deepening has no long-term impact
- Convergence in income per capita of developing & developed countries

Endogenous Growth Theory

- Explains technological progress
- No convergence
- Saving rate ⇒ growth rate
- Often applies to only one industry per economy

4. Regulation & Regulatory Bodies

Economics of Regulations

- Regulatory intervention is required because of:
  - Informational frictions
  - Externalities
- Purpose of regulating financial markets:
  - Maintain financial stability
  - Maintain integrity of the market
  - Mitigate agency problems (conflicts of interest)
- Purpose of regulating commerce:
  - Set out framework for the operation of private markets
- **Competition & antitrust laws**
  - Prohibit abusive & anticompetitive behavior

Regulators

- Legislative bodies
- Government-backed regulatory bodies
- Courts

Regulations:

- Statutes
- Administrative regulations
- Judicial law

Classification:

- Substantive law: focuses on rights/responsibilities of entities
- Procedural law: focuses on enforcement

Independent Regulators

- Do not rely on government funding
- Distinguished from government departments

Self-regulatory Bodies

- Represent & regulate their members
- Non-governmental members
- If given recognition/authority by government:
  - $\Rightarrow$ Self-Regulatory Organization (SRO)

Regulatory Capture Theory

- Regulators are often dominated by individuals who are closely connected with the industry

Regulatory Competition

- Used to attract certain entities

Regulatory Arbitrage

- Exploiting gaps in regulatory interpretation

Regulatory Tools

- Taxes/subsidies
- Restriction/mandating activities
- Providing public goods

Systemic Risk

- Failure of financial system

Financial Contagion

- Financial shocks spread through economies

Regulatory Burden

- Cost of regulation for the regulated entity

Net Regulatory Burden

- Private cost of regulation minus private benefit of regulation

Retrospective Analysis

- Reviewing past regulatory outcomes

Regulatory Sandboxes

- Test regulation on subsets of industry

Analysis of Regulation

- Likelihood of regulatory change
- Impact of regulatory change
- Impact on revenue/cost
- Business risk (e.g. fines)

Other Notes

Money market mutual fund:

- Invest in high-quality, short-term debt instruments, cash, and cash equivalents

Regulator created by statute:

- Created through the legislature

The Coase Theory:

- Private parties can resolve externalities through negotiation

Add On

Carry Trade

- Borrow in low interest currency (C_L)
- Invest in high interest currency (C_H)

Relative PPP

$$\Delta S_{P/B} \approx \pi_P - \pi_B$$

$$F_{P/B} = S_{P/B}\left(\frac{1+\pi_P}{1+\pi_B}\right)$$

Absolute Version of PPP

$$S = \frac{P_1}{P_2}$$

- S: exchange rate
- P_1, P_2: price levels in country 1 and 2

Forward Rate Premium/Discount

$$\text{Premium/Discount} = \frac{F_{P/B} - S_{P/B}}{S_{P/B}} \cdot \frac{12}{\#\text{ months}}$$

Dealer Quotes Example (CNY/USD)

- Bid: 6.63
- Offer: 6.65
- If dealer gives me 6.63 CNY per USD $\Rightarrow$ I buy CNY (sell USD)
- If dealer gives me 1 USD for 6.65 CNY $\Rightarrow$ I sell CNY (buy USD)

Cross Rate Calculation Example

	Bid	**Offer**
CHF/USD	0.373	0.380
BRL/USD	4.263	4.470

Compute CHF/BRL:

$$\text{Bid} = \frac{0.373}{4.470}, \quad \text{Offer} = \frac{0.380}{4.263}$$

Growth Rate of Labor Productivity

Growth rate of labor productivity = capital deepening+growth of total factor productivity