

THE MACROECONOMICS OF INTERNATIONAL TRADE

Module 1. Macroeconomic Mechanisms Supporting International Trade Flows

Lecture session 1

1. Macroeconomic analysis and international trade
 - 1.1. Motivation: misuse of basic macroeconomic trade concepts for policy purposes
 - 1.1.1. Balance of trade as a criteria for judging well-being of the macroeconomy
 - 1.1.2. Policy objectives for the domestic economy
 - 1.2. Income accounting in a closed and open economy
 - 1.2.1. Define macroeconomic variables (Y, C, I, G, X, M)
 - 1.2.2. BOT and its direct relationship to macroeconomic indicators
 - 1.2.3. Significance of a trade deficit
 - 1.2.4. Significance of a budget deficit
 - 1.2.5. BOT and its relationship to the general macroeconomic state
 - 1.3. Balance of payments (BOP): current and capital accounts
 - 1.3.1. Define BOP
 - 1.3.2. Discuss the accounting statement: BOT, K-account, reserves
 - 1.4. Current account (BOT)
 - 1.4.1. Inflows
 - 1.4.2. Outflows
 - 1.5. Capital account
 - 1.5.1. Inflows
 - 1.5.2. Outflows
 - 1.6. Reserves
 - 1.6.1. Examples
 - 1.6.2. External debt
 - 1.6.3. Reserves and the central bank
 - 1.7. Relationship between current and capital account
 - 1.7.1. Positive or negative BOT and the K-account
 - 1.7.2. Implication of BOT imbalances
 - 1.7.3. Implication of budget deficits
 - 1.7.4. BOP, BOT and policy considerations

Study questions: What is the balance of trade (balance of payments)? What is the relationship between the current account and the capital account? What is the implication of a deficit or surplus in the current account or the capital account? How does a country finance a negative BOT? How do savings and investment relate matter for international trade? What is the relationship between the balance of trade and budget deficits? What are reserves? What is the role of central bank reserves? Is a surplus or deficit in either the current account or capital account a sign of economic strength or weakness? Should the balance of payments (BOP) be used to formulate policy objectives? What does a country's BOP situation represent? What is a BOP crisis?

Lecture session 2

2. Exchange Rates

2.1. Defining the exchange rate: TOT, LOOP, and PPP

2.1.1. Exchange rate and the terms of trade (TOT)

- (a) Defined in terms of currencies
- (b) Defined in terms of quantities traded
- (c) Defined as relative prices of tradables

2.1.2. Law of one price (LOOP)

- (a) Assumptions and conditions
- (b) 3-panel diagram revisited

2.1.3. Law of purchasing power parity (PPP)

- (a) Assumptions for PPP to occur
- (b) PPP in partial or general eqbm
- (c) Prediction of the PPP in terms of exchange rates and prices
- (d) Absolute and relative PPP

2.2. Forecasting, arbitrage, speculation and hedging,

2.2.1. PPP and the short/long-run exchange rate (E)

2.2.2. Fundamental eqbm exchange rate (FEER)

- (a) BOT, K-flows and E
- (b) Investor preferences, risks and expectations

2.2.3. Arbitrage and the tendency toward equilibrium

2.2.4. Currency speculation versus hedging to facilitate international trade

- (a) Speculative behavior and price uncertainty
- (b) Hedging behavior and risk management
- (c) Role of speculator and hedger
- (d) Simple example in use of futures contracts: local firm purchases foreign machine

Time period	Position in the:		Exchange rate
	Spot market	Futures mkt	
Aug			
Dec			
Result:			

2.2.5. Efficiency of currency markets

- (a) Efficient markets versus market instability: theory versus practice
- (b) Speculation versus price controls for price stability
- (c) Speculation and bubbles in goods or asset markets

	Pro markets	Anti markets
Efficiency		
Role of prices		
Price controls		
Futures markets		
Speculation		
Role of government		

Study questions: What is an exchange rate? What are the terms of trade? What is the law of one price? What is purchasing power parity? How do these concepts relate to each other? Under what conditions should PPP hold? Can PPP deviate from the exchange rate in the short run or long run? What is arbitrage and how does it differ from speculation? What is hedging and how does it differ from speculation? What is the role of speculation and hedging in international transactions? Does speculation stabilize or destabilize markets or economies?

Lecture session 2, continued

3. Modeling the currency mkts [Houck, ch 15; SRP]
 - 3.1. Interpretation of the demand for a currency
 - 3.1.1. Trade in goods and services
 - 3.1.2. Capital flows
 - 3.1.3. Demand for a foreign currency
 - 3.1.4. Negatively sloped demand for foreign currency
 - 3.2. Interpretation of the supply of a currency
 - 3.2.1. Trade in goods and services
 - 3.2.2. Capital flows
 - 3.2.3. Supply of a foreign currency
 - 3.2.4. Positively sloped supply of a foreign currency
 - 3.3. Equilibrium and changes in equilibrium E
 - 3.3.1. Equilibrium in currency market
 - 3.3.2. BOT, capital account, and reserves
 - 3.3.3. Changes in equilibrium: appreciation, depreciation
 - 3.4. Exchange rates as a tool for trade policy [Houck, ch 15]
 - 3.4.1. Concepts: appreciate, depreciate, revalue, devalue, fixed vs flexible regimes
 - 3.4.2. Manipulation of imports, exports, and multiple exchange rate regimes
 - 3.5. Partial equilibrium modeling of changes in exchange rate
 - 3.5.1. 3-country model from exporter's perspective
 - 3.5.2. 3-country model from importer's perspective
 - 3.5.3. Expectations of devaluation and graphical representation in a 5-panel diagram

Note: optional session to review partial equilibrium trade modeling.

Lecture session 3

Review of homework assignment # 1

- 3.5. Partial equilibrium modeling of changes in exchange rate
 - 3.5.1. 3-country model from exporter's perspective
 - 3.5.2. 3-country model from importer's perspective
 - 3.5.3. expectations of devaluation and graphical representation in a 5-panel diagram
- 3.6. Devaluation or depreciation as a policy objective
 - 3.6.1. Objective(s) and implications
 - (a) BOT
 - (b) BOP
 - (c) Macroeconomy
 - 3.6.2. Marshall-Lerner condition [A&F, ch 24, and ch 24, appendix]
 - (a) Mathematical derivation and interpretation
 - (b) Elasticity criteria to evaluate devaluation
 - 3.6.3. J-curve effect
 - (a) Proposition 1: there are lags in price changes
 - (b) Proposition 2: import prices change faster than export prices in local currency (lc) terms

Exchange rate	Importable good		Exportable good	
	Price in \$ (fc)	Price in kr (lc)	Price in \$ (fc)	Price in kr (lc)
E_0				
E_1				
Result:				

- (c) Proposition 3: short run changes in the quantity imported and exported are small
- (d) Implications of propositions 1-3
- 3.6.4. Devaluation as a policy tool [SRP: *Economist*, "A Much Devalued Theory"]
 - (a) Economic symptoms
 - (b) Macroeconomic implications
 - (c) Macroeconomic policy alternatives to use of devaluation
 - (d) Conditions for when a devaluation/depreciation can be effective

Study questions: What is the demand for a currency? What are examples of the demand for a currency? Why is the demand for currency negatively sloped? What is the supply of a currency? What are examples of the supply of a currency? Why is the supply of a currency upward sloping? What is equilibrium in currency exchange? What does it mean for the supply of a currency to change? What does it mean for the demand of a currency to change? How does equilibrium change, given some supply and demand scenario? How does a government use the exchange rate as a tool for trade policy? Which type of country would use the exchange rate as a tool for trade policy? Does it work -- why or why not or upon which conditions does it depend? Which type of country would use a multiple exchange regime? Does it work -- why or why not or upon which conditions does it depend? Illustrate the effects of an appreciation or depreciation of a currency on competing exporters and importing countries (using the three-country model with a five-panel diagram as presented by Houck). How do changes in hard currencies value affect the terms of trade of countries that have their currencies pegged to the hard currency? What does it mean for a devaluation or a depreciation to be successful? What are the conditions for a devaluation to be successful? Can a devaluation or depreciation be successful in the long run? What is the J-curve and why is it hypothesized to occur? What explains why devaluation first worsens the BOT before it improves the BOT? Why do price changes take time to adjust? What is the Marshall-Lerner condition and what is its meaning in the context of a devaluation? How do the price elasticities of demand and supply matter for the balance of trade?

Module 2. Money Market, Goods Markets and Asset Market Equilibrium

Lecture session 4

4. Money market and interest rate determination [Reserve reading: K&O, ch 14]

4.1. Money supply, MS

- 4.1.1. Define and discuss relationship with interest rates (i)
- 4.1.2. Rate of growth in MS determined by central bank
- 4.1.3. Nominal vs real MS

4.2. Money demand, $MD = f(i, P, Y)$

- 4.2.1. Define demand for cash balances
- 4.2.2. Opportunity cost, risks associated with i, P and liquidity preference
- 4.2.3. Relationship of income, number of transactions and MD
- 4.2.4. Relationship of prices and MD: nominal vs real MD

4.3. Modeling of money market: relationship between MS, MD and interest rates

- 4.3.1. Equilibrium and intuition
- 4.3.2. Changes in equilibrium in money market

Study questions: What is the supply of money and the demand for money? What are the factors that determine supply and demand for money? How does a change in the rate of growth in the supply of money occur? What are the implications of a change in the rate of growth in the money supply? What causes a change in money demand? What does it mean for there to be equilibrium in the money market? Which factors cause changes in equilibrium in the money market?

5. Interest rates, capital flows and exchange rates [Reserve reading: K&O, ch 13]

5.1. Interest parity and investor behavior

- 5.1.1. Investor behavior with regard to assets valued in foreign or local currency
- 5.1.2. Interest parity, law of one price for asset rates, and equilibrium interest, E
- 5.1.3. Assumptions or conditions for interest parity to hold
- 5.1.4. Example and intuition: covered interest arbitrage

5.2. Capital markets

- 5.2.1. Brief history of exchange regimes
- 5.2.2. What was the Bretton Woods international financial system?
- 5.2.3. What does the theory say of K-markets?
- 5.2.4. What do critics say of global capital markets?
- 5.2.5. Does the evidence support that global K-mkts exist?
- 5.2.6. How does capital mobility affect the central bank or government objectives?

Criteria to assess whether an integrated international capital market exists

Theoretical considerations	Empirical evidence
Relationship between I, savings	
International K-flows	
LOOP and i-parity	
Instability in E, asset prices	
Effectiveness of MP or FP	

Read SRP
to assist
you to
complete
the chart

5.3. Modeling asset demand: relationship between interest and exchange rates

- 5.3.1. Interest parity $[i_N] = [i_{US}] + ([E_{\$/kr}]^e - [E_{\$/kr}]) / [E_{\$/kr}]$
- 5.3.2. Asset earnings (rate of return)
- 5.3.3. Expectations of earnings

5.4. Interest rates and exchange rates

5.4. Interest rates and exchange rates

- 5.4.1. Equilibrium in foreign exchange
- 5.4.2. Changes in interest parity and equilibrium exchange rates
- 5.4.3. Changes in MS, MD, expectations on asset earnings and implications for E

Lecture session 4, continued

5.5. Modeling dynamic adjustment

5.5.1. Short-run versus long-run changes

5.5.2. Exchange rate overshooting hypothesis

5.5.3. Fisher effect

Study questions: What is interest parity? What are the assumptions regarding investment behavior such that interest parity holds? Does interest parity hold in reality? What factors might explain why interest parity does not hold? Does an international capital market exist in the real world? What are the determinants of foreign exchange equilibrium? What would cause changes in the foreign exchange equilibrium? How do expectations matter? How would the exchange rate of a currency be affected by a change in one of the following variables or conditions: price, MS, MD, Y, budget deficit, i , policy, capital flows, commodity flows, external or internal shocks?

Lecture session 5

6. Fiscal Policy, Goods Market Equilibrium [Reserve reading: K&O, ch 16]

- 6.1. Fiscal policy objectives and instruments
 - 6.1.1. Fiscal policy instruments
 - 6.1.2. Fiscal policy and stability in goods mkt: case for independence of fiscal policy
- 6.2. Goods market equilibrium
 - 6.2.1. Aggregate demand and the relationship with income, output
 - 6.2.2. Deriving DD schedule: relationship between E and income when P are fixed
 - 6.2.3. Factors affecting the DD schedule (G, T, I, relative P, MPC, relative demand)
 - 6.2.4. Shifts in the DD schedule
- 6.3. Mundell-Fleming model: deriving the IS and BP curves
 - 6.3.1. Deriving the IS curve
 - 6.3.2. Relationship between i and Y in goods market
 - 6.3.3. Deriving the BP curve (or FE curve)

7. Monetary Policy and Asset Market Equilibrium [Reserve reading, K&O, ch 16]

- 7.1. Monetary policy objectives and instruments
 - 7.1.1. Monetary policy instruments
 - 7.1.2. Central bank independence and stability in money markets
- 7.2. Asset market eqblbm
 - 7.2.1. Relationship between Q and E from money mkt eqblbm
 - 7.2.2. Derivation of the AA schedule
 - 7.2.3. Factors that shift the AA schedule (MS , P , E^e , $[i^e]_{US}$, real MD)
 - 7.2.4. Shifts in the AA schedule
- 7.3. Mundell-Fleming model: deriving the LM curve
 - 7.3.1. Deriving the LM curve
 - 7.3.2. Relationship between i and Y in the money market
- 7.4. Eqblbm in goods, asset, and foreign exchange
 - 7.4.1. IS, LM, FE eqblbm
 - 7.4.2. AA-DD eqblbm
 - 7.4.3. Changes in eqblbm from FP, MP
 - (a) Affect on E , i , Y , Q , employ
 - (b) Implications of a fixed or flexible E regime

Study questions: What are fiscal and monetary policy instruments? How do monetary policy and fiscal policy affect the macroeconomy and exchange rates? What does monetary and fiscal policy involve? What is the current monetary policy situation relative to the value of the currency in Norway? What is the effect of the oil shock on the value of a currency (e.g., the kroner, the euro or the dollar)? How does the Mundell-Fleming model explain changes in macroeconomic equilibrium? What is the relationship between Q and E in the relevant markets? What is the relationship between interest rates (i) and exchange rates (E) in the relevant markets?

8. Fiscal and monetary policy effectiveness under fixed and flexible regimes - assignment

9. Budget deficits versus balanced budgets

- 9.1. Economic implications of a budget deficit
 - 9.1.1. Business cycles and macroeconomic stabilization policies
 - 9.1.2. Costs and returns from additional government expenditures, taxes, and larger debt
- 9.2. Debate on value of the dollar and US budget deficit reduction: S-T, L-T relationship of i , E
 - 9.2.1. Mundell-Fleming model of budget deficits ad trade deficit
 - 9.2.2. BOT deficit as macroeconomic imbalances (savings and investment)
 - 9.2.3. Limitations of the Mundell-Fleming model

Study questions: What is the source of debate among leading economists surrounding the balancing of a budget deficit in the United States and the value of the dollar? What is the Mundell-Fleming model and how is it related to the argument? What are two ways to reduce a balance of trade deficit? Why is a combination of both methods most effective? What is the limitation of the Mundell-Fleming model? How does the current US budget deficit and trade deficit differ from previous periods? What role does China play in the twin deficits of the US?

Lecture session 6

Review of homework assignment # 2

8. Fiscal and monetary policy effectiveness under fixed and flexible regimes

8.1 Closed economy: no exchange regime (expansionary policy)

8.1.1. Effectiveness of FP in the short run and long run

8.1.2. Effectiveness of MP in the short run and long run

8.2. Open economy with a fixed regime (using expansionary policy)

8.2.1. Effectiveness of FP in the short run and long run

8.2.2. Effectiveness of MP in the short run and long run

8.3. Open economy with a flexible exchange regime (using expansionary policy)

8.3.1. Effectiveness of FP in the short run and long run

8.3.2. Effectiveness of MP in the short run and long run

	1. Fiscal policy effectiveness		2. Monetary policy effectiveness	
Exchange regime	Short term	Long term	Short term	Long term
Fixed				
Flexible				

Study questions: How does the use of fiscal or monetary policy affect macroeconomic variables? How effective is the use of fiscal policy (increasing government spending relative to taxes) or monetary policy (increasing the rate of growth of money supply) when an economy is closed or open, whether the economy has a fixed exchange regime or a floating exchange regime? How does the length of run matter for the effectiveness of the policy? What are the advantages and disadvantages of a flexible regime versus a fixed regime? What are economic factors to consider when selecting an exchange regime? Does a nominal change in the exchange rate have a lasting effect on a country's competitiveness, economic growth, employment or output?

Module 3. Alternative Exchange Regimes, Optimal Currency and Monetary Union

Lecture session 6, continued

10. Choosing from Alternative Exchange Rate Regimes

10.1. Central bank objectives and instruments

10.1.1. Objectives and functions of a central bank

10.1.2. Importance of independence to achieve objectives

10.2. Use of a fixed or flexible exchange regime

10.2.1. Monetary targets: exchange rate, money supply growth rates, or the rate of inflation

10.2.2. Type of exchange regime and its advantages or disadvantages

10.2.3. How does the target and exchange regime relate to other macroeconomic concerns?

(a) Level of interest rate or price level

(b) Use of monetary and fiscal policy for macroeconomic policy purposes

(c) Ability of the exchange regime to respond to an external shock

(d) Importance of the use of reserves

(e) Importance of central bank coordination

(f) Vulnerability of the exchange regime to exposure to speculators / speculation

(g) Means to prevent against asset price overvaluation

(h) Implication of country's economic size/openness on choice of exchange regime

(i) Implication of the degree of wage flexibility on choice of exchange regime

10.2.3 Monetary target	10.2.2. Type of exchange regime and the advantage/disadvantage			10.2.3. How does the target relate to other macroeconomic concerns?			
	Fix or flexible	Advantage	Dis- advantage	(a) level of i, P	(b) use of MP, FP	...	(j) wage flexibility
Exchange rate							
MS growth rate							
Inflation rate							

10.3. Alternatives to the fixed or flexible regime

10.3.1. Currency bands

10.3.2. Adjustable pegs (crawling pegs)

10.3.3. Peg or fix to a basket of currencies

10.3.4. Currency boards

Study questions: What are the responsibilities of a central bank? What are the tools available to the central bank? Why is independence of a central bank important? What are the advantages/disadvantages of fixed versus flexible regimes? What are alternatives to fixed/flexible regimes and what are their advantages or disadvantages? How does a currency board differ from a central bank? What are the advantages/disadvantages of each?

Lecture session 7

Review of homework assignment # 3

11. Capital controls

11.1. Case for capital controls

- 11.1.1. Case for free capital mobility revisited
- 11.1.2. Theory of capital markets and empirical evidence
- 11.1.3. Market failures and empirical evidence
- 11.1.4. Capital controls as second best solution

11.2. Types and effectiveness of controls

- 11.2.1. Tax on capital flows
- 11.2.2. Quantitative restrictions
- 11.2.3. Effectiveness of controls

Study questions: What is the case for free capital mobility? What does the theory of capital markets predict? What is the empirical evidence? What types of capital flows are there? Which are more problematic from a developing or emerging market economy's perspective? What is the argument by those who argue there are market failures in capital markets? What is the consequence of such a market failure? What is the theory of the second best in the case of failures in capital markets? How can capital controls help overcome the failure in capital markets? What are some examples of capital controls? When would such controls be appropriate policy measures? What was the Asian financial crisis? Was it a banking crisis or a currency crisis or both? What is the role of the IMF in such a situation? What is moral hazard and adverse selection and how does it relate to capital market failures and IMF assistance? Would capital controls have helped the Asian countries affected by the financial crisis? Should the foreign debt of countries with high debt be forgiven? Under what conditions?

12. Monetary Union

12.1. Case for a monetary union and the economic implications

- 12.1.1. Theory of optimal currency areas
- 12.1.2. Economic justification for having an exchange regime
- 12.1.3. Symmetric and asymmetric shocks within the currency area

12.2. Characteristics and assessment of an optimal currency area

- 12.2.1. Trade in goods and services
- 12.2.2. Factor markets
- 12.2.3. Budget and fiscal policy
- 12.2.4. Market situation and theoretical case for an optimal currency area in practice
 - (a) Mobility of factors
 - (b) Wage and price flexibility
 - (c) Fiscal stabilizers
 - (d) Exchange rate as a tool for employment
 - (e) Asymmetric shocks

12.3. Case of the EU from EMU

Review of homework assignment # 4

12. Monetary Union

- 12.1. Case for a monetary union and the economic implications
 - 12.1.1. Theory of optimal currency areas
 - 12.1.2. Economic justification for having an exchange regime
 - 12.1.3. Symmetric and asymmetric shocks within the currency area
- 12.2. Characteristics and assessment of an optimal currency area
 - 12.2.1. Trade in goods and services
 - 12.2.2. Factor markets
 - 12.2.3. Budget and fiscal policy
 - 12.2.4. Market situation and theoretical case for an optimal currency area in practice
 - (a) Mobility of factors
 - (b) Wage and price flexibility
 - (c) Fiscal stabilizers
 - (d) Exchange rate as a tool for employment
 - (e) Asymmetric shocks
- 12.3. Case of the EU from EMU: support for the single market (economic integration)
 - (a) How does fixed E over a larger area affect $Y = C + I + G + (X - M)$
 - (b) How similar are the overall economies: $GDP = Y = Q$?
 - (c) How similar is consumption: C/Y , D/cap and savings-consumption decisions?
 - (d) How similar is investment? What is the role of K -flows? How mobile is K ?
 - (e) How similar are government macroeconomic policies and fiscal policy?
 - (f) How similar are the external sectors, $(X - M)$, and trade sector X/GDP , M/GDP ?
 - (g) How similar are employment patterns, union behaviour, L mobility?

Study questions: What is the case for a monetary union and what are the implications? What is the theory of optimal currency areas? What is the economic justification for having an exchange regime? What are symmetric and asymmetric shocks and what is their significance for an optimal currency area? What are the EU's market characteristics in terms of the EU being considered an optimal currency area? Why should the degree of trade in goods and services within the EU matter in terms of an optimal currency area? How does factor market integration matter? Why should the degree of wage and price flexibility matter? Why are fiscal stabilizers within a currency area important? Does the EU's fiscal policy permit fiscal stabilization? What are the costs and benefits from EMU? Who are the biggest winners and losers from EMU? What are the implications for the US dollar and for the US if the euro is successful as an international currency?