MEKELLE UNIVERSITY

COLLEGE OF BUSINESS & ECONOMICS

DEPARTMENT OF ECONOMICS

COURSE MATERIAL FOR: INTERNATIONAL ECONOMICS II

Course code: Econ 2082

Credit hours: 3 hrs /5 ECTS/, Semester II

Compiled by: Habtu Nigus

April, 2020

Mekelle

Course Outline

Course Title: **International Economics II**

Course code: Econ2082

Credit hours: 3 hrs /5 ECTS/ Prerequisites: Econ1031, Econ2081

Course Description:

This course focuses on the theory and policy of international finance in the context of developing countries. Issues that will be covered in the course are the Balance of payments (and different approaches to balance of payments), Exchange rate economics, Open-economy macroeconomics (IS-LM BOP framework, the Mundel- Fleming Model), theory of capital flows, Nature of Capital Flow in Africa Context (theories of FDI and Aid flow to LDC's in general and Africa in particular), Financing development through primary commodity trade-link between international finance and trade and the issue of Globalization, and the Evolution of International Financial Institutions (the IMF, the World Bank etc…), impact of capital flows and the debt crisis in African context will be covered.

The main topics that are to be covered in the course will include: international Macroeconomics, the balance of payments accounts, exchange rate economic, international financial system, international capital movements, aid and debt, and international policy coordination.

Course Objectives

The objective of this course is to present a comprehensive and clear exposition of the theories and principles of international finance that are essential for a though understanding of international economics. Such an understanding of the theories and principles would enable students to

- Evaluate and suggest solutions to important international economic problems and issues facing the global economy.
- Appreciate these issues by extending their analysis to individual countries and/ or regions.
- Furthermore, the students are expected to assess the policy implications of the issues and problems related to International Economics.
- Critically address different policy proposals in addressing issues arising in international economics

- Understand the economic basis behind current policy debates in international economics
- Develop skills to address theoretical and empirical issues in international economics
- Explain approaches and techniques of analyzing trade and finance internationally.

Course Contents

CHAPTER ONE: - **The Foreign Exchange Markets and Exchange Rate**

1.1. The Foreign Exchange rates

1.2. The Determination of Exchange Rates

1.3. The Foreign Exchange Market

1.4. Function of Foreign Exchange Market

1.5. Transaction of Foreign Exchange

1.6. Foreign Exchange Regimes, spot versus forward foreign exchange markets

1.7. The Purchasing Power Parity Theory

1.8. Hedging, Speculation and arbitraging

CHAPTER TWO: **- Money, Interest Rate and the Exchange Rate**

2.1. Brief review of the money market

- (money demand, money supply and interest rates)

2.2. Money and exchange rate in the short run

2.3. Price Levels and Exchange Rates in the Long Run

2.3.1. The law of one price

2.3.2. The absolute purchasing power parity

2.3.3. The relative purchasing power parity

2.3.4. Flexible-price monetary model of exchange rate

CHAPTER THREE: - **Open Economic Macroeconomics**

(**Balance of Payments and foreign exchange rate**)

3.1. Introduction

3.2. Balance of payments concept

3.3. Components of Balance of Payment Accounts

3.4. The concepts of deficits and surpluses in BOP

3.5. Exchange Rate and the BOP

3.6. Adjustments in BOP

3.7. The links between saving, investment and the current account

CHAPTER FOUR: - **International Macroeconomic Policy**

4.1. Internal and External Balances

4.2. International Capital Movement

4.3. MNCs and Foreign Direct Investments

4.4. Debt Crisis

4.5. Developing countries and external Debt problem

4.6. Policy Response and Macroeconomic implications

4.7. Toward a solution of the Debt Crisis

4.8. International Macroeconomic policy coordination

CHAPTER FIVE: - **Economic Policy in an Open Economy**

5.1. Brief review of equilibrium in the goods market

5.2. The money market and the balance of payments

5.3. Fiscal and monetary policies under fixed exchange rate regime

5.4. Fiscal and monetary policies under flexible exchange rate regime

CHAPTER SIX: - **International Monetary system and International Institutions**

6.1. International Monetary Arrangements

6.2. The Gold Standards

6.3. Flexible Exchange Rates

6.4. The fixed Exchange Rates: The Bretton Woods System

6.5. The International monetary System

6.6. The World Bank

Course Policy

- Late coming is not allowed and no student is allowed to enter after class has started.
- Duplication of assignments is strictly forbidden; it entails serious penalty.
- Assignments are required to be submitted before or on the deadline.
- Cheating during exam sessions results in a minimum of "F "grade while cheating in quizzes and tests is subjected to a zero mark. All cheating cases will be reported to the department for further considerations.
- Students should switch off their cell phones while they are in class and must keep their cell phones switched off during all kinds of exam sessions.
- Students must attend 90% of the class for the course. Failure to attend 90% of the class will not allow the student to sit for the final exam.

- ☛ Missing a quiz without convincing evidences will earn the students a grade of zero marks in that specific quiz

Module Delivery and Assessment Methods

The delivery method shall be student-centered. Students are highly expected to participate in class works at the middle and end of each session and in group discussions inside and outside of the class. Specifically the course will be delivered through the following methods:

- Lecture Method
- In-class problem solving
- Group Work
- Assignment

Assessment method	Weight
Assignment (Indiv/group)	20%
Quizzes/Tests **(Max of 10 % each)**	30%
Final Exam	50 %
Total	100%

References

1. *Appleyard, D. R. and Field, A. J. (2009), International Economics, 9th ed., Mcgraw-Hill/Irwin, Boston. (**You may use any Edition**)*
2. Dwivedi, D. N. International Economics (1999), Delhi: Konark Publishers
3. *International Economics: Theory and Policy, Fourth Edition, by Paul R. Krugman and Maurice*
4. *International Trade: Theory and Evidence by Markusen James R. et al (1995), McGrow-Hill Inc. - covers aspects of international trade only - M&MKM*
5. Krugman, Paul. & Obstfeld, Maurice. (2003), International Economics: Theory & Policy. New York: Addison-Wesley.
6. Mannur, H.G, (1998), International Economics, Vikas publishing house pvt.ltd *Obstfeld, Addison Wesley Longman*
7. *Pilbeam, K. (1992), International Finance, London: Macmillan.*
8. *Salvatore, Dominic (1995), International Economics, Prentice Hall International, Inc.*
9. Salvatore,D. (1998), International Economics, 6 ed., Printice
10. Salvatore,D. (2001), International Economics, India: republika pvt.ltd
11. Sawer, Charles W. & Sprinkle (2006), International Economics
12. Sodersten, B. & Reed, Geoffrey (1994), International Economics, 3rd edition. London: Macmillan.
13. *Sodersten, B. and G. Reed (1994), International Economics, New York: St. Martin's Press.*

CHAPTER ONE: THE FOREIGN EXCHANGE MARKETS AND EXCHANGE RATE

1.1. The Foreign Exchange Rate

=> ***Exchange rate*** is price of one currency in terms of another. The conventional way of reporting this in economics is home currency per foreign. In the U.S. this is $ per foreign currency. For example, currently it would take about $***1.14*** to buy one European euro ($/euro). This is the convention in economics and will be used in this class. Sometimes you will hear quoted the other way around, often called European terms. i.e: 0.88 ***euro/$.***

=> Exchange rates are important for trade because they allow you to compare the cost of imports to that of domestic goods in common terms. There was a period when Americans were going to Germany to buy Mercedes and bring them home, rather than buying them in the U.S.

Example: Consider the Mercedes: suppose the going price is 60 thousand euros in Germany and 60 thousand dollars in the US. Would people flock to Germany? Depends on the exchange rate - comparing $ and euro is like comparing apples and oranges. Suppose the $/euro exchange rate is 0.90. So the 60 thousand euros equals:

= 60 thousand euros * (0.90 $/euro) = 54 thousand $ (USD)

At this exchange rate, looks like it's cheaper to buy the car in Germany. How know using the rate not upside down? Look at units: have euro, want dollars, and so multiply by $/euro and euro cancels out, and you left with units in dollars.

1.2. The Foreign Exchange Market

- The foreign exchange market is a place or an arrangement where different currencies are traded.
- Foreign exchange market is a market/situation in which international currencies are purchased and sold or traded.
- The price of foreign currency is decided by the free interface of households, firms and financial institutions.

- Major actors in the FEM are commercial/central banks, asset management firms, corporations, and insurances.
- Foreign exchange trading takes place in many financial centers and with substantial and growing trade volume.
- The foreign exchange market is so much integrated that no large difference in exchange rate appears in centers.
- Most transactions involve exchange of foreign currency for dollars due to roles of the US in the world economy
- Dollar is referred to as the *vehicle currency* due to its pivotal role in so many global foreign exchange deals.

1.3. Supply and Demand for Foreign Exchange

The value of a nation's money, like most goods and services, can be analyzed by looking at its supply and demand. For example an increase in the demand for the dollar will raise its price (cause an appreciation in its value), while an increase in its supply will lower its price (cause a depreciation). These are only tendencies, however, and depend on other factors remaining constant.

1.3.1 Supply, demand and market for foreign exchange

A) Demand for foreign exchange

Figure 1.1 shows the demand for US $ in Ethiopia. The exchange rate is measured on the vertical axis and quantity of the foreign currency (US$) is measured on the X-axis. The exchange rate R is a measure of the price of the foreign currency (US$) in terms of domestic currency (Ethiopia Birr). An increase in R implies a decline in the value of Birr and an increase in the value of US$.

In other words, a movement up on the vertical axis represents an increase in the price of foreign currency (which is equivalent to a fall in the price of Birr). For Ethiopians, American goods are less expensive when the Dollar is cheaper and the Birr is stronger. Hence, at the depreciated values for the dollar, Ethiopians will switch from home-made or third-party supplies of goods and service to American suppliers.

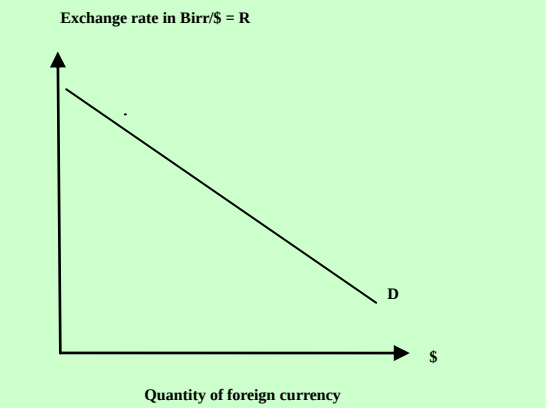


Figure 5.1. Demand for foreign exchange

Before they can purchase goods made in USA, however, they must first exchange Birr for US$. Consequently, the increased demand for US goods is simultaneously an increase in the quantity of US $ demanded.

B) Supply curve for foreign exchange

The supply curve of foreign currency slopes up because foreign firms and consumers are willing to buy a greater quantity of domestic goods as the domestic currency becomes cheaper. The supply of US$ will increase if US and/or foreign citizens are willing to buy a greater quantity of Ethiopia's goods as the Ethiopian currency becomes cheaper (i.e. as the foreigners receive more birr per USD). Before the foreign citizens can buy Ethiopia goods, however, they must first convert Dollar into Birr, so the increase in quantity of Ethiopian good demanded is simultaneously an increase in the quantity of foreign currency supplied to the Ethiopian Economy.

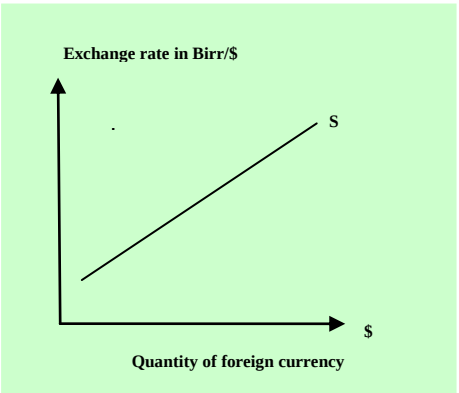


Figure5.2. Supply of foreign exchange

C) The market for foreign exchange

Figure 1.3 shows (combines) the supply and demand curves of foreign currency. The intersection of the curves in the Ethio-US foreign exchange market determines the exchange rate R_1 at which the quantity of demand and supply of foreign currency to the Ethiopian Economy are equal.

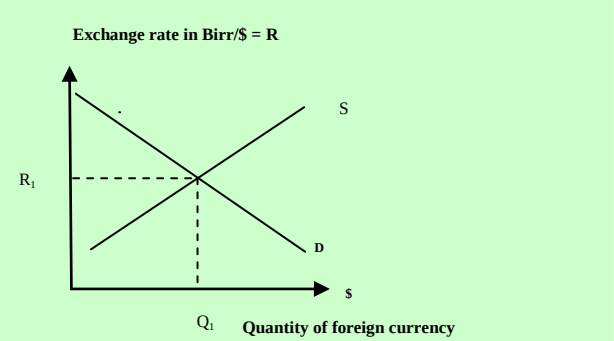


Figure 5.3. Market for foreign exchange

1.3.2. Change in demand and supply of foreign exchange

There are three major reasons why people hold foreign currency rather than their own. These are:

- For reasons related to trade and direct investment (like business cycle, inflation and expectation of future economic growth)
- To take advantage of interest rate changes
- To speculate

Changes in one or more of these three motives for holding foreign currencies can lead to a shift in the demand and supply curves of foreign currency indicating in change in demand and change in supply of foreign currency. The following table is an illustrative example on the determinants of demand and supply of USD in Ethiopia.

Table 1.1: Major determinates of the supply and demand for foreign currency in Ethiopia.

Factors	Increase in Ethiopia's demand for foreign currency	Increases in the supply of foreign currency
1. Trade and direct investment factor		
a) The business cycle	Ethiopians economic Expansion (more Ethiopians Imports)	Foreign economic expansion (more Ethiopians exports)
b) Inflation	Ethiopian inflation (foreign goods relatively cheaper)	Foreign inflation (Ethiopians goods relatively cheaper)
c) Expectation of future growth	Increased potential for foreign growth (attracts outward Ethiopian direct investment)	Increased potential for Ethiopians growth (attracts foreign direct investment in Ethiopia)
2. Interest rate changes	An increase in foreign interest rates or decline in Ethiopian interest rates	An increase in Ethiopia interest rates or a decline in the foreign
3. Speculation	Expectation of future decline in the value of Birr, or a future rise in the value of foreign currency	Expectation of a future decline in the value of a foreign currency, or a future raise in the value of Birr

Sources of Demand and Supply for FEX

Demand

- Foreign purchase of goods
- Foreign purchase of services
- Business tour and vacation
- Public diplomatic travels
- FDI with domestic resources
- Purchase of tour services
- Remittances sent abroad
- Debt servicing or granting
- Speculative endeavors

Supply

- Foreign sell of goods
- Foreign sell of services
- Hosting global business or diplomatic conferences
- Receiving of remittances
- Public/private grants/loans
- Official visits from abroad
- Supply tour service
- Speculative endeavors

Factors that influence the Exchange Rate

There are different factors which influences the exchange rate. Some of the following are stated below.

- **Inflation rates:** Higher domestic inflation means less demand for local goods (decreased supply of foreign currency) and more demand for foreign goods (increased demand for foreign currency).
- **Interest rates:** Higher domestic (real) interest rates attract investment funds causing a decrease in demand for foreign currency and an increase in supply of foreign currency.
- **Economic growth:** Stronger economic growth attracts investment funds causing a decrease in demand for foreign currency and an increase in supply of foreign currency.
- **Political & economic risk:** Higher political or economic risk in the domestic country results in increased demand and reduced supply of foreign currency.
- **Changes in future expectations:** Any improvement in future expectations regarding the domestic currency or economy will decrease the demand for foreign currency and increase the supply of foreign currency.
- **Government intervention:** Maintain weak currency to improve export competitiveness.

1.4. Functions of the foreign exchange market

The two main functions of the foreign exchange market are

1. *to determine the price of the different currencies in terms of one another and*
2. *to transfer currency risk* .

Foreign exchange market means a place where one form of money (currency) is changed for another form.

1.5. Foreign exchange transactions

Foreign exchange transactions normally take place between commercial banks and their customers, and among commercial banks themselves which buy and sell foreign currencies either locally or internationally.

- The foreign exchange transactions are usually put into four categories:

Current Transactions

- As regards the Current Transaction, they are further divided into two clauses: (a) Visible Trade (b) Invisible Trade. Visible trade is based on the import and export of physical goods known as merchandise. The invisible trade has no direct relation with the import and export of merchandise. It is the payment made or received from the foreigners for the shipping, banking, insurance services, received or provided to them. Interest on capital, dividend or remittance of profits, from one country to another also fall in the category of invisible trade.

Capital Transactions

- When a country grants aids or gives long term loans or invests employing foreign exchange in another country, a capital transaction is then said to have operated.

Short Term Financial Transactions

- If the citizens of one country, due to political or economic reasons, transfer their foreign exchange resources to another country for a short period, it is then said to be a short term financial transaction of foreign exchange.

Working Balances

- The commercial banks sometimes keep their working balances in foreign money in other countries for earning higher profit or fear of devaluation in the home currency or unfavorable political conditions at home. In all such cases, the demand for and supply of foreign exchange is affected.

1.6. Nominal and Real Exchange Rates

From the point of view of tourists and business people who use foreign exchange, the key item of interest is the purchasing power that they get when they convert their dollars, not the number of units of a foreign currency.

An American importer trying to decide between Ethiopia and Kenyan textiles does not care if he or she gets 8.7 birr per dollar or 73.2 KES per dollar. The biggest concern is the volume of textiles that can be purchased in Ethiopia with 8.7 Birr and in Kenya with 73.2 KES.

Real Exchange Rate is the market exchange rate (nominal exchange rate) adjusted for inflation.

$$\mathbf{R_r = R_n (P_F/P_H)} \text{---------- (1)}$$

Where $\mathbf{R_r}$ = real exchange rate

$\mathbf{R_n}$ = market (nominal) exchange rate

$\mathbf{P_H}$= home country price level

$\mathbf{P_F}$ = foreign country's price level

A base year is arbitrary chosen as a standard for comparison, and P_H and P_F are both equal to 100 at the base year. Thus, the base year real exchange rate is:

$$\mathbf{R_r = R_n (100/100) = R_n} \text{ ----------(2)}$$

Over time, if inflation is higher at home than in the foreign country, then P_H rises more than P_F, and R_r falls if R_n is constant. This means:

- Domestic currency appreciates in real terms
- Foreign currency depreciates in real terms

Example: The base year nominal or market exchange rate in the Ethio-US foreign exchange market is 8.7 birr per USD. After a year there has been 10% inflation in Ethiopia while the inflation in USA is zero percent. Calculate the real exchange rate.

$$\mathbf{Rr = Rn (P_F/P_H)}$$
$$\mathbf{= 8.7 (100/110)}$$
$$\mathbf{= 7.91 \text{ Birr/USD}}$$

Tourists, investors, and business people can still trade birr and USD at the nominal rate (8.7 B/USD) plus whatever commissions they must pay to the sellers). After the price increase (inflation) in Ethiopia, the real purchasing power of the Birr has risen in USA compared to what it buys at home. The real exchange rate of 7.91 Birr/USD tells us that US goods are now 10 percent cheaper than Ethiopian goods that have risen in price. As long as the nominal exchange rate remains unchanged, US goods remain less expensive to both Ethiopian and American purchasers. In real terms the USD has depreciated and the Birr has appreciated. The real exchange rate is useful for examining changes over time in the relative purchasing power of foreign currencies.

1.7. Determinates of Exchange Rate in the Long-Run

Few tasks in economics are more difficult and riskier than trying to predict exchange rate. Currency markets are as volatile as stock markets, and no one yet has been able to devise a system to consistently forecast exchange rates. Nevertheless, there is substantial evidence that over the very long run (periods of a decade or more), **exchange rates are determined by two main factors.**

- Purchasing Power Parity (PPP)
- Differences in productive growth between countries.

1.7.1. Purchasing power parity

Purchasing power parity also termed as **law of one price**, states that a currency should buy the same quantity of goods when converted to another currency as it can buy at home. If a unit of home currency can buy a certain quantity of market baskets of goods in the home market, the same unit of home currency converted to its equivalent foreign currency must buy equal quantity of markets baskets of goods from the foreign market. In other words, the exchange rate should be at a level that keeps the real purchasing power of money constant when it is converted to another currency.

If the law of one price does not hold, a birr in Ethiopia buys a different (larger or smaller) bundle of goods than it buys from USA when the Birr is converted into Dollar. If birr buys more in Ethiopia than its dollar equivalent buys in USA, then business people could make profit buy shipping goods from Ethiopia where they are relatively cheap and sell them in USA where they are relatively expensive. If a birr worth of dollar buys more in USA, goods will flow in the opposite direction, from USA to Ethiopia.

The law of one price can be thought of as a long-run tendency for the real exchange rate to remain constant. Since the real exchange rate equals the nominal rate times the relative price levels, the law of one price essentially states that if foreign prices rise more than domestic prices ($\Delta P_F > \Delta P_H$), then the nominal rate decrease by the same percentage (R_n falls and it takes fewer Birr to buy a unit of foreign currency). These forces can take highly variable and sometimes very long periods of time to materialize, however, so the law of one price does not permit anyone to forecast tomorrow's or next years Birr- dollar

exchange rate. In addition, even over the long-run, there can be substantial deviations in a nation's currency from the law of one price.

1.7.2. Differences in productivity growth rates

Faster productivity growth is equivalent to a relative decline in prices and leads to a real appreciation in currency values over the long run. Let us take a historical data on US – Japanese and US-German exchange rate over the period 1980 – 1994 as shown in table 1.1. The higher productivity growth in Japan and Germany relative to the US productivity growth over the period 1980 to 1994 resulted in an increase in the market exchange rate in the US-Japan and US-Germany foreign exchange market. For example of the 4.9% increase in USD-Yen market exchange rate, 2.1% of the increase was due to higher productivity growth in Japan relative to USA, 0.9% of the increase was due to higher inflation in USA relative to the inflation in Japan over the indicated period. The remaining 1.9% increase was due to unexplained or stochastic factors that may have effect on exchange rate.

Table 1.1 Determinants of long-run charges in exchange rate, US-Japan and US-Germany, 1980-1994

	US – Japan	US – Germany
(ΔP_H - ΔP_F) in percent where P_H is price in US and P_F is price level in foreign	0.9%	1.9%
Differences in productivity growth (foreign minus US) in percent)	2.1%	1.1%
ΔR_n, in percent	+4.9%	+3.2%
Unexplained portion	4.9-3.0=1.9%	3.2-3.0=0.2%

Source: Kenneth Kasa "Understanding Trends in foreign exchange rates'" FRBSF weekly letter, FRB of San Francisco, h. 9, 1995.

1.8. Exchange Rate Systems/ regime

Exchange rate systems are the rules that nations attach to the movement of their exchange rates. There are a number of different categories of sets or rules that nations may adopt, but they all are modifications of two fundamental categories.

These are:

- Fixed exchange rate system
- Floating exchange rate system

Historically, fixed exchange rate systems have usually been a gold standard or a modified gold standard and have been far more common than a floating exchange rate system. Both fixed and floating exchange rate systems have advantages and disadvantages. The weight of economic opinion has probably tended to favor floating exchange rates, although this is by no means unanimous.

1.8.1 The gold standard and fixed exchange rates

Gold standards are a form of fixed exchange rates. Under a pure gold standard, nations keep gold as their international reserve. Gold is used to settle most international obligations, and nations must be prepared to trade it for their own currency whenever foreigners attempt to "redeem" the home currency they earned when they sold goods and services. In this sense, the nation's money is backed by gold. There are essentially **three rules** that countries need to follow in order to maintain a gold exchange standard.

Rule 1: Nations must fix the value of their currency unit in terms of gold.

Fixing the value of a nation's currency in terms of gold fixes the exchange rate. For example, under the modified gold standard of the Bretton Woods System (1947-1971) the U.S. dollar was fixed at $35 per ounce, and the British pound was set at £12.5 per ounce. The exchange rate was $35/£12.5, or $2.80 per pound. If in Ethiopian case, government may fix Ethiopian Birr at Birr 120 per ounce of gold. Thus the exchange rate for Birr to Dollar would be Birr 120/$35, or Birr 3.43 per USD.

Rule 2: **Nations keep the supply of their domestic money fixed in some constant proportion to their supply of gold.**

This requirement or rule is an informal one, but it is necessary in order to insure that the domestic money supply does not grow beyond the capacity of the gold supply to support it. Consider what would happen if a country decided to print large quantities of money for which there was no gold backing. In the short run, purchases of domestically produced

goods would rise; in the medium to long run, domestic prices would follow them up. As domestic prices rise, foreign goods become more attractive, since a fixed exchange rate means that they have not increased in price. As imports in the home country increase, foreigners accumulate an unwanted supply of the home country's currency. This is the point at which the gold standard would begin to become unhinged.

Rule 3: Nations must be willing to redeem their own currency with payments in gold, and they must freely allow gold to be imported and exported

If gold supplies are low in relation to the supply of domestic currency, gold reserves will run out when the nation tries to redeem its currency from foreigners. This spells crisis and a possible end to the gold standard.

Note: *Under any fixed exchange rate system, whether it is based on gold or not, the national supply and demand for foreign currency may vary, but the nominal exchange rate does not. It is the responsibility of the monetary authorities (i.e. the central bank or treasury department) to keep the exchange rate fixed.*

Figure 1.4 shows an increase in the Ethiopia's demand for US dollar. In the short run, a rise in demand is caused by one of the factors listed in Table 1.1. These factors include, for example, increased Ethiopia's demand for US goods, higher US interest rates, or the expectation that the value of the Birr will fall against the dollar. If R_1 is the fixed Birr-USD exchange rate, then Central Bank of Ethiopia must counter the weakening Birr and prevent the rate from rising to R_2. (Remember, R_2 represents more Birr per USD than R_l; therefore, the Birr is worth less.)

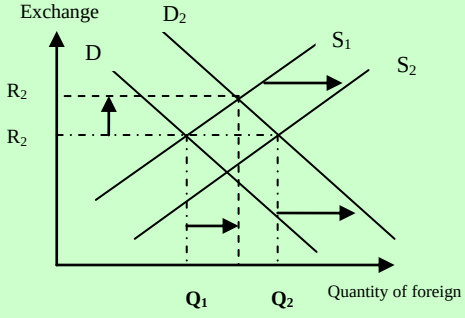


Figure 5.4 Fixed Exchange rate and Changes in Demand

One option is to sell the Ethiopia's reserves of USD. This shifts the supply curve out, from S_1 to S_2 and keeps the exchange rate at R_I.

Under a pure gold standard, nations hold gold as a reserve instead of foreign currencies and Ethiopia sells its gold reserves in exchange for Birr. This action increases the demand for Birr and offsets the pressure on the Birr to fall in value.

As Ethiopia sells its gold reserves, one of two things can happen. Either the demand for gold by people supplying Birr is satisfied or the pressure on the Birr eases or Ethiopia begins to run out of gold. If the latter happens, Ethiopia may be forced to devalue the Birr.

Under a gold standard, devaluation is accomplished by changing the gold price of the Birr. If the Birr was set at Birr 120 per ounce of gold, devaluation would shift the price of gold to something more than Birr 120, and each ounce of gold sold by Ethiopia buys back a greater quantity of Birr.

Note: ***Devaluation*** *and* ***revaluation*** *are equivalent to* ***depreciation*** *and* ***appreciation****, except that the first group refers to changes in a currency's value under a fixed exchange rate system.*
Devaluation *is a decline in the value of a currency under a fixed exchange rate system, while* ***depreciation*** *is a decline under a flexible system.*
Revaluation is *an increase in the value of currency under a fixed exchange rate system while an* ***appreciation*** *is an increase in the value of currency under a flexible exchange rate.*

1.8.2. Alternative exchange rate systems

Fixed exchange rates under a gold standard are one extreme in the spectrum of possible exchange rate systems. At the other extreme are **floating (or flexible) exchange rates**. Under a floating exchange rate system, the value of a nation's currency "floats" up and down in response to changes in its supply and demand. When demand for domestic currency exceeds its supply, the domestic currency appreciates in value (R_n, the nominal exchange rate falls), and when supply is greater than demand, the domestic currency depreciates (R_n rises).

Between fixed and floating exchange rates, there are a number of other types of exchange rate systems. The simplest way to categorize these systems is **on a scale that measures the amount of flexibility each allows.**

- **Freely floating rates**: At one end are **freely floating rates**, which are the most flexible and determined purely by the forces of demand and supply of the foreign exchange market.
- **Managed floating rate**: One step down the spectrum of flexibility is a **managed floating rate.** The difference between a managed floating rate and a purely floating exchange rate is that the national government occasionally intervenes in international currency markets in an attempt to "**manage**" the direction of change. Intervention takes the form of buying the home currency in order to increase its demand and prop up its value, or selling the home currency in order to encourage depreciation. Countries with floating exchange rates use these tactics whenever policy makers think there is a need to nudge their currency up or down, or to stop an ongoing change. Nearly all governments try to manage their exchange rate at some point in time. Consequently, most of the nations that have adopted floating exchange rate systems are in fact using a managed floating system.
- **A target zone exchange rate system:** this is similar to a managed floating system. The most prominent example is the European Monetary System of the fifteen-member European Union, prior to the single currency (Euro) of 1999. With a target zone, exchange rates are allowed to float freely within some well-defined range, or band. The band defines a line of intervention; that is, it is like a managed float except the limits of a currency's flexibility are precisely defined.
- **Adjustable peg exchange rate:** An adjustable peg is a fixed exchange rate that is adjusted periodically. Developing nations often use an adjustable peg or something very similar as a way to keep their exchange rate more or less fixed in real terms.

Given that $R_r = R_n(P_F/P_H)$, regular adjustment to R_n keeps the real exchange rate, R_r, from appreciating when domestic inflation is greater than the inflation rate of the country's trading partners.

Types of Exchange rates

Spot and forward rates: on-the-spot trade is one in which two parties agree to exchange bank deposits and execute. Forward is one in which two parties agree to exchange bank deposits and execute it after just above two days. The two parties specify a value date like 30 or 90 days.

Foreign Exchange Swaps: this is a spot sell of a currency and a forward repurchase of that same currency later. This reduces transaction cost in terms of brokerage fees.

Future and options: some other financial instruments give better flexibility as to timing and exchange terms

Futures contract is a promise that a specified amount of foreign currency is given on specific date in the future.

An option entitles owners to buy/sell a specified foreign currency at specified price any time up to expiration date.

- It gives the right but not an obligation to buy/sell the underlined asset
- The right to buy is call option
- The right to sell is put option

Hedging, Speculation and Arbitraging

Hedging: A financial transaction that reduces / eliminates risk through financial derivatives by financial institutions. Financial institutions buy assets and take long positions that exposes them to risk if assets' return are uncertain. Hedging enables to offset risks of long position by taking short position, and a short position for a long position. Forward markets in foreign exchange have been highly developed and are used to hedge foreign exchange risk.

Speculation: this is the opposite of hedging where people take or accept exchange risks in hope of making profits. If speculators are correct about future exchange rate, they will make profits otherwise they will incur losses. Speculation often occurs in forward exchange markets.

Arbitraging: Simultaneous buying and selling of riskless assets in different markets to make an immediate profit. Arbitrage refers to the process of buying a currency cheap and selling it dear in same or different markets. Different euro-dollar exchange rates in different markets.

1.9. Exchange Control

It should be noted at the very outset that, exchange controls, like currency devaluations, form a part of expenditure-switching policy package. Because, they too, like devaluation, aim at directing domestic spending away from foreign supplies and investment. Exchange controls try to divert domestic spending into consumption of domestically produced goods and services on the one hand and into domestic investment on the other.

1.9.1 Objectives of exchange control

The objective of controlling exchange is to fix it at a level different from what it would be if the economic forces were permitted free interplay. The objectives of exchange control could be to:

- Correct a serious imbalance in the economy of the country relatively to the outside world; or
- Permit national economies and policy architects a broad freedom of action both in emergency and normal economic situations and warranty the decision to pursue domestic policies of economic growth and development; or
- Correct a persistently adverse balance of payments; or
- Prevent a flight of capital from the country; or
- Conserve foreign exchange reserves for large payments abroad, i.e facilitate servicing of foreign debt; or
- Maintain stable exchange rate, or to ensure growth with stability, and so on.

In all these circumstances, a free exchange would be either embarrassing or prejudicial to the object in view, and exchange control becomes an imperative necessity.

1.9.2 Methods of exchange control

Exchange controls may be broadly classified into two groups - direct and indirect exchange controls. Among the ***direct methods*** mention may be made of intervention and regulation in matters concerning exchange rates, foreign exchange restrictions, multiple exchange rate policies etc. ***Indirect methods*** of exchange control include import tariffs, export subsidies, bilateral and multilateral clearing arrangements, etc.

A. Direct methods of exchange control

1. Foreign exchange rate regulation through intervention

The government may intervene in the foreign exchange market with a view to raise or reduce the external value of its home currency. This intervention takes the form of large-scale buying or selling of home currency by the government in the foreign exchange market. The idea is to support or "peg" the external value of the currency to a chosen rate of exchange. In the absence of such pegging or government support through intervention, there is a risk that the free market rate of foreign exchange would diverge from the pegged rate. Put simply, government will sell foreign exchange when the price of foreign exchange is rising excessively on the foreign exchange market; and government will buy foreign exchange when the foreign exchange rate is going down excessively causing appreciation of domestic currency in terms of foreign currency. Since both depreciation and appreciation of currency are regarded as undesirable, there is need for government intervention in keeping exchange rates relatively stable. Exchange rate stability is necessary to facilitate and promote healthy growth of international trade and capital movements. Exchange rate stability is threatened off and on by BOP deficit and surplus pressures on the one hand and by the speculative buying and selling of foreign exchange of a destabilizing type, on the other. Hence, the need for government intervention to "smoothen out" such ups and downs in the exchange rate movement from time to time.

It is relatively easier for a country to sell its home currency and buy excess amount of foreign exchange to prevent depreciation of foreign exchange (or appreciation of its own currency), because every country has unlimited supplies of its own currency. All that the governments have to do is to go to the printing press and get more currency notes. On the other hand, the foreign exchange reserves at the disposal of a country are rather strictly limited. Therefore, if the foreign exchange rate is appreciating due to scarcity of foreign exchange *(i.e.* the domestic currency is depreciating against foreign currency), it would not be easy for governments to sell unlimited quantities of foreign exchange to prevent a rise in the foreign exchange rate. Government intervention, however, has to be of both the types pegging up or pegging down. The complexity or the case with which they can be undertaken are, however, quite different.

2. Exchange restrictions

This is another, and perhaps more severe, form of exchange controls. In this case, all foreign exchange earnings and receipts must be surrendered to the government and exchanged for home

currency; and foreign exchange can be purchased only from the government authorities. Non-compliance with currency transactions and regulations laid down by the governments are a crime even punishable with death as in Germany in 1931.

Government will acquire all foreign exchange coming into the country, and it will allocate or sell that foreign exchange to buyers on the basis of predetermined national priorities. For example, foreign exchange may not be made available for all kinds of foreign tour, travel or study or for non-essential import of goods and services, and so forth. A country may practice a system of what is called as "**blocked accounts**" *i.e.* not allowing the creditors of these blocked accounts to use their currency holdings in their accounts. This was done during Hitler's Germany. Many Jews who fled to London as refugees could not draw money from their accounts, though they had millions of marks in their German bank accounts, because their accounts had been blocked by the German government. Similarly, government may not allow capital transfers away from the home country. Foreign investment by nationals may not be permitted due to shortage of foreign exchange. One can visualize any number of measures which governments may take to cop serve scarce foreign exchange, and they all constitute **foreign exchange restrictions** as a form of exchange controls.

3. Multiple exchange rate policies

Multiple exchange rates were first employed by Germany and later they were followed by other countries like Argentina, Brazil, and Chile, Ecuador, Peru and many others. In the case of this policy, different exchange rates are fixed for imports and exports of different goods. Even for different categories of imports, different exchange rates are applied. Argentina maintained a higher complex system of multiple exchange rates, because she was not a member of the IMF. The system was administered quite efficiently for a long time.

The mechanism of multiple exchange rates is very simple. Suppose for example, the government considered imports of some raw materials and capital goods as essential to the economic development of the country; then the foreign exchange rate used in the case of such imports would be lower, say 1USD= 5 Birr rather than the standard exchange rate of, say 1 USD= 8.70 Birr. In terms of Birr (home currency) the importer pays a lower price for obtaining a given amount of USD (foreign exchange). This would make imports of such goods cheaper, because

the Birr price of USD fixed for their imports is lower. On the other hand, imports of non-essential luxury goods may be subjected to a higher foreign exchange rate, say 1USD =15 Birr. This would raise value of USD in terms of Birr and make import of the luxury goods rather very expensive. The same discriminatory exchange rate policy could be applied to export goods as well to encourage exports of certain types of goods and services more than others.

The policy of multiple exchange rates is also called **selective devaluation** policy as opposed to general devaluation policy. In the case of general devaluation policy, imports of all goods and services are made expensive, regardless of whether they are essential or nonessential types of imports. Similarly, generally devaluation would make all the exports attractive regardless of what the export commodity is. Multiple exchange rate policy undertakes selective devaluation *i.e.* it would make essential imports cheaper and non-essential imports expensive, and it would make some exports attractive and other exports unattractive. Multiple exchange rate policy will have different exchange rates not only for different goods (imported and exported) but also for different countries with which the home country is trading.

The advantage of multiple exchange rate policy to the practicing country lies in the fact that it eliminates the need for employing quantitative restrictions on imports (or exports) and licensing of imports (or exports). To that extent, this system can eliminate inefficiency and corruption that usually go with import licensing and quantitative restrictions on imports. This is perhaps the great merit of multiple exchange rates *vis-a-vis* physical controls on imports. However, there are several shortcomings associated with the multiple exchange rate systems. For example, the system introduces complexity and lot of confusion with regard to the number of exchange rates applicable to number of commodities in relation to number of countries. Sometimes, they can harm healthy economic development of a country.

B. Indirect methods of foreign exchange control

Among the indirect methods of exchange control to mention are: exchange clearing agreements, import restrictions, tariffs and import quotas are the chief instruments of indirect methods of exchange control.

1. Exchange clearing agreements

Exchange clearing agreements can be bilateral or multilateral, private or official. The world has

witnessed all such different types of agreements over the past several years. Bilateral clearing arrangements lead to a system of international trade and payments of a barter nature. Among the earliest forms of bilateral trade were barter deals undertaken by private firms. If all exports and imports of a country are carried out in such a bilateral barter fashion, there would be no BOP deficits or surpluses in any country. There would even be no need to use money or foreign exchange in settling international trade and payment obligations. Such bilateral clearing arrangements are employed by Communist countries in trading with one another.

One problem with such arrangements is that the exporter has to play the role of an importer as well, and exporters may not be accustomed to playing such dual roles. Germany evolved a novel device of exchange clearing which had the advantage of relieving the exporter from also performing the unaccustomed functions of an importer. This led to a system of barter clearing agreements between governments *i.e.* the central banks of the two trading nations.

Such arrangements of BOP settlement are strictly limited to commodity trade between countries. At best, they can cover service transactions as well. But other kinds of payments, particularly capital flows, are excluded from bilateral clearing arrangements. In any case, a clear disadvantage of these agreements, whether they are limited to only merchandise trade or all trade and payments, is that they distort the pattern of trade i.e. in the presence of such exchange control arrangements trade cannot conform to the dictates of comparative advantage, which requires trade multilateralism.

2. Tariffs and quotas

Tariffs and quotas on imports are indirect exchange control methods insofar as they become necessary as soon as direct exchange control methods are adopted in a country. To the extent that tariffs and quotas succeed in cutting down import expenditures, without materially reducing export receipts, they will contribute towards an improvement in the BOP balance of a country. As we have discussed the effects of tariffs and quotas in an earlier chapter, we do not wish to repeat them here again. However, it is necessary to emphasize that not all tariffs and quotas can be automatically considered as indirect forms of exchange control. For instance, import duties levied for revenue consideration *or* to stimulate domestic industrialization, can be considered as indirect exchange control methods. Similarly, export subsidies with a view to expand exports need not necessarily fall into the category of exchange controls. Only when the objective of

import duties or quotas or export duties or subsidies is explicitly to support the foreign exchange rate or improve the BOP situation, can they be truly considered as indirect methods of exchanges control. In reality, however, it is very difficult to identify whether a given important tariff or export subsidy is introduced for considerations of revenue or foreign exchange earnings (saving to improve BOP situation). The same kind of difficulty extends also to non-tariff barriers which a country may impose. Their objectives are so numerous that is almost impossible to identify with certainty that they are meant *solely* to improve the BOP situation of a country.

Review questions

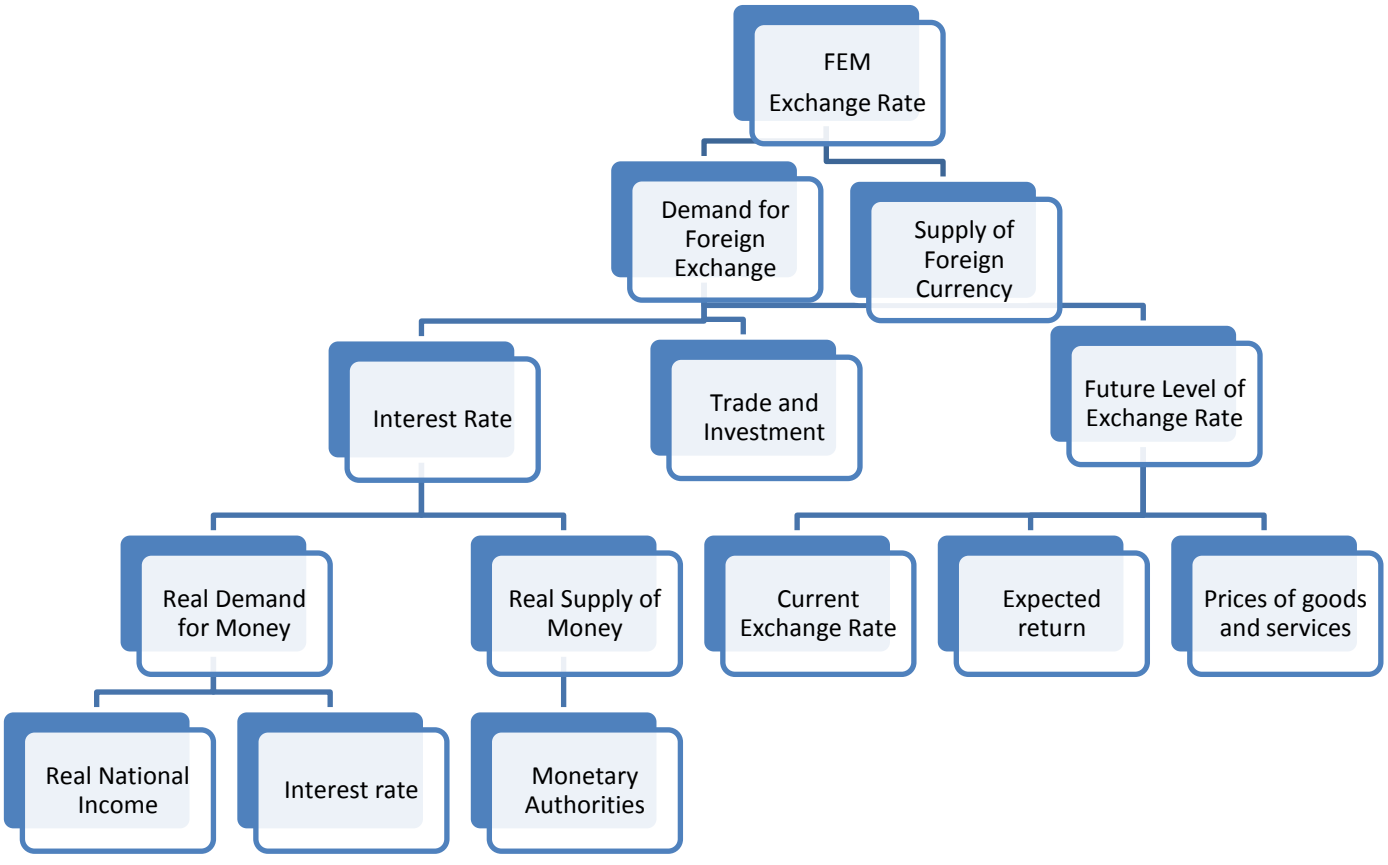
- Discuss the demand and supply of foreign exchange market?
- Explain the difference between foreign exchange market and foreign exchange rate?
- Discuss the determinants of foreign exchange market in the short run and Long run?
- Discuss the different types of exchange rate regime?
- What are the three rules that countries need to follow in order to maintain gold exchange standard?
- What are the different types of alternative exchange rate regimes according to their degree of flexibility?
- Discuss the two types of exchange controls?

CHAPTER TWO: MONEY, INTEREST RATE AND EXCHANGE RATE

Brief review of the money market

The interest rate and future exchange rate affect the Foreign Exchange Market (FEM). The exchange rate depends on interest rates earned on deposits of currencies and expected future exchange rate. Let's now see how interest rates are determined and how expectations about future exchange rates are formed. The first step in doing so will be explaining the effects of money supply and demand on interest and exchange rate. Factors that affect the money supply and demand are the most vital factors determining levels of exchange rates. Monetary development affect exchange rate by affecting interest rates and future expectations about exchange rate. The exchange rate in turn depends on the trend in prices of goods which in turn lies on money demand and supply.

The Money and Foreign Exchange Markets



Interest Rate and the Money Market

Let's thus define money, describe the factors affecting money demand, and its role in determining interest rate. Besides, let's define money supply, its determination and its role in the determination of interest rate/exchange rate. Money Defined: money is an asset that serves as ***medium of exchange, unit of account, and as store of value/wealth.***

Medium of Exchange: money is generally accepted way of payment and avoids a time consuming in barter trade. Money eliminates the enormous search costs associated with the trade of goods and services with other products.

***A unit of Account*:** Prices of goods, services, and assets are typically expressed in terms of money not in kind. Money simplifies economic calculations making contrast of price of various products and international currencies

***A store of Value*:** money is used to transfer purchasing power, like all assets, from the present in to the future. Money is the most liquid asset easily used to buy goods and services quickly and with lower transaction costs

Money includes currency and checking deposits with essential quality of liquidity unlike real estate and FCs.

Money Supply (MS) and its Determination

MS is the entire stock of currency and other liquid instruments in a country's economy as of a particular time. The money supply can include cash, coins and balances held in the checking and savings accounts in an economy. Based on the type and size of accounts the instrument are kept, types of money supply are M0, M1, M2 and M3

M0 & M1: narrow money that include coins and notes in circulation and other money equivalent liquid assets. Demand deposits, checking accounts and negotiable order of withdrawal accounts fall under this category.

M2: M1 plus 'near money' like savings deposits, money market mutual funds (MMF) and other time deposits.

M3: M2 plus large time deposits, institutional MMFs short-term repurchase agreements and large liquid assets. The M3 measurement includes assets that are less liquid than other components or types of the money supply.

***Demand Deposit*:** funds held in an account withdraw-able at any time without any advance notice to the *depositing*

- ATMs and mobile online banking are used to access DDs

***NOWs*:** An interest-earning bank account in which the customer is permitted to write drafts against the deposit.

***Checking Account*:** is a transactional deposit account that allows for numerous withdrawals and unlimited deposits. Checks, automated cash machines and electronic debits among others can be used to withdraw money from *CAs.*

***Saving deposit*:** a deposit account with limited transaction with modest interest rate, and checks may be written

Money Market Mutual Fund (MMMF): investments that earn shareholders an interest and also maintain a net asset value of $1 per share. The size of money supply in an economy is determined by the monetary authorities: the central or national banks. The national bank regulates currency amount in existence and indirectly controls checking deposits issued by private banks (PBs).

Money Demand (MD) and its Determination

The Individual Demand for Money

Demand for money refers to the entire demand to hold narrow money; currency and others with similar liquidity. The factors determining money demand are derived from the theory of asset demand. There are three demand characteristics.

***The relative expected asset return*:** currency does not pay interest while checking deposits do pay but often small. Holding money thus entails an opportunity cost of large return that otherwise could be earned from illiquid assets. The market interest rate reflects the difference in return from holding money and other interest bearing assets. The higher the interest rate, the greater the sacrifices from holding currency; and is the smaller demand for currency.

***Risk of Expected Return*:** the risk to hold money in view of effect of inflation affects other interest bearing assets. Because the face value of interest paying assets such as bonds is fixed in terms of money, risk affects them same.

***Liquidity*:** money is a liquid asset that makes the everyday purchases very easy and conduct varied ongoing purchase. A rise in the average value of transactions carried out by a household or a firm causes its demand for money to rise.

Aggregate Demand for Money: the above discussion can be utilized to determine the aggregate demand for money. The aggregate demand is the total money demand by all firms and households in an economy and determined by:

The interest rate: AMD falls with increase rate of interest

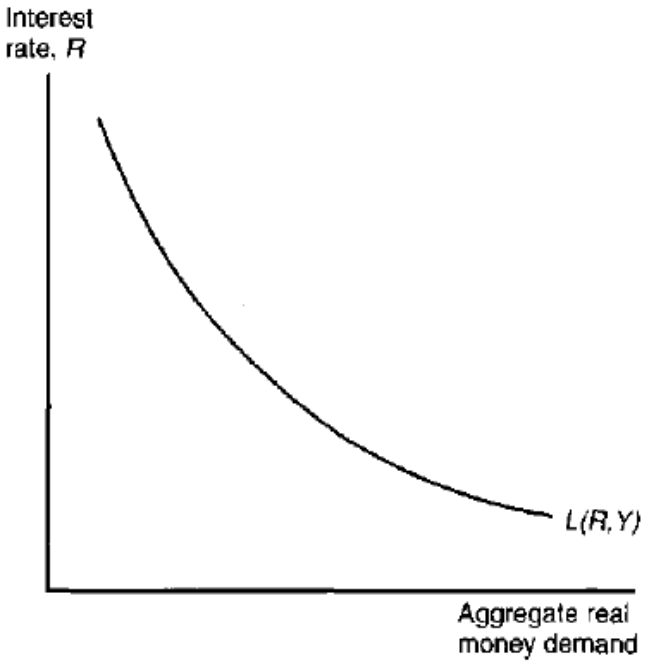
***The Price Level*:** a rise in the general price level requires greater money expenditure for usual baskets of goods.

***Real National income*:** real rise in national income shows bigger real value of transaction demanding more money. A rise in national income implies greater production of goods and services requiring more and quick transaction.

The real money demand function is put as: $M^d/P=L(R,Y)$.

- Figure 2.1: The real aggregate demand for money

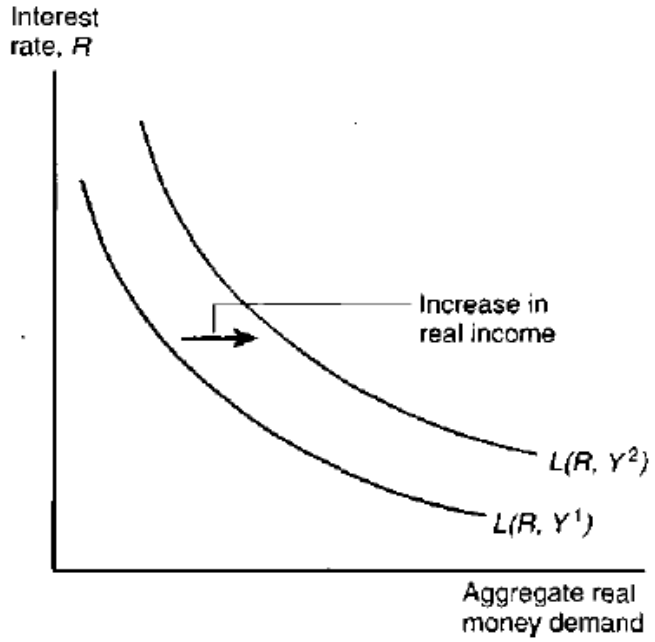
The downward-sloping real money demand schedule shows that for a given real income level, Y, real money demand rises as the interest rate falls.



The aggregate real money demand is not the demand for some number of currencies but for liquid purchasing power. It represents the amount of purchasing power people would like to hold in liquid form not just currency units. The aggregate real money demand changes with interest rate but moves only along the total money demand curve. However, a change in real national income shifts the curve since total demand rises at a given interest rate. A change in real income is a change in purchasing power or demand for G/Ss at a given level of interest rate.

- Figure 2.2: Changes in real income and RMD

An increase in real income from Y^1 to Y^2 raises the demand for real money balances at every level of the interest rate and causes the whole demand schedule to shift upward.

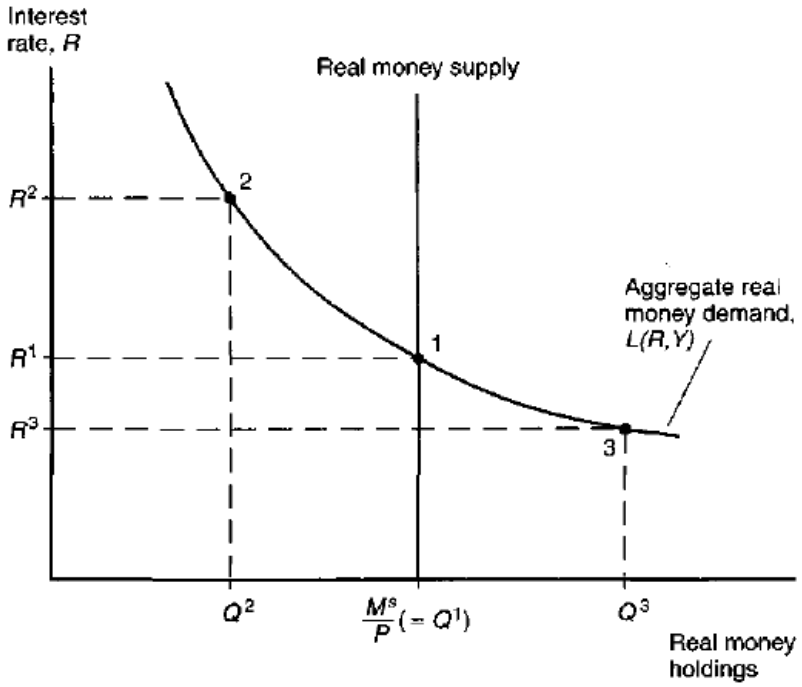


The Interaction between Money Supply/Demand

The money market is at equilibrium when the real money supply is just equal to the aggregate real money demand. Price and output are assumed to be unchanging due to the monetary changes; a change in money demand or supply. The aggregate real money demand intersects the real money supply at point 1 at equilibrium interest rate of R^1. The money supply schedule is vertical set by the central bank and real national income and price are just givens. Let's see how equilibrium restores in the money market as a result of the interactions between buyers and sellers.

- Figure 2.3: equilibrium money market determination

With P and Y given and a real money supply of M^s/P, money market equilibrium is at point 1. At this point aggregate real money demand and the real money supply are equal and the equilibrium interest rate is R^1.



Assume that equilibrium is initially restored at point 2 at an interest rate of R^2 which is above R^1 given Price and Y. At R^2, the aggregate money demand falls short of the real money supply thus implying an excess real money supply.

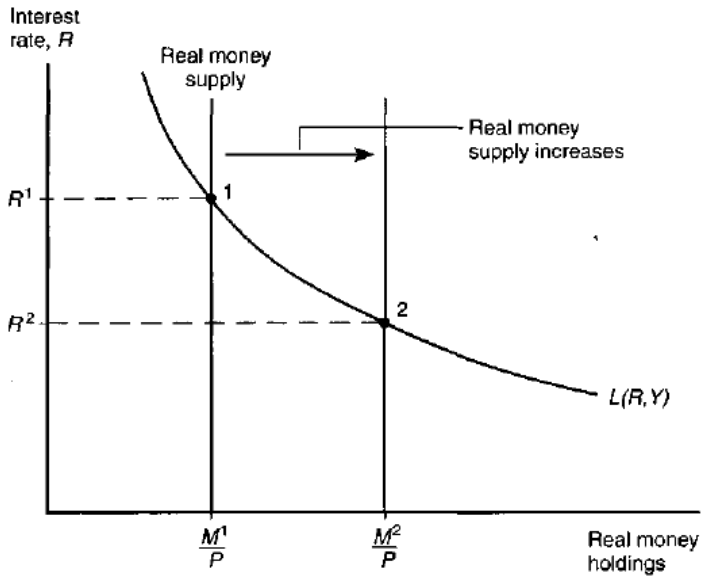
If people hold money exceeding their spending desire, they purchase interest bearing assets to reduce liquidity. People try to avoid their excess money by lending it to others but most fail due to the aggregate supply excess. Hence, people, to unload their excess money supply, tempt to look potential creditors by reducing interest rate. The pressure on interest rate continues until point 1 in which aggregate real money demand equals real supply. Likewise, at R^3, money demand exceeds supply, people sell their interest bearing assets at greater interest rates. Hence, interest rate rises and sets equilibrium again at 1. The interest rate thus moves towards a point where the real money supply and the aggregate demand are equal.

The Interest Rate and the Real Money Supply

Interest rate decreases with increased money supply for a given price and real output as shown in the figure below.

- Figure 2.4: Interest rate and money Supply

For a given price level, P, and real income level, Y, an increase in the money supply from M^1 to M^2 reduces the interest rate from R^1 (point 1) to R^2 (point 2).



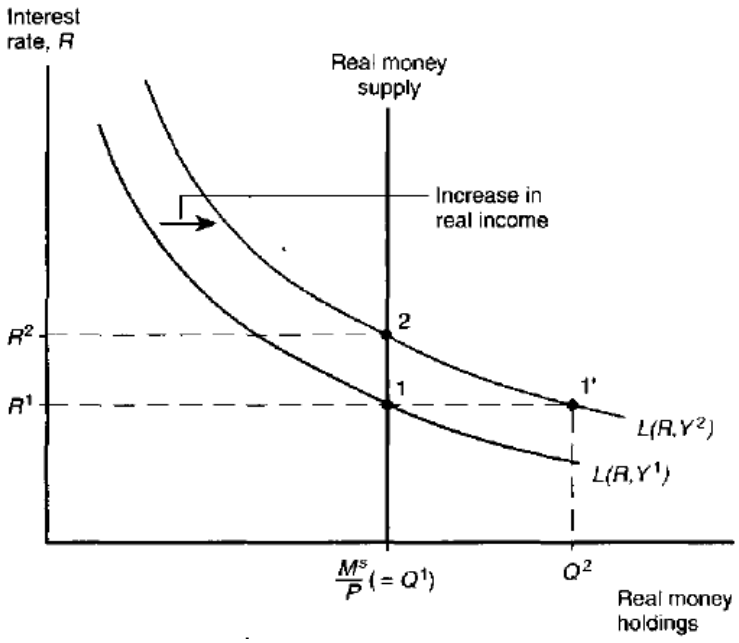
The reverse of the policy experiment above can be taken to realize how interest rate behaves when MS changes. A rise in money supply reduces interest rate while a fall in money supply raises interest rate given price and output.

Output and Interest Rate

A rise in real output raises interest rate through its effect on money demand while a fall in it reduces interest rate. The real money supply and price level are being unchanging.

- Figure 2.5: Linking Money, Interest Rate and Exchange rate

Given the real money supply, M^s/P $(= Q^1)$, a rise in real income from Y^1 to Y^2 raises the interest rate from R^1 (point 1) to R^2 (point 2).



The Demand for Foreign Currency Assets

To discuss the determination of exchange rates, let's first examine the demand for foreign exchange determination. The demand for foreign currency is affected by the same set of factors that influence the demand for other assets. The future return of a foreign currency deposit depends on interest rate and future exchange rate against others.

***Assets and Asset Returns*:** people hold wealth in stocks, bonds, cash, real state, rare wines, diamonds and others. We own wealth so as to transfer purchasing power in to the future for pension, for heirs or saving is possible. The purpose of saving is to use it for future consumption and asset desirability is judged in terms of future return. The future rate of return is not certainly known and the decision to purchase an asset lies on the expected return. The expected rate of return is the difference between the purchase price and the expected asset value in the future. The rate of return, value of an asset in different dates, can be expressed in dollars, foreign currencies or gold.

***The Real Rate of Return*:** people consider the real rate of return in deciding which asset to hold and which not to. The real rate of return shows the real wealth saved now and expected in the future with same purchasing power.

Besides the expected real rate of return (RRoR), rates of return expressed in currency are used to compare asset return. The difference in dollar rate of return equals the real rate of return since general price level affects both equally. The return on two different assets cannot be compared unless each is expressed in the same unit of measurement.

***Risk and Liquidity*:** although people opt for assets with high RRoR, assets as well possesses other vital attributes. Savers care about two extra attributes of assets namely the risk involved in an asset and the liquidity of the asset. Savers dislike uncertainty and are reluctant to hold assets that make their wealth highly variable thus try to avoid it. An asset with high expected rate of return is undesirable if the realized real rate of return fluctuates often widely. The cost and speed at which an asset can be converted to cash is also crucial in determining the demand for asset. Hence, savers consider the expected real rate of return, risk, and liquidity in their decision which asset to buy.

Real Rate of Return, Interest Rates and Exchange Rates

Like other asset markets, demand for foreign currency deposits depends on an expected real rate of return from it. The expected real return again depends on how interest rates and exchange rates change for different deposits. The foreign currency interest rate refers to the expected real rate of return on deposits of foreign currency. The exchange rate, relative value of currencies, as well has a substantial impact on the future real rate of return. The joint effect of changes in interest rate and exchange rate determine the net effect on future rate of return.

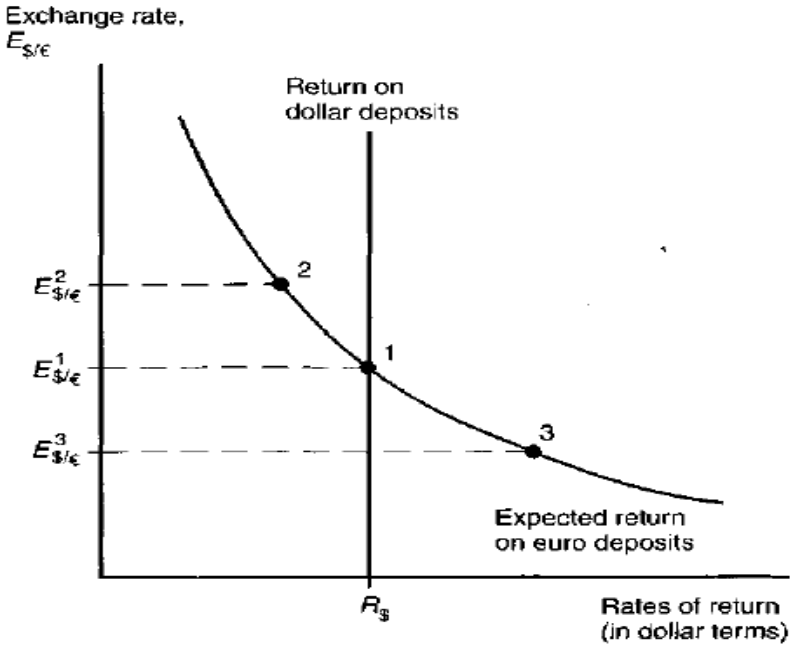
The foreign exchange market is in equilibrium if actors willingly hold the existing supplies of currency deposits. The foreign exchange market is at equilibrium when all currencies deposits have the same expected rate of return. The state at which the rate of return from deposits of two currencies valued at a currency is same is *interest parity.*

Current and Future Exchange Rates

Given an expected exchange rate level and interest rate, current currency depreciation raises its current demand. Current dollar depreciation, interest rate and expected exchange rate same, reduces dollar value of euro deposit.

- Figure 2.6: Equilibrium in Foreign Exchange market

Equilibrium in the foreign exchange market is at point 1, where the expected dollar returns on dollar and euro deposits are equal.



The expected return from a dollar value of euro deposits falls if dollar depreciates denoted by a downward slope. At the joint of the vertical schedule and downward sloped curve, the equilibrium exchange rate establishes. It is at the point the expected return on dollar value of euro deposits and the return on dollar deposits is same. At equilibrium, the return for dollar and euro is the same. Points above and below the equilibrium point represent the tendencies for demanding more or less of dollar or euro.

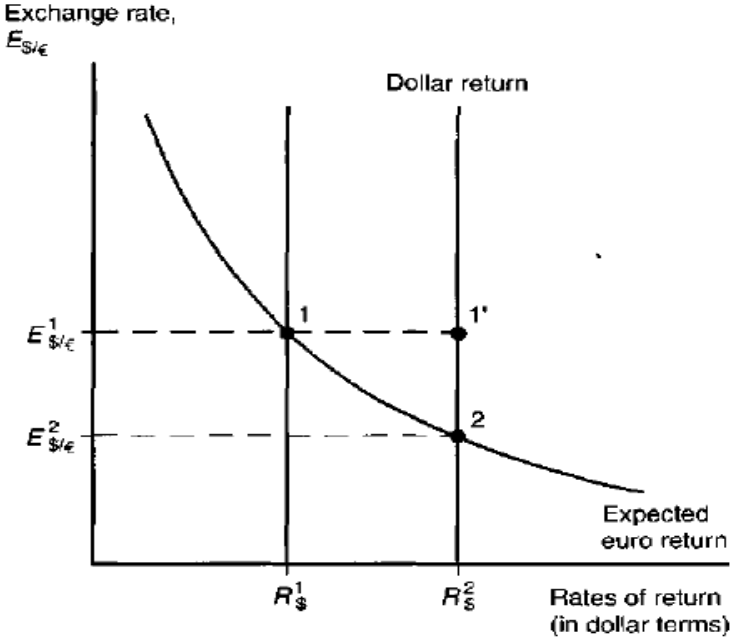
Interest Rates, Expectations and Equilibrium

Effects of Changes in Interest Rate on Exchange Rate

A rise in interest rate for dollar deposits shifts the dollar deposit schedule rightwards raising its expected return. The expected return on dollar deposit is now higher than on euro deposit by the distance between points ***1*** and ***1'***. Hence, dollar appreciates since there has been no change in euro's interest rate or the expected exchange rate. Dollar appreciation now raises the expected dollar return on euro deposit by raising chance of dollar depreciation. But the future exchange rate is assumed to be constant.

- Figure 2.7: Effect of a rise in interest rate on dollar deposit on exchange rate

A rise in the interest rate offered by dollar deposits from $R_{\$}^1$ to $R_{\$}^2$ causes the dollar to appreciate from $E_{\$/€}^1$ (point 1) to $E_{\$/€}^2$ (point 2).

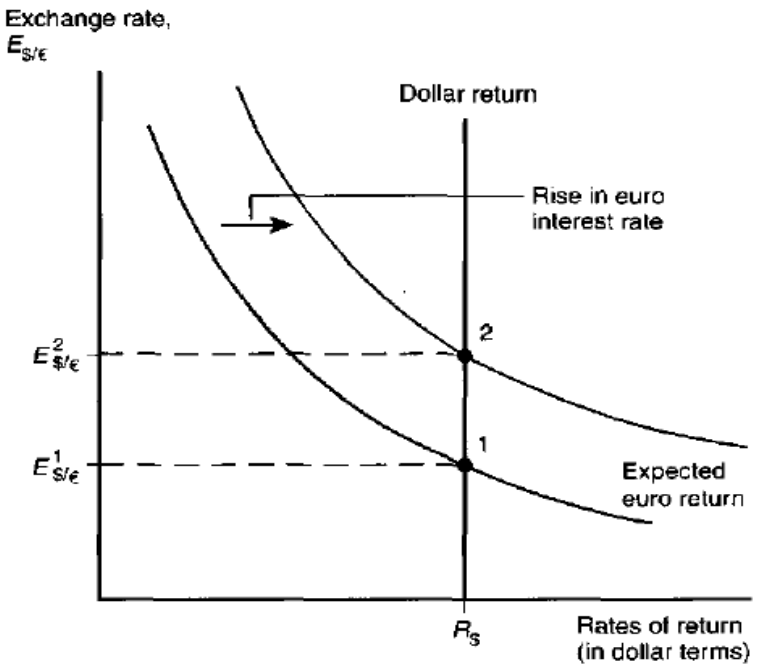


A rise in interest rate for euro deposit shifts the expected euro deposit return schedule rightwards raising its return. The dollar value of the expected return on euro deposit is now higher than on dollar deposit by the distance 1 to 2.

Hence, euro appreciates since there has been no change in dollar's interest rate or the expected exchange rate. Euro appreciation now raises the expected return on dollar deposits raising the chance of euro's depreciation. The fact that a rise in an interest rate on a currency raises the exchange rate in favor of that currency is appropriate.

- Figure 2.8: Effect of a rise in interest rate on euro deposit on exchange rate

A rise in the interest rate paid by euro deposits causes the dollar to depreciate from $E^1_{\$/€}$ (point 1) to $E^2_{\$/€}$ (point 2). (This figure also describes the effect of a rise in the expected future \$/€ exchange rate.)



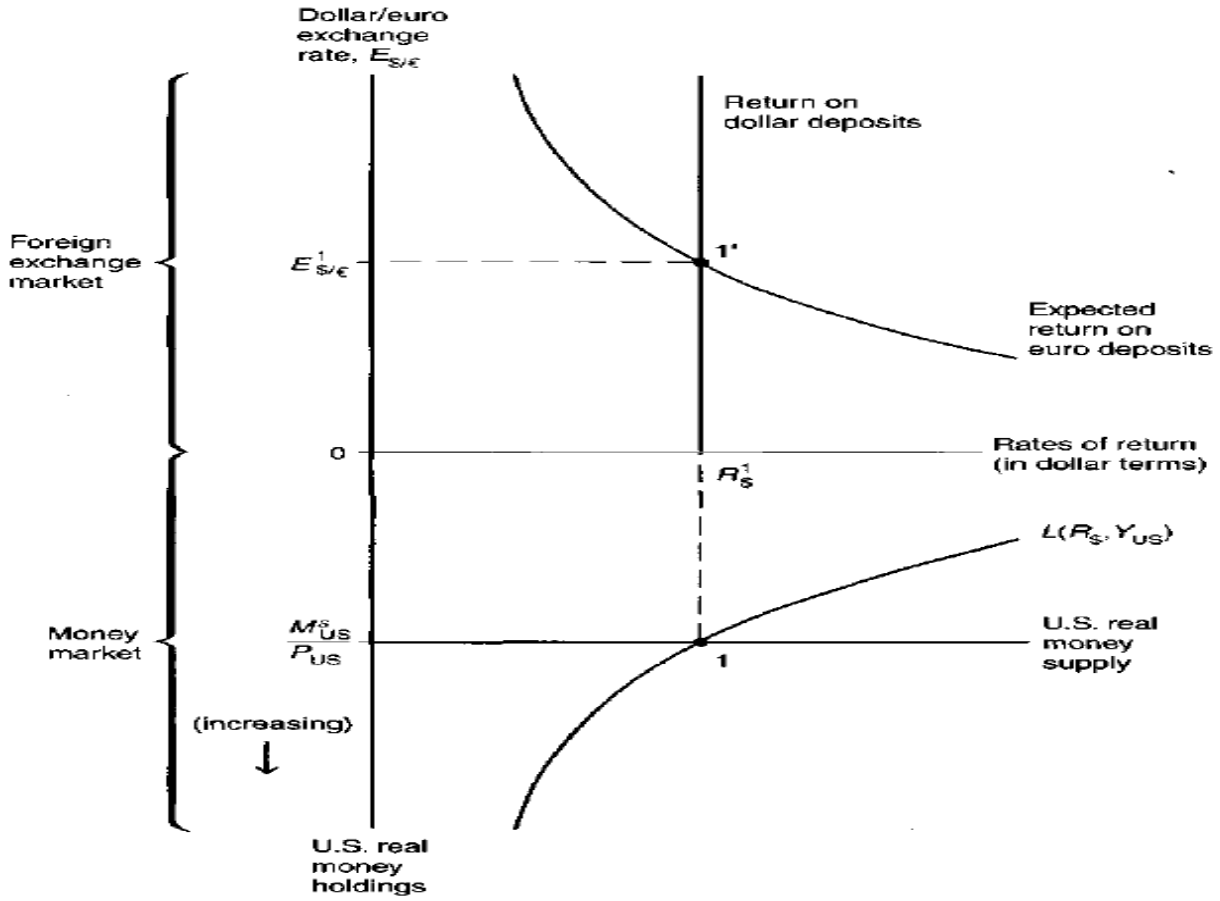
The Effect of Changing Expectations on Exchange Rate

The same above graphs can be used to illustrate what happens to current exchange rate if expectations change. Hence, an expected euro appreciation raises the current demand for euro deposits and exchange rate in favor of it. In contrast, an expected dollar appreciation reduces demand for euro and the exchange rate rises accordingly.

Linking Money, Interest Rate and Exchange rate

In order to link money and exchange rate, we combine the money and foreign exchange markets discussions. The money market in the lower graph determines market interest rate which affects the foreign exchange market. The equilibrium interest rate feeds in to the FEM where given FE expectations, an interest parity state prevails.

- Figure 2.9



Price Levels and Exchange Rates in the Long Run

This is about what set of economic forces lie behind the dramatic long run movements in foreign exchange rates. To fully realize long run exchange rate levels, we extend here the previous model to include commodity market. In the long run, national price levels determine interest rates and the relative price countries products are traded. The link between long run price levels and exchange rate can help understand long run movement in exchange rate. we begin discussing theory of purchasing power parity.

The Law of One Price: in a free market with no transport cost and no trade barrier, alike goods have same price. For instance, the dollar-price of same quality sweaters in Tokyo and London should be identical citrus paribus. The law of one price can be symbolized as: P^1_{US} = (ER \$/£) (P^2_E) and ER\$/£= P^1_{US} / P^2_E where P^1_{US} is dollar price.

The Purchasing Power Theory: it states exchange rate between currencies depends on the relative price levels. A rise in the purchasing power of a domestic currency leads to the rise in the relative strength of that currency.

A fall in the purchasing power of a domestic currency in contrast results in the depreciation of that currency. The PPP can be formulated as follows: ER$/£= P^1_{US} / P^2_{E}. The purchasing power parity thus asserts that all nations' prices are same when expressed in terms of one currency. The LOP just applies to the price of a certain commodity. The PPP but applies to price of basket of commodities or the general price level or purchasing power of money. If the LOP holds true, the PPP automatically holds since prices of the reference basket of commodities are same.

It proponents but argue that the PPP does not require the LOP to hold to serve as long run theory of exchange rate. Hence, economic forces behind the PPP finally equalize a currency's purchasing power in all countries currencies.

Absolute PPP and Relative PPP: the APPP is statement that exchange rate equals relative countries' price levels. The RPPP implies percentage change in exchange rate is the difference in percentage changes of national prices. The RPPP relates exchange rates and prices in terms of growth rates instead of price-exchange rates statements.

It asserts that prices and exchange rates change in way it preserves the ratio of purchasing power of currencies. However, most nations don't compute price indexes using internationally standardized basket of commodities. The APPP thus does not make sense while RPPP remains logical even if different baskets of commodities are used. The RPPP would be appropriate especially if sources of deviation in APPP are more or less stable over time.

Long Run Exchange Rate Model Based on PPP

We here combine monetary framework with PPP theory to develop a general long run theory of exchange rate.

Review Questions

- Discuss the different types of money supply?
- Discuss the factors determining individual money demand?
- What are the factors that determines aggregate demand all firms and households in an economy?
- What are the main important factors that the future return of a foreign currency deposit depends on?
- Discuss the Effects of Changes in Interest Rate on Exchange Rate (hint: show graphically)?
- Discuss the different types of purchasing power parity?

CHAPTER THREE: OPEN ECONOMY MACROECONOMICS (BALANCE OF TRADE AND BALANCE OF PAYMENT)

3.1. Introduction on Balance of Payments

The balance of payments is a statistical record of all the economic transactions between residents of the reporting country and residents of the rest of the world during a given time period. The usual reporting period for all the statistics included in the accounts is a year. However, some of the statistics that make up the balance of payments are published on a more regular monthly and quarterly basis. Without question the balance of payments is one of the most important statistical statements for any country.

- It reveals how many goods and services the country has been exporting and importing, and whether the country has been borrowing from or lending money to the rest of the world.
- In addition, whether or not the central monetary authority (usually the central bank) has added to or reduced its reserves of foreign currency is reported in the statistics.

A key definition that needs to be resolved at the outset is that of a **domestic and foreign resident.** It is important to note that citizenship and residency is not necessarily the same thing from the viewpoint of the balance-of-payments statistics. The term ***"resident"*** comprises individuals, households, firms and the public authorities. And there are some problems that arise with respect to the definition of a resident. These problems include for example:

- **Multinational corporations** are by definition resident in more than one country. For the purposes of balance-of-payments reporting, the subsidiaries of a multinational are treated as being resident in the country in which they are located even if their shares are actually owned by foreign residents.
- Another problem concerns the treatment of **international organizations** such as the International Monetary Fund, the World Bank, United Nations and so forth. These institutions are treated as being foreign residents even though they reside in USA.
- **Tourists** are regarded as being foreign residents if they stay in the reporting country for less than a year.

The criterion for a transaction to be included in the balance of payments is that it must involve dealings between a resident of the reporting country and a resident from the rest of the world. Purchases and sales between residents of the same country are excluded.

3.2. The Concept of Balance of payments

- **National Income Accounting -**
  - Measures national performance of the economy: domestic transaction
  - Records all expenditures that contribute to income and output
  - Records all final goods and services produced in a given period
- **Balance of Payments Accounts -**
  - Measures national economic performance relative other nations.
  - Records international transaction.
  - Shows macroeconomic linkage between different countries.
  - Shows international indebtedness and performance of export and import substituting firms.
  - Relates foreign transaction and the monetary changes.

The balance of payments is a statistical record of all the economic transactions between residents of the reporting country and residents of the rest of the world during a given time period. The usual reporting period for all the statistics included in the accounts is a year. Without question the balance of payments is one of the most important statistical statements for any country. BoP reveals how many goods and services the country has been exporting and importing, and whether the country has been borrowing from or lending money to the rest of the world. In addition, whether or not the central monetary authority (usually the central bank) has added to or reduced its reserves of foreign currency is reported in the statistics.

3.2.1. The National Income Accounts (NIAs)

GNP is of a central interest for macroeconomists in NIAs. GNP is the value of all final goods and services produced by its resources sold in the market in a given time period. It is measured by adding up the monetary value of all expenditures on the final output in a given period of time. The expenditures that make up GNP are closely related to employment of labor, capital and other factor inputs. GNP contains four types of product purchase spending: consumption, investment and public purchase. Households buy consumer goods, firms buy plants and equipments and the government buys goods and services.

The current account balance is instead foreign produces of our resources net of all exports to the

external world. Dividing GNP in to its components is vital to enable us understand the sources of economic recession or boom. Knowing how each GNP category changes, we are able to make sound policy proposals and thus interventions. The NIAs provide essential information as to why some nations are richer than others or have higher GNP. GDP may not include output produced by national factor inputs in the rest of the world.

- GDP may not give the full picture of national economic performance.

The national income accounting, not output accounting, can be thought of as classification of a transaction based on the category of the expenditure or income hat it gives rise to. Change in aggregate output demand changes economic performance. Change in economic performance must be related to either of the categories of aggregate demand.

Hence, dividing AD or GNP in to its components is crucial to identify the source of change in economic performances.

National Product and National Income

GNP a country generates equals national income earned. Every dollar used to purchase goods or services in an economy automatically ends up in somebody's pocket. The sell of product involves the payment of all factors of production that cooperated in producing it in varied form. The payments may include wages, salaries, incomes, interests, dividend, rent, profits and other possible forms. Only the sell of final products are considered in GNP to avoid double counting in case of intermediates products.

Capital Depreciation, International Transfers and IBTs

Some adjustments to definition of GNP must be made so that equality of GNP and income practically is correct. GNP doesn't include depreciation-the economic loss due to machinery and structure wear out when used over time.

Depreciation reduces the income of capital owners and GNP minus depreciation gives the net national output. GNP excludes unilateral transfers that include pension, reparation and relief funds from foreign countries. Net unilateral transfer is part of its income but not its product and must be added to NNP to compute income. National income is based on the prices sellers receive while GNP depends on the prices that purchasers do pay.

Indirect business taxes are sources of differences that overestimate income and should be reduced from GNP. National income thus equals GNP less depreciation plus net unilateral transfers and less indirect business taxes.

Gross Domestic Product (GDP)

Most countries consider GDP statistic instead of GNP as their primary measure of the national economic activities. GDP is supposed to measure economic activities or the volume of goods and services within a country's borders.

GNP equals GDP plus net receipts of factor income (NFI) from the rest of the world; receipts minus payments of income. GDP doesn't correct for the portion of a country's output produced through services provided by a foreign capital. However, GNP tracks national income more closely than GDP and national welfare lies more closely on GNP than GDP.

National Income Accounting for an Open Economy

The open economy national income accounting modifies closed economy NIA framework for imports and exports. It links national saving, investment and trade imbalances.

Consumption: consumer goods purchase by households to fulfill current wants is called consumption spending. It is the largest component of GNP in most economies.

Investment: the part of output used by firms to produce future goods and services is called investment spending. Investment spending is used to raise the stock of capital. Firms purchase of inventories is are part of investment spending since it entails transfer of output in to the future.

Government Purchases: all goods and services purchased by federal, state or local government in national accounts. Government transfer payments such as social security and unemployment benefits do not involve virtual transaction and not included in GNP. Investment is more variable than consumption spending.

The National Income Identity for Open Economies

In a closed economy, all output is either consumed by households, invested and purchased by the government.

If foreign trade is possible, some output is purchased by foreigners and spending goes to purchase foreign output. The GNP identity for open economy shows how national income is divided among sale to nationals and foreigners. Domestic GNP excludes part of income spent on imports and includes the goods and services sold to foreigners. The open economy GNP is sum of domestic and foreign expenditure on output produced by domestic resources.

- ***Y= C+I+G*** is a NIA identity for a closed economy
- ***Y=C+I+G+EX-IM*** is an identity for an open economy

3.2.2 Balance of payments accounting and accounts

An important point about a country's balance-of-payments statistics is that in an accounting sense they always balance. This is because they are based upon the principle of double-entry book-keeping. Each transaction between a domestic and foreign resident has two sides to it, ***a receipt and a payment***, and both these sides are recorded in the balance-of-payments statistics.

Each receipt of currency from residents of the rest of the world is recorded as a credit item (a plus in the accounts) while each payment to residents of the rest of the world is recorded as a debit item (a minus in the accounts).

The Balance of Payments (BP): like national income accounts, economists/ statiscians keep balance of payment accounts (BPA). The BPA are detailed record of the composition of the current account balance and transactions that finance it. The BPA capture of great interest to the general public which inform us the implications of global transactions. The BPA keeps track of both its receipts and payments.

A payment-to-foreigners and receipt-from foreigners are recorded in the BPA as 'debit' and 'credit' respectively. Three types of transactions are often recorded in the BPA.

- Transactions that involve the import or export of output.
- Transactions that involve the purchase or sell of financial assets recorded in the financial account (FA) balance.
- Certain other activities resulting in the sell and purchase or transfer of wealth recorded in the capital account.

These result from non-market activities, or disposal or gain of non-produced, nonfinancial and intangible assets. Transactions in the BPA enter as both credits and debits.

Before considering some examples of how different types of economic transactions between domestic and foreign residents get recorded in the balance of payments, we need to consider the various sub accounts that make up the balance of payments. Traditionally, the statistics are divided into two main sections:

- The current account (items in this part refer to income flows)
- The capital account (items in this part refer to records on changes in assets and liabilities of the country)

Each part is further sub divided into sub-accounts.

A) Current account

The Current Account: is a country's net export of output in which import payments enter the BP in a negative sign. Imports and exports of goods and services consist of merchandise, service, and income payments and receipts. The current account balance in turn contains imports, exports and the net unilateral current transfers. The CA is the difference between the value of nation's total exports and imports of goods and services. When exports exceed imports, we say there exist a CA *surplus* but if imports exceed there will be a CA *deficit.* The open economy identity reveals importance of CA in international macroeconomics: output and employment. It virtually affects domestic production and employments.

The CA also measures size and direction of indebtedness or size of the net foreign debts and of net foreign wealth. The CA balance shows change in net foreign wealth/debt. A deficit CAB may imply a high expenditure that may or may not result in increment in production capacity. We can write the CA as a difference between national income and domestic spending given by: CA=Y-C-I-G.

A country has a CA deficit or uses output more than its produces via borrowing or import of future consumption. A country has a CA surplus or use output less than its produces if it exports or exports present consumption. A country has a CA Balance deficit if its GNP is less than its expenditure. A country has a CA Surplus if its GNP exceeds its domestic expenditure.

Saving and Current Account

Saving and investment are different in open economy unlike closed economy case. An open economy can save by either building up stock of capital or by acquiring foreign wealth: $S=I+CA$.

A country's current account surplus is considered as a net foreign investment because it has to be repaid later date. The borrowing country pays back to net foreign investor from the part of its future income that will be generated. A country can utilize domestic and/or foreign investment so as to use current savings to increase its future income. Private and Government Saving: public saving decision is often based on its effect on output and employment. The national income identity helps us analyze channels through which the Government Saving affects macroeconomic conditions.

The private saving is the part of national income that is not and disposable income is income less of the net taxes. The private saving can thus be expressed as: S^p =Y-T-C. Government saving is the difference between its tax revenue and its expenditure expressed as: S^g =T-G. The national income identity can be rewritten to show effects of government saving decision in open economy. $S^p + S^g = C+I \rightarrow (Y-T-C) + (T-G) = C+I \rightarrow S^p = C+I- S^g$

$S^p = C+I- S^g \rightarrow S^p = C+I- (T-G) \rightarrow S^p = C+I+ (G-T)$

Private saving is a function of domestic investment, government saving and current account surpluses as well. The link between the CAB (Current Account Balance) and budget deficit may not be as predicted by the equation. Budget deficit may directly or inversely relate to CAB based on the effect of a particular policy on other variables in the equation. When budget deficit falls, private saving may fall and vice versa. The government deficit (G-T) above shows the extent of government borrowing to finance its domestic spending. Private saving thus lies on the level of domestic saving, extent of wealth purchase from foreigners and new debts.

The current account can be divided into two sub accounts: visible and invisible accounts. The visible sub-account records ***the values of imported and exported goods*** where as the invisible sub-account records ***values of imported and exported services***; interests, profits and dividends received; interests, profits and dividends paid; unilateral receipts and payments. The balance on the visible accounts of the current account is termed as the ***trade balance*** whereas the sum of the visible trade balance and the invisible balance is termed as the current account balance

Trade Balance = Receipts for exported goods – Payments on imported goods

The trade balance is sometimes referred to as the visible balance because it represents the difference between receipts for exports of goods and expenditure on imports of goods which can

be visibly seen crossing frontiers. The receipts for exports are recorded as a credit in the balance of payments, while the payment for imports is recorded as a debit. When the trade balance is in surplus this means that a country has earned more from its exports of goods than it has paid for its imports of goods.

Current Account Balance = Trade balance + Invisible Balance

The current account balance is the sum of visible trade balance and the invisible balance. The invisible balance shows the difference between revenue received for exports of services and payments made for imports of services such as shipping, tourism, insurance and banking. In addition, receipts and payments of interest, dividends and profits are recorded in the invisible balance because they represent the rewards for investment in overseas companies, bonds and equity; while payments reflect the rewards to foreign residents for their investment in the domestic economy. As such, they are receipts and payments for the services of capital that earn and cost the country income just as do exports and imports.

N.B: Note that there is an item referred to as unilateral transfer included in the invisible balance; these are payments or receipts for which there is no corresponding **quid pro quo** (something given or received for something else). Examples of such transactions are migrant workers' remittances to their families back home, the payment of pensions to foreign residents, and foreign aid. Such receipts and payments represent a redistribution of income between domestic and foreign residents. Unilateral payments can be viewed as a fall in domestic income due to payments to foreigners and so are recorded as a debit; while unilateral receipts can be viewed as an increase in income due to receipts from foreigners and consequently are recorded as a credit.

B) Capital account

The capital account records transactions concerning the movement of financial capital into and out of the country. Capital comes into the country by borrowing, sales of overseas assets, and investment in the country by foreigners. These items are referred to as capital inflows and are recorded as credit items in the balance of payments. Capital inflows are, in effect, a decrease in the country's holding of foreign assets or increase in liabilities to foreigners. The fact that capital inflows are recorded as credits in the balance of payments often presents students with difficulty.

Capital Account Balance = Capital Inflows – Capital Out flows.

Table 3.1. The balance of payments of a hypothetical country

Current Account	
1) Exports of goods	+150
2) Imports of goods	-200
3) **Trade Balance**	**-50 = 1+2**
4) Exports of services	+120
5) Imports of services	-160
6) Interest, profits and dividends received	+ 20
7) Interest, profits and dividends paid	- 10
8) Unilateral receipts	+ 30
9) Unilateral payments	- 20
10) **Invisible Balance**	**- 20 = 4+5+6+7+8+9**
11) **Current account balance**	**- 70 = 3+10**
Capital Account	
12) Investment Abroad	- 45
13) Short-term lending	- 65
14) Medium- and long-term lending	- 75
15) Repayment of borrowing from rest of the world	- 55
16) Inward Foreign investment	+ 170
17) Short-term borrowing	+ 40
18) Medium- and long-term borrowing	+ 30
19) Repayments on loans received from rest of the world	+ 50
20) Capital account balance	**+ 50 sum (12) to (19)**
21) Change in reserves rise (-), fall (+)	+10
22) IMF borrowing from (+) repayments to (-)	+5
23) Official financing balance	**+15 = 21 + 22**
24) Statistical error	+5 (**Zero minus [11 + 20 + 23]**
25) Official settlements balance	**-15 =11 + 20 + 24**
26) Overall balance of payments	**0 = 23+25**

Similarly investment by foreign residents is the export of equity or bonds, while sales of overseas investments is an export of those investments to foreigners. Conversely, capital leaves the

country due to lending, buying of overseas assets, and purchases of domestic assets owned by foreign residents. These items represent capital outflows and are recorded as debits in the capital account. Capital outflows are, in effect, an increase in the country's holding of foreign assets or decrease in liabilities to foreigners. These items are recorded as debits as they represent the purchase, the purchase of foreign bonds or equity, and the purchase of investments in the foreign economy.

Items in the capital account are normally distinguished according to whether they originate from the private or public sector, and whether they are of a short-term or long-term nature. The summation of the capital inflows and outflows as recorded in the capital account gives the capital account balance.

C) Official settlements balance

Given the huge statistical problems involved in compiling the balance-of payments statistics, there will usually be a discrepancy between the sum of all the items recorded in the current account, capital account and the balance of official financing (see table 2.1) which in theory should sum to zero. To ensure that the credits and debits are equal it is necessary to incorporate a statistical discrepancy for any difference between the sum of credits and debits. There are several possible sources of this error.

- One of the most important is that it is an impossible task to keep track of all the transactions between domestic and foreign residents; many of the reported statistics are based on sampling estimates derived from separate sources, so that some error is unavoidable.
- Another problem is that the desire to avoid taxes means that some of the transactions in the capital account are underreported.
- Moreover some dishonest firms may deliberately under-invoice their exports and over-invoice their imports to artificially deflate their profits.
- Another problem is that of 'leads and lags'. The balance of payments records receipts and payments for a transaction between domestic and foreign residents, but it can happen that a good is imported but the payment delayed. Since the import is recorded by the customs authorities and the payment by the banks, the time discrepancy may mean that the two sides of the transaction are not recorded in the same set of figures.

The summation of the current account balance, capital account balance and the statistical discrepancy gives the official settlements balance. The balance on this account is important because it shows the money available for adding to the country's official reserves or paying off the country's official borrowing. A central bank normally holds a stock of reserves made up of foreign currency assets. Such reserves are held primarily to enable the central bank to purchase its currency should it wish to prevent it depreciating. Any official settlements deficit has to be covered by the authorities drawing on the reserves, or borrowing money from foreign central banks or the IMF (recorded as a plus in the accounts). If, on the other hand, there is an official settlements surplus then this can be reflected by the government increasing official reserves or repaying debts to the IMF or other sources overseas (a minus since money leaves the country).

The fact that reserve increases are recorded as a minus, while reserve falls are recorded as a plus in the balance-of-payments statistics is usually a source of confusion. It is most easily rationalized by thinking that reserves increase when the authorities have been purchasing foreign currency because the domestic currency is strong. This implies that the other items in the balance of payments are in surplus, so reserve increases have to be recorded as a debit to ensure overall balance. Conversely, reserves fall when the authorities have been supporting a currency that is weak; that is, all other items sum to a deficit so reserve falls must be recorded as a plus to ensure overall balance.

3.3. Balance of Payments Surplus or Deficit

As we have seen in Table 3.1, the balance of payments always balances since each credit in the account has a corresponding debit elsewhere. However, this does not mean that each of the individual accounts that make up the balance of payments is necessarily in balance; for instance, the current account can be in surplus while the capital account is in deficit. When talking about a balance-of-payments deficit or surplus economists are really saying that a subset of items in the balance of payments is in surplus or deficit.

Economists make a distinction between autonomous (above the line items) and accommodating (below the line) items. The former are transactions that take place independently of the balance of payments, whilst accommodating items are those transactions which finance any difference between autonomous receipts or payments. A surplus in the balance of payments is defined as a

excess of autonomous receipts aver autonomous payments. While a deficit is an excess of autonomous payments over autonomous receipts.

Autanomous receipts > autonomous payments = surplus

Autonomous receipts < autonomous payments = deficit

The issue that then arises is which specific items in the balance of payments should be classified as autonomous and which as accommodating. Disagreement on which items qualify as autonomous leads to alternative views on what constitutes a balance-of-payments surplus or deficit. The difficulty arises because it is not easy to identify the motive underlying a transaction. For example, if there is a short-term capital inflow in response to a higher domestic interest rate, it should be classified an autonomous item. If, however, the item is an inflow to enable the financing of imports then it should be classified as an accommodating item. The difficulty of deciding which items should be classified as accommodating and autonomous has led to several concepts of balance-of-payments disequilibrium. We shall now review some of the most important of these concepts and consider their usefulness as economic indicators.

- A *surplus* in the BOP implies that the demand for the country's currency exceeded the supply and that the government should allow the currency value to increase – in value – or intervene and accumulate additional foreign currency reserves in the Official Reserves Account.

- A *deficit* in the BOP implies an excess supply of the country's currency on world markets, and the government should then either devalue the currency or expend its official reserves to support its value.

3.3.1. Alternative Concepts of Balance of Payments Surplus and Deficits

a) The trade account and current account

These two accounts derive much of their importance because estimates are published on a monthly basis by most developed countries. Since the current account balance is concerned with visibles and invisibles, it is generally considered to be the more important of the two accounts. What really makes a current account surplus or deficit important is that a surplus means that the country as a whole is earning more that in it spending vis-avis the rest of the world and hence is increasing its stock of claims on the rest of the world; while a deficit means that the country is

reducing its net claims on the rest of the world. Furthermore, the current account can readily be incorporated into economic analysis of an open economy. More generally, the current account is likely to quickly pick up changes in other economic variables such as changes in the real exchange rate, domestic and foreign economic growth and relative price inflation

b) The basic balance

This is the current account balance plus the net balance on long-term capital flows. The basic balance was considered to be particularly important during the 1950s and 1960s period of fixed exchange rates because it was viewed as bringing together the stable elements in the balance of payments. It was argued that any significant change in the basic balance must be a sign of a fundamental change in the direction of the balance of payments. The more volatile elements such as short-term capital flows and changes in official reserves were regarded as accommodating items.

Although a worsening of the basic balance is supposed to be a sign of a deteriorating economic situation, having an overall basic balance deficit is not necessarily a bad thing. For example, a country may have a current account deficit that is reinforced by a large long-term capital outflow so that the basic balance is in a large deficit. However, the capital outflow will yield future profits, dividends and interest receipts that will help to generate future surpluses on the current account. Conversely, a surplus in the basic balance is not necessarily a good thing. A current account deficit which is more than covered by a net capital inflow so that the basic is in surplus could be open to two interpretations. It might be argued that because the country is able to borrow long run there is nothing to worry about since it regarded as viable by those foreigners who are prepared to lend it money in the long run. Another interpretation could argue that the basic balance surplus is a problem because the long-term borrowing will lead to future interest, profits and dividend payments which will worsen the current account deficit.

A part from interpretation, the principal problem with the basic balance concerns the classification of short-term and long-term capital flows. The usual means of classifying long-term loans or borrowing is that they be of at least 12 months to maturity. However, many long-term capital flows can be easily converted into short-term flows if need be. For example, the purchase of a five-year US treasury bond by a UK investor would be classified as a long-term

capital outflow in the UK balance of payments and long-term capital inflow in the US balance of payments. However, the UK investor could very easily sell the bond back to US investors any time before its maturity date. Similarly, many short-term items with less than 12 months to maturity automatically get renewed so that they effectively become long-term assets. Another problem that blurs the distinction between short-term and long-term capital flows is that transactions in financial assets are classified in accordance with their original maturity date. Hence, if after four and a half years a UK investor sells his five-year US treasury bill to a US citizen it will be classified as a long-term capital flow even though the bond has only six months to maturity.

c) The official settlements balance

The official settlements balance focuses on the operations that the monetary authorities have to undertake to finance any imbalance in the current and capital accounts. With the settlements concept, the autonomous items are all the current and capital account transactions including the statistical error, while the accommodating items are those transactions that the monetary authorities have undertaken as indicated by the balance of official financing. The current account and capital account items are all regarded as being induced by independent households, firms, central and local government and are regarded as the autonomous items. If the sum of the current and capital accounts is negative, the country can be regarded as being in deficit as this has to be financed by the authorities drawing on their reserves of foreign currency, borrowing from foreign monetary authorities or the International Monetary Fund.

A major point to note with the settlements concept is that countries whose currency is used as a reserve asset can have a combined current and capital account deficit and yet maintain fixed parity for their currency without running down their reserves or borrowing from the IMF. This can be the case if foreign authorities eliminate the excess supply of the domestic currency by purchasing it and adding it to their reserves. This is particularly important for the United States since the US dollar is the major reserve currency. The United States can have a current account and capital account deficit which is financed by increased foreign authorities' purchases of dollars and dollar treasury bills - in other words increased US liabilities constituting foreign authorities' reserves. For this reason part of the official settlements balance records 'changes in liabilities constituting foreign authorities' reserves.'

The official settlements concept of a surplus or deficit is not as relevant to countries that have floating exchange rates as it is to those with fixed exchange rates. This is because if exchange rates are left to float freely the official settlements balance will tend to zero because the central authorities neither purchase nor sell their currency, and so there will be no changes in their reserves. If the sales of a currency exceed the purchases then the currency will depreciate, and if sales are less than purchases the currency appreciates. The settlements concept is, however, very important under fixed exchange rates because it shows the amount of pressure on the authorities to devalue or revalue the currency. Under a fixed exchange-rate system a country that is running an official settlements deficit will find that sales of its currency exceed purchases, and to avert a devaluation of the currency authorities have to sell reserves of foreign currency to purchase the home currency. On the other hand, under floating exchange rates and no intervention the official settlements balance automatically tends to zero as the authorities do not buy or sell the home currency since it is left to appreciate or depreciate.

Even in a fixed exchange-rate regime the settlements concept ignores the fact that the authorities have other instruments available with which to defend the exchange rate, such as capital controls and interest rates. Also, it does not reveal the real threat to the domestic currency and official reserves represented by the liquid liabilities held by foreign residents who might switch suddenly out of the currency.

Although in 1973 the major industrialized countries switched from a fixed to floating exchange-rate system, many developing countries continue to peg their exchange rate to the US dollar and consequently attach much significance to the settlements balance. Indeed, to the extent that industrialized countries continue to intervene in the foreign exchange market to influence the value of their currencies, the settlements balance retains some significance and news about changes in the reserves of the authorities is of interest to foreign exchange dealers as a guide to the amount of official intervention in the foreign exchange market.

3.4. BOP and exchange rates

A country's BOP can have a significant impact on the level of its exchange rate & vice versa. The relationship between the BOP and exchange rates can be illustrated by use of a simplified equation that summarizes the BOP in section 2.6.

❖ Fixed Exchange Rate Countries

- Under a fixed exchange rate system, the government bears the responsibility to ensure that the BOP is near zero.

❖ Floating Exchange Rate Countries

  - Under a floating exchange rate system, surpluses/deficits influence exchange rate.

3.5. Balance of payment adjustment

The BOP is a double entry system of accounts in which the sum of the current account, the capital account and the ORB was zero. Since the BOP must balance CA + KA + ΔRFX = 0.

- CA + KA = – ΔRFX
- For floating rate regime countries, such as the U.S., official reserves are relatively unimportant. The identity CA + KA = – ΔRFX assumes that all transactions are measured accurately.
- For BOP to balance, CA + KA + E&O = – ΔRFX.

Assuming changes in official reserves, errors are approximately zero: Current Account = (–) Capital Account. This will hold approximately for floating rate countries. If we have a CA surplus then it will be offset by either a capital account deficit or an ORB deficit as the excess income is lent out to foreigners by either the government or by private individuals. The converse story where CA deficits were accompanied by KA or ORB surpluses also held true. The adjustment process by which these shortfalls or surpluses in the current account are reflected in surpluses or shortfalls in the KA or in the ORB is illustrated below. The adjustment of the BOP in such an economy varies depending on whether the economy has a fixed or a flexible exchange rate system.

3.5.1. Bop adjustment under a flexible exchange rate regime

Suppose that ETH imports birr 700 million worth of goods and exports birr 300 million worth of goods all under 90 day trade credit. In 90 days time, ETH has to find a way to pay for the extra birr 400 million worth of foreign currency in expenditure: it has to either borrow new loans from abroad, sell assets to foreigners or divert some of their holdings of foreign currency to pay their bills. Suppose that after 90 days, private individuals in ETH have only raised birr 200 million worth of foreign currency through sales of assets, new borrowing and reducing holdings of

foreign currency. This implies that they still need to come up with birr 200 million worth of foreign currency.

One way is to turn to the government and obtain birr 200 million worth of foreign currency from the government. However, recall that under a truly flexible exchange rate regime, the central bank does not attempt to influence the exchange rate. The value of the currency is determined according to the supply and demand that prevails in the currency market. As a result, we can think of the central bank as not holding any foreign currency reserves under a flexible exchange rate regime. At this point, we have a BOP imbalance, i.e. CA+ KA +ORB = −400 + 200 +0 ≠ 0. However, this imbalance does not last very long. Individuals and firms will turn to the foreign exchange market to get their hands on foreign currency. As a result we would expect movement in the foreign exchange market: the demand for foreign currency would rise, and the birr would depreciate.

The depreciation of birr raises the relative price of foreign goods and lowers the relative price of ETH goods. As a result, ETH will tend to export more and import less - the CA deficit will shrink. Similarly, foreigners will be much more likely to buy ETH assets because of their relative cheapness; there will be more money flowing into the country from foreigners buying our assets the KA surplus will increase. So the process of exchange rate depreciation leads to more exports, fewer imports and greater capital inflow. This allows individuals and firms in the domestic economy to get their hands on the vital foreign currency they need to pay back the birr 200 million worth of foreign currency in loans.

In fact, the depreciation will continue as long as there is a greater demand for foreign currency. We would expect there to be equilibrium at some intermediate level, say CA + KA + ORB = -300 + 300 + 0 = 0 or CA + KA + ORB = −250 + 250 + 0 = 0, in other words a CA deficit that is less than birr 400 million and KA surplus that is greater than birr200 million worth of foreign currency.

2.5.2. Bop adjustment under a fixed exchange rate regime

Suppose that ETH imports 700 million birr worth of goods and exports 300 million birr worth of goods all under 90 day trade credit. In 90 days time, ETH has to find a way to pay for the extra 400 million birr worth of foreign currency in expenditure: it has to either borrow new loans from

abroad, sell foreign assets or use some of their holdings of foreign currency. Suppose that after 90 days the private individuals in ETH have only raised 200 million birr worth of foreign currency through sales of assets, new borrowing and reducing holdings of foreign currency.
This implies that they still need to come up with 200 million birr worth of foreign currency. In a flexible exchange rate system, we said that individuals and firms will turn to the foreign exchange market for the foreign currency. In a fixed exchange rate regime, individuals and firms can turn to the government and obtain the 200 million birr worth of foreign currency from the government.

The amount of foreign currency reserves held by the government will fall by 200 million birr, i.e. the ORB will be 200 million birr. Notice that the BOP is in balance: CA + KA + ORB = -400 + 200 + 200 = 0. Conversely, suppose that ETH imports 300 million birr worth of goods and exports 700 million birr worth of goods all under 90 day trade credit. In 90 days time, foreigners have to find a way to pay for the extra 400 million birr in expenditure: they have to borrow new loans from ETH, sell their assets to ETH, or use some of their holdings of birr.

Suppose that after 90 days the private individuals and firms in the rest of the world have only raised 200 million birr through sales of assets, new borrowing and reducing holdings of birr. This implies that they still need to come up with 200 million birr. Under a fixed exchange rate regime individuals and firms will turn to the National bank of Ethiopia for the extra 200 million birr-Eth holdings of f/x reserves would increase and their holdings of birr would decrease i.e. the ORB will be -200 million birr.

Notice that the BOP is in balance: CA + KA + ORB = 400 - 200 - 200 = 0.

3.6. BOP CRISES

Occasionally countries face a situation in which there is a shortfall in the amount of foreign currency needed to finance its external obligations, i.e. CA+KA < 0. This shortfall will result in an increased demand for foreign currency.

Under flexible exchange rates, this will lead to a depreciation of the currency, which will eliminate the shortfall and allow the domestic economy more access to foreign exchange, in other words the depreciation will continue until CA + KA = 0.

Under fixed exchange rates this shortfall will lead to a reduction in foreign exchange reserves. However, in some cases the shortfall may be too large to be offset by a reduction in reserves: in this case a country will face a BOP crisis.

Review Questions

- Why is GNP of a central concern to international macroeconomics? Why not the GDP of a country?
- What are the basic principles of balance of payments accounting? Differentiate it from National Income Accounts?
- Discuss the economic implications of balance of payments deficit and surplus.
- Identify and discuss the different accounts and sub-accounts of the balance of payments and identify which international transactions have to be recorded in each of the sub-accounts of the balance of payment.

CHAPTER FOUR: INTERNATIONAL MACROECONOMIC POLICY

4.1. Internal and External Balances

Internal balance is a name given to the macroeconomic goals of **full employment** or normal production and **price stability** or low inflation. Over-employment tends to lead to increased prices and under-employment tends to lead to decreased prices. Volatile aggregate demand and output tend to create volatile prices. Unexpected inflation redistributes income from creditors to debtors and makes planning for the future more difficult.

External balance is a name given to a current account that is not "too" negative or "too" positive. A large current account deficit can make foreigners think that an economy cannot repay its debts and therefore make them stop lending, causing a financial crisis. A large current account surplus can cause protectionist or other political pressure by foreign governments (example, pressure on Japan in the 1980s and China in the 2000s).

External balance" can also mean balance of payments equilibrium: A current account plus capital account that matches the non-reserve financial account in a given period, so that official international reserves do not change.

Internal and external balance during the gold standard

The gold standard had mechanisms that prevented flows of gold reserves or the balance of payments from becoming too positive or too negative. Prices tended to adjust according the amount of gold circulating in an economy which had effects on the flows of goods and services: the current account. Central banks influenced financial capital flows so that the non-reserve part of the financial account matched the current account thereby reducing gold outflows or inflows. **Price specie flow mechanism** is the adjustment of prices as gold flows into or out of a country, causing an adjustment in the flow of goods. An inflow of gold tends to inflate prices. An outflow of gold tends to deflate prices.

If a domestic country has a current account surplus, gold earned from exports flows into the country—raising prices in that country and lowering prices in foreign countries. Goods from the domestic country become expensive and goods from foreign countries become cheap, reducing the current account surplus of the domestic country and the deficits of the foreign countries.

Thus, price specie flow mechanism of the gold standard could reduce current account surpluses and deficits, achieving a measure of external balance for all countries.

The "**Rules of the Game**" under the gold standard refers to another adjustment process that was theoretically carried out by central banks: The selling of domestic assets when gold exits the country to pay for imports. This decreased the money supply and increased interest rates, attracting financial capital inflows to match a current account deficit, reducing gold outflows.

The buying of domestic assets when gold enters the country as income from exports. This increased the money supply and decreased interest rates, reducing financial capital inflows to match the current account, reducing gold inflows.

Banks with decreasing gold reserves had a strong incentive to practice the rules of the game: they could not redeem currency without sufficient gold. Banks with increasing gold reserves had a weak incentive to practice the rules of the game: gold did not earn interest, but domestic assets did. In practice, central banks with increasing gold reserves seldom followed the rules. And central banks often sterilized gold flows, trying to prevent any effect on money supplies and prices.

The gold standard's record for internal balance was mixed. For instance, The US suffered from deflation and depression in the 1870s and 1880s after its adherence to the gold standard: prices and output were reduced after inflation during the 1860s. The US unemployment rate averaged 6.8% from 1890–1913, but it averaged under 5.7% from 1946–1992.

Internal and external balance during the Bretton woods system

The IMF was constructed to lend to countries with persistent balance of payments deficits or current account deficits and to approve of devaluations. Loans were made from a fund paid for by members in gold and currencies. Devaluations could occur if the IMF determined that the economy was experiencing a fundamental disequilibrium.

Due to borrowing and occasional devaluations, the IMF was believed to give countries enough flexibility to attain an external balance, yet allow them to maintain an internal balance and the stability of fixed exchange rates under the Bretton Woods system.

In order to avoid sudden changes in a balance of payments crisis, countries in the Bretton Woods system often prevented flows of financial capital across countries. Yet, they encouraged flows of goods and service because of the view that trade benefits all economies.

Currencies were gradually made convertible between member countries to encourage trade in goods and services valued in different currencies.

Under a system of fixed exchange rates, many countries had ineffective monetary policies for internal balance. The principal tool for internal balance was fiscal policy (government purchases or taxes). The principal tools for external balance were borrowing from the IMF, financial capital restrictions and infrequent changes in exchange rates.

4.2. International Capital Movement

International capital movement refers to the flow of capital between countries. Thus, it includes foreign direct investment and foreign portfolio investment.

Foreign direct investment: movement of capital that involves ownership and control

Foreign portfolio investment: movement of financial capital - investment that involves no ownership or control - bond purchases and small stock purchases

Reasons for International Capital Movements

- Markets: investment to countries where market for product is growing
- High per capita income: production is directed to high income tastes, and investment moves to countries with high per capita incomes
- Minerals or raw material deposits- direct investment may be to secure access to raw materials
- Overcome Trade Barriers- firms may build production facilities in a different country to overcome tariff and nontariff trade barriers to imports
- Low Relative Wages or capital costs- production process can be broken up and sent to different countries to take advantage of lower production costs in those countries, i.e. assembly where labor is cheap, machining where technological expertise is abundant
- Protect market share- produce close to market in order to preserve current share of market for the goods vs. other competitors

- Risk Diversification- production in various industries minimizes risks associated with instability, strikes, or market downturns
- Access Firm-Specific Knowledge- firms may purchase a foreign firm as a subsidiary in order to acquire knowledge that will allow them to maintain a competitive edge

4.3. MNCs and Foreign Direct Investments

What are MNCs?

The multinational corporation is the agent of international production. Thus, a MNC is a corporation that carries out production activities in more than one country. In particular, it controls the assets and manages the production activities in one or more foreign countries. To do this, a corporation based in the home country must own and operate plants in one or more foreign host countries.

Effects of MNC operations in the host country

Various sources of gain to host countries are the introduction of new technology and management and training of labor. More productive use of resources in the country causes income to rise. There may be spillovers from the activity of MNCs to the rest of the economy such as external economies of scale due to its creation of a pool of trained labor and the spread of ideas from the MNC to suppliers of inputs and to potential competitors. Nevertheless, there are circumstances where host countries question whether they share in the gains from MNC operations.

When MNCs raise capital locally rather than bring additional funds into countries with limited savings and few links to world capital markets, host countries voice the concern that this competition for funds with local producers simply displaces local producers and reduces the base of local entrepreneurs. This argument is not particularly convincing, if inefficient producers are being replaced by more efficient producers who can produce more output with the same inputs. The argument is more relevant if the domestic industry initially earns monopoly profits in a protected market and the entry of a MNC transfers those profits from domestic producers to foreign owners.

From the perspective of the home country, we raised the concern that host countries have the opportunity to tax MNC income first, which reduces the tax benefit to the home country. For many developing countries, there is a benefit from being able to impose a corporate tax on enterprises that keep books and are subject to financial audits. Nevertheless, host countries complain that MNCs are able to shift income out of their jurisdiction to avoid taxation.

Host countries are often concerned over the balance-of-payments implications of MNC investment. MNCs often are a vehicle for increasing the host country's exports.

Foreign Direct Investment

To obtain plant and other production facilities in foreign countries, a MNC must invest. Thus a MNC has to be a foreign investor. These investment activities show up in the annual statistics of the home country and the host countries as foreign direct investment. Government regulation of MNCs as such is carried out mainly through regulation of foreign investment activities at the time the MNC seeks to make a foreign investment.

Foreign direct investment is the acquisition of assets in which the foreigner has a controlling interest

How Governments Regulate FDI

National governments regulate the entry and the production activities of foreign investors in many ways:

- **Restrictions on Market Access**
- ✓ Rights of establishment notification
- ✓ Closed or priority sectors conditions.
- ✓ Minimum domestic shareholding and maximum foreign shareholding
- **Investment protection**
- ✓ Host country obligations
- ✓ Intellectual property protection
- ✓ Investment guarantees etc
- **Controls on the Movement of labor entry and work permits for foreign workers**
- **Other FDI Incentives**

Most governments today have few controls on the exit of capital to other countries except for some attempts to regulate bribery and corruption involving home country investors and host economy governments and in developing countries foreign exchange limits on foreign investments. Hence, most of the controls or restrictions are imposed by the host country governments.

4.4. Debt Crisis

Potential gains from international borrowing and lending will not be realized unless lenders are confident they will be repaid.

A loan is said to be in default when the borrower fails to repay on schedule according to the loan contract without the agreement of the lender.

Both social and political instability in developing countries as well as the frequent weakness of their public finances and financial institutions make it much more risky to lend to developing than to industrial countries.

Latin American countries ran into repayment problems throughout the nineteenth century, notably Argentina, which sparked a global financial crisis in 1890 when it proved unable to meet its obligations. In 1917, the new communist government of Russia repudiated the foreign debts incurred by previous rulers. The communists closed the Soviet economy to the rest of the world, embarking on a program of centrally planned economic development. During the Great Depression of the 1930s world economic activity collapsed and developing countries found themselves shut out of industrial country export markets by a wall of protection. Nearly every developing country defaulted on its external debts as a result and private capital flows to developing countries dried up for four decades. Even some industrial countries, such as Nazi Germany, defaulted on foreign obligations.

In the 1980s many developing countries were unable to repay their debt - Mexico, Brazil, Argentina, East Asia, Russia… Since then External debt problem of developing countries became a recurrent event.

4.5. Developing countries and external debt problem

In 1981-1983 the world economy suffered a steep recession. Just as the Great Depression made it hard for developing countries to make payments on their foreign loans—quickly causing an almost universal default—the great recession of the early 1980s also sparked a crisis over developing country debt.

The fall in industrial countries' aggregate demand had a direct negative impact on the developing countries, of course, but three other mechanisms were even more important. Because the developing world had extensive dollar-denominated debts, there was an immediate and spectacular rise in the interest burden debtor countries had to pay. The problem was exacerbated by the dollar's sharp appreciation in the foreign exchange market, which raised the real value of the dollar debt burden substantially. Finally, primary commodity prices collapsed, depressing the terms of trade of many poor economies.

The crisis began in August 1982 when Mexico announced that its central bank had run out of foreign reserves and that it could no longer meet payments on its $80 billion in foreign debt. Then banks in the industrial countries—the largest private lenders to Latin America—scrambled to reduce their risks by cutting *off* new credits and demanding repayment on earlier loans.

The result was a widespread inability of developing countries to meet prior debt obligations, and a rapid move to the edge of a generalized default. Latin America was perhaps hardest hit, but so were Soviet bloc countries like Poland that had borrowed from the European banks. African countries, most of whose debts were to official agencies such as the IMF and World Bank also became overdue on their debts. Most countries in East Asia were able to maintain economic growth and avoid rescheduling their debt

Nonetheless, by the end of 1986 more than 40 countries had encountered severe external financing problems. Growth had slowed sharply in much of the developing world.

Initially industrial countries, with heavy involvement by the International Monetary Fund, attempted to persuade the large banks to continue lending, arguing that a coordinated lending response was the best assurance that earlier debts would be repaid. Policymakers in the industrialized countries feared that banking giants like Bank of America, which had significant

loans in Latin America, would fail in the event of a generalized default, dragging down the world financial system with them. But the crisis didn't end until 1989 when the United States, fearing political instability to its south, insisted that American banks give some form of debt relief to indebted developing countries. In 1990 banks agreed to reduce Mexico's debt by 12 percent, and within a year debt reduction agreements had also been negotiated by the Philippines, Costa Rica, Venezuela, Uruguay, and Niger. When Argentina and Brazil reached preliminary agreements with their creditors in 1992, it looked as if the debt crisis had finally been resolved.

4.6. Policy response and macroeconomic implication to debt crisis

The early 1990s saw a renewal of private capital flows into developing countries, including some of the highly indebted Latin American countries at the center of the previous decade's debt crisis. Low interest rates in the U.S. in the early 1990s certainly provided an initial impetus to these renewed capital flows. Perhaps more important, however, were serious efforts in the recipient economies to stabilize inflation, a move requiring that governments limit their roles in the economy and reduce tax evasion. At the same time, governments sought to lower trade barriers, to deregulate labor and product markets, control budget deficits, Privatization of state-owned enterprises, Make the exchange rate competitive and credible, Use tariffs instead of quotas and gradually reduce them, Encourage foreign direct investment, Remove the barriers to firm entry and eliminate restrictions on competition and to improve the efficiency of financial markets.

Widespread privatization has served both the microeconomic goals of fostering efficiency and competition and the macroeconomic goals of eliminating the government's need to cover the losses of sheltered and mismanaged state-owned firms.

The Brady plan developed between 1985 and 1988 was used to reduce LDC debt problems. The only chance Less Developed Countries had as a group to pay off loans was to improve their economic conditions. The plan allowed LDCs the chance to reform their economies and Banks were given the option of trading their loans to the World Bank and IMF.

4.7. Toward a solution of the Debt Crisis

- ✓ Maintain macroeconomic stability
- ✓ Develop the financial system including domestic bond markets
- ✓ Effectively monitor the flows of capital

- ✓ Ensure greater transparency in debt data in line with international standards
- ✓ Adhere to good governance principles
- ✓ Promote stronger institutional arrangements and coordination
- ✓ Enhance technical assistance in debt management
- ✓ Seek debt reduction and debt relief to both developing and lower medium-income countries including the writing off of debt of heavily indebted countries
- ✓ Provide technical support to developing countries whose banking sectors are not fully developed etc

4.8. International Macroeconomic policy coordination

International macroeconomic policy coordination refers to the modifications of national economic policies in recognition of international interdependence.

Reasons for Macroeconomic Policy Coordination

During recent decades, the world has become much more integrated, and industrial countries have become increasingly interdependent. The increased interdependence in the world economy today has sharply reduced the effectiveness of national economic policies and increased their spillover effects on the rest of the world. With increased interdependence, international macroeconomic policy coordination becomes more desirable and essential.

Several Obstacles

There are several obstacles to successful and effective international macroeconomic policy coordination

- ✓ The lack of consensus about the functioning of the international monetary system
- ✓ Another obstacle arises from the lack of agreement on the precise policy mix required
- ✓ There is the problem of how to distribute the gains from successful policy coordination among the participants and how to spread the cost negotiating and policing agreements.

Review Questions

- Discuss internal balance and external balance after the collapse of Bretton woods system?
- Discuss the effects of international capital movement and the reasons for International Capital Movements?
- Differentiate internal and external balances?
- Discuss the Effects of MNC operations in the home country?
- Why Macroeconomic Policy coordination so important?
- Discuss the Possible solutions to Debt crisis?
- Differentiate the terms: Foreign direct investment and Foreign portfolio investment?

CHAPTER FIVE: - ECONOMIC POLICY IN AN OPEN ECONOMY

5.1. Equilibrium in the Goods Market

This sub-section examines the complicated issues that make exchange rate, output and inflation to change. It will explain how similar policy measures do yield varied economic outcomes in varied economic states. Models constructed in previous chapters assumed that output levels are determined outside of the models. That is a partial effect of changes in macroeconomic variables on an open economy for they are interlinked. Because changes in interest rates, exchange rates and the price level may also affect the level of output. This section examines a theory of how output market adjusts to changes in demand when price adjusts slowly. Institutional factors such as long-term nominal contracts lead to stick or slowly adjusting output market prices. We build a model examining the short run effect of all macroeconomic variables on an open economy here. We bring the short run nature of output market, money market and the foreign exchange market together.

Determinants of Aggregate Demand in an Open Economy

Aggregate demand is used to analyze changes in output when product prices are supposed to be sticky/constant. Aggregate demand is the amount of goods and services demand by households and firms through out the world. The levels of a country's output in the short depend on aggregate demand for its output unlike the long run. A country's output in the long run however lies on the supply of factors of production and state of technology. Short run over-or underemployment of factors inputs due to changes in aggregate demand affects production. Aggregate demand is the sum of consumption demand; investment demand, public purchase and net export DD.

We see the determinants of the demand for consumption and net exports of output with fixed demand for I and G. Determinants of consumption demand: the amount of consumption demand depends on disposable income. A country's desired consumption levels is: $C=C(Y^d)$ and consumption and disposable income are directly linked. Hence, consumption demand rise with income though the rise in income goes to both saving and consumption. Determinants of current account demand: demand for net exports lies on exchange rate and disposable income.

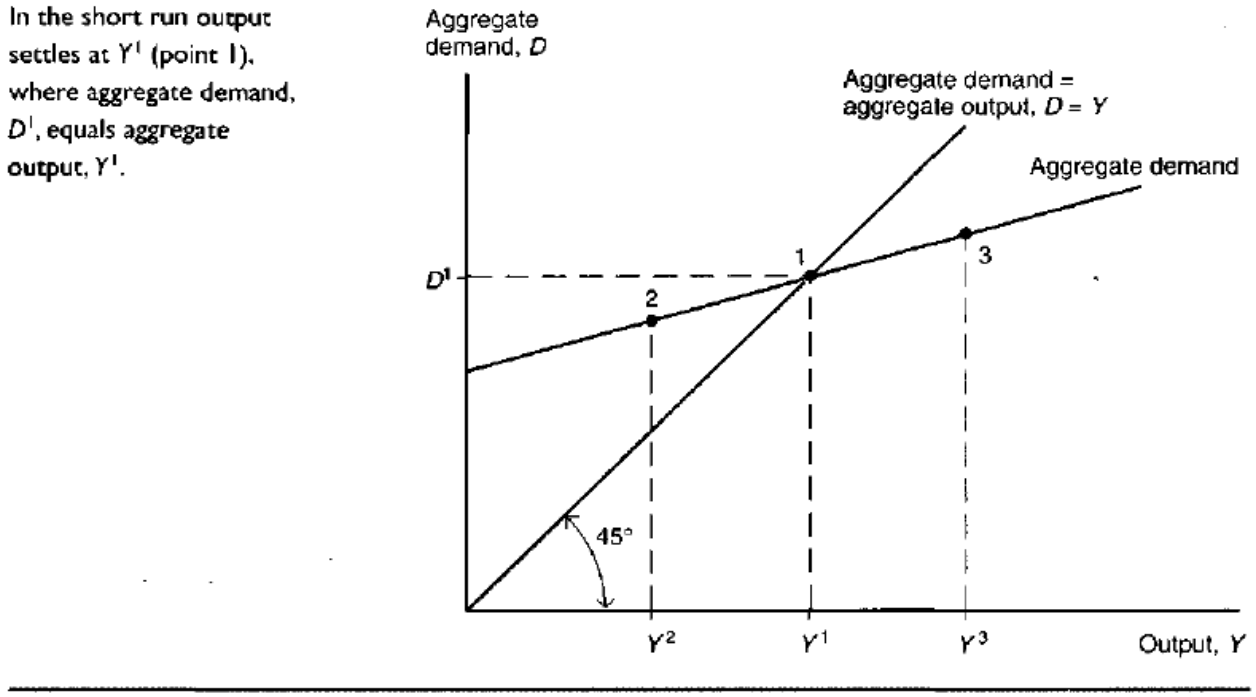
The current account balance demand: CA= f(Yd Ep*/p). Real exchange rate affects the CA through its effect on relative price of foreign and home goods and services. The disposable income affects the CA through its way in determining the level of domestic spending on output. The relative price of foreign baskets to domestic baskets represents relative general price levels foreign and abroad. A relative fall in domestic price level induces foreigners to raise demand for domestic output and CA perks up. The effect of relative price fall in domestic output is but ambiguous since relative price changes are not clear.

Although quantities of imports do decline, the domestic currency value of imports may or may not but decline. The net effects on CAB lie on relative strength of volume effect of exports and imports and value effect on imports. We assume, for the use of this chapter, that the volume effect outweighs and depreciation improves the CAB. Suppliers respond alike that multinational firms locate stages of the production process to nations that devalued. The domestic disposable income again affects the CAB negatively because foreign income is kept constant. Total Aggregate DD= $C\ (Y - T) + I + G + CA\ (EP^*/P, Y - T)$.

The real exchange rate and aggregate demand: a rise in ER raises domestic and foreign purchase of home output. Exchange rate increment improves the current account balance and raises aggregate demand for home output. But depreciation reduces aggregate demand for output. Real income and Aggregate demand: the role of change in real income on aggregate income a bit complicated. A change in income, for a given tax, raises consumption spending on home and foreign output but differently. But the degree it raises the total consumption spending is greater than its effect to raise foreign import demand.

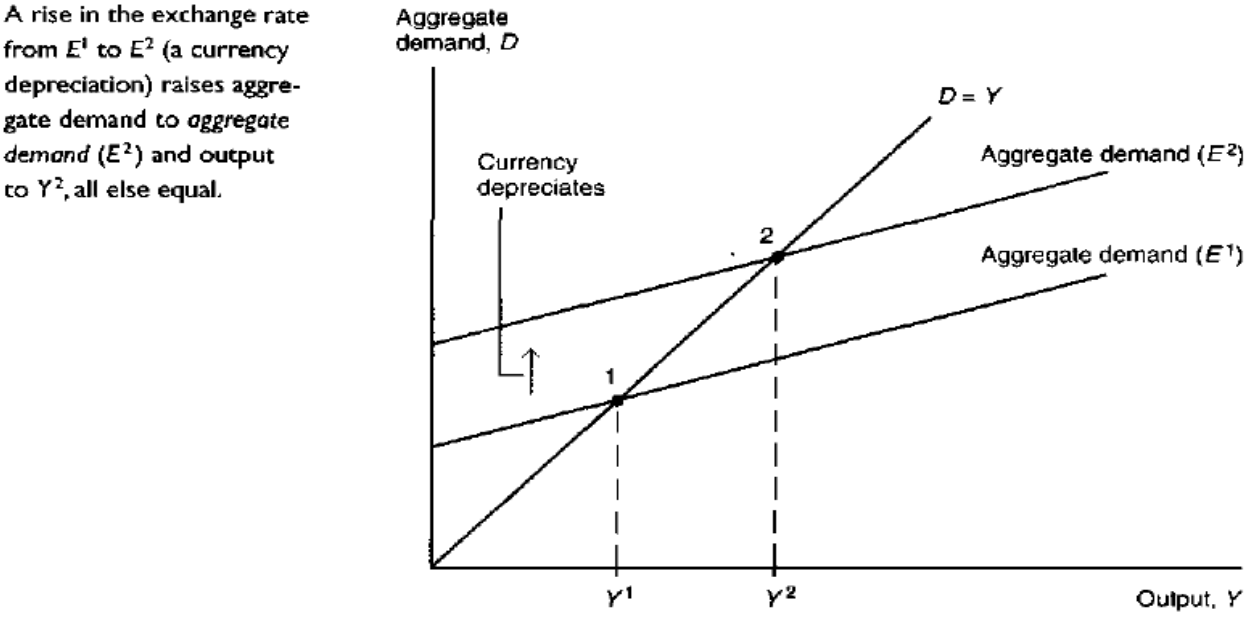
Output determination in the short run: the output market is at equilibrium when output equals aggregate demand. It is given by the identity: $Y=D(EP^*P, I,G, Y-T)$. This equality of aggregate supply and demand for output presents the short run equilibrium quantity of output. Aggregate demand is drawn as function of output given exchange rate, and investment and consumption demand. At point 2, aggregate demand exceeds output and firms raise production to satisfy the unmet demand for output. At point 3, output exceeds demand and firms build up an unwanted inventory and cut back production and Y=AD.

Figure 5.1. Short run Equilibrium



Let's see how output and exchange rate are determined if the output market and asset market are in equilibrium. Assume a fall in exchange rate for fixed price of foreign and domestic goods and see its effect on output market.

Figure 5.2. Effects of change in Exchange rate on short run Equilibrium



Depreciation makes foreign output dearer relative to domestic output and shifts the AD curve upwards. The fall in the relative prices of domestic output raises AD and firms increase output faced with higher demand. Likewise, a rise in exchange rate is the same to a rise foreign price or a fall in domestic price and vise versa. The effect of such changes on aggregate demand is same.

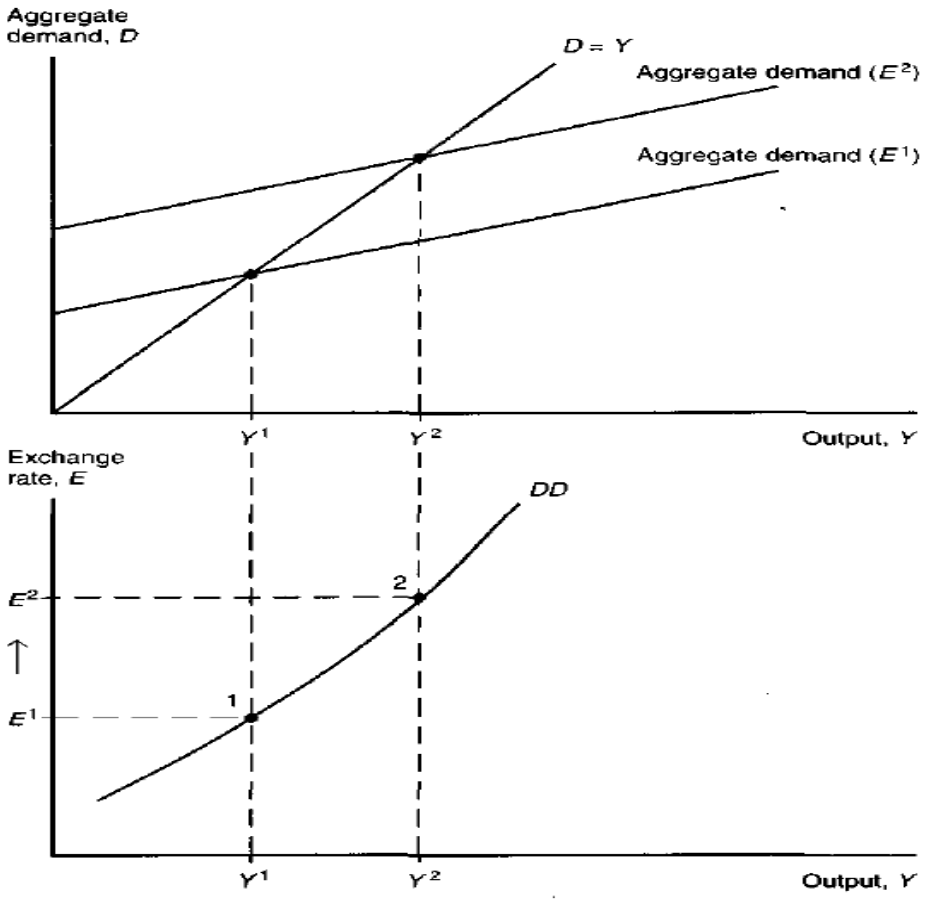
Deriving the demand schedule: if assume that P and P* are fixed, output and AD directly relate to exchange rate. Factors that shift the DD schedule: the factors assumed to fixed when drawing the AD curve may vary any time.

A change in government purchase: a rise in government purchase raises AD and thus shifts the AD right wards. For a fixed level of exchange rate, a rise/fall in public purchase shifts the AD curve rightwards or leftwards.

***A change in taxes*:** a change in tax through its effect on disposable income and thus consumption affects AD. A fall/rise in tax shifts the AD curve rightward/leftward.

Figure 5.3. Deriving DD Schedule from short run Equilibrium

The *DD* schedule (shown in the lower panel) slopes upward because a rise in the exchange rate from E^1 to E^2, all else equal, causes output to rise from Y^1 to Y^2.

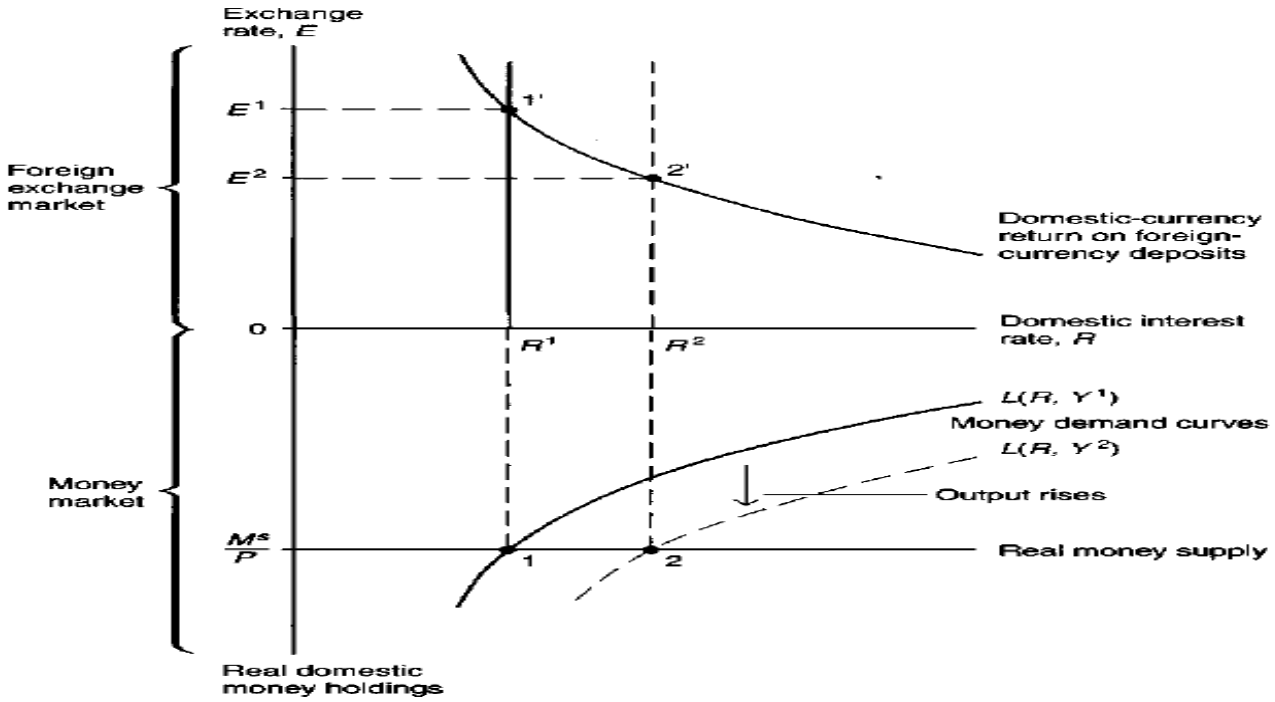


A rise/fall in investment demand raises/lowers AD and hence shifts an AD curve to outward or inward direction. A rise in the price of foreign out have same effects on the AD curve with that of appreciation or rise in ER. A change in consumption function or MPC has similar effect with rise in income if ΔMPC differs from ΔMPI. A demand shift between foreign and domestic goods due to changes in tastes or preferences shifts the DD curve. Shift towards domestic purchase of out put for instance shift the DD curve to the right, and the opposite holds. This section sums up SR equilibrium in output market.

5.2. Equilibrium in the Money Market

Asset market equilibrium in the short run: the economy at equilibrates when asset and output market equilibrate. The exchange rate and output level that fit money and exchange market equilibriums is called ***AA schedule.*** Output, exchange rate and asset market equilibrium: lets combine equilibrium conditions for the three markets. Suppose now that output rises which shifts the AD for money outwards raising the equilibrium interest rate. The rise in interest rate on domestic currency deposits will shift the DCR line to the right and thus depreciation. Output changes and exchange rates are inversely linked.

Figure 5.4. Equilibrium Condition of Money Market



The AA schedule relates exchange rates and output when money and foreign exchange markets equilibrate. The derivation of the AA schedule is presented as below. Factors that shift the AA schedule: five variables linked to MD and MS, exchange rate and price change the AA.

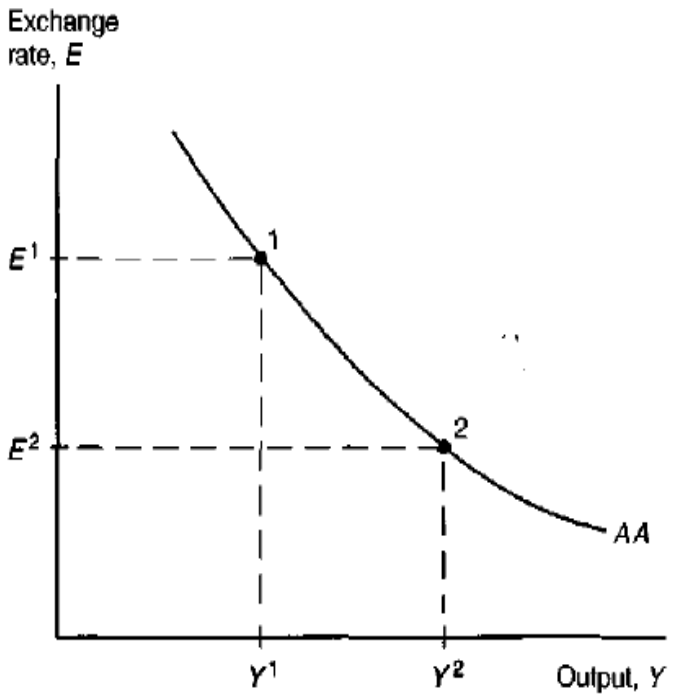
Change in M^s : rise in MS for a given output level raises interest rate and exchange rate shifts the AA outwards.

A rise in E^e : raises expected return on foreign currency deposit and raise exchange rate shifting the AA upward.

A change in P: a rise in domestic price reduces money supply and raises exchange rate shifting the AA upward.

Figure 5.5. Derivation of AA Schedule

The asset market equilibrium schedule *AA* slopes downward because a rise in output from Y^1 to Y^2, all else equal, causes a rise in the home interest rate and a domestic currency appreciation from E^1 to E^2.



A change in P*: a rise in foreign currency deposit interest rate raises exchange rate and shifts AA outward.

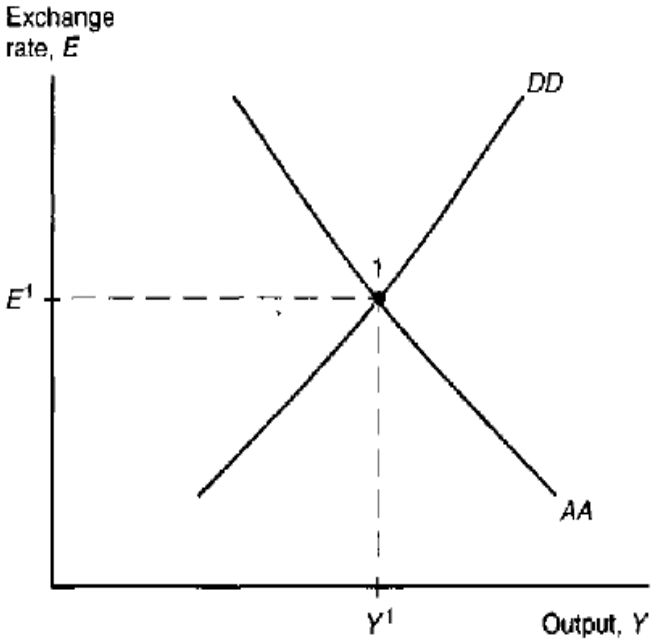
Change in real money demand: a fall in money demand thus raised exchange rate and shifts the AA rightwards.

Short Run Equilibrium for an Open Economy

We derived the DD and AA schedules in prior sections. Equilibrium for the whole economy must lie on both schedules to bring about equilibrium in all markets. The short run economy level equilibrium hence set at the point intersection of the DD and AA schedules above.
At point 1 in the below equilibrium, ***the output, asset and foreign exchange markets are all in equilibrium***.

Figure 5.6. Short run Equilibrium of the Whole Economy

The short-run equilibrium of the economy occurs at point 1, where the output market (whose equilibrium points are summarized by the DD curve) and asset market (whose equilibrium points are summarized by the AA curve) simultaneously clear.



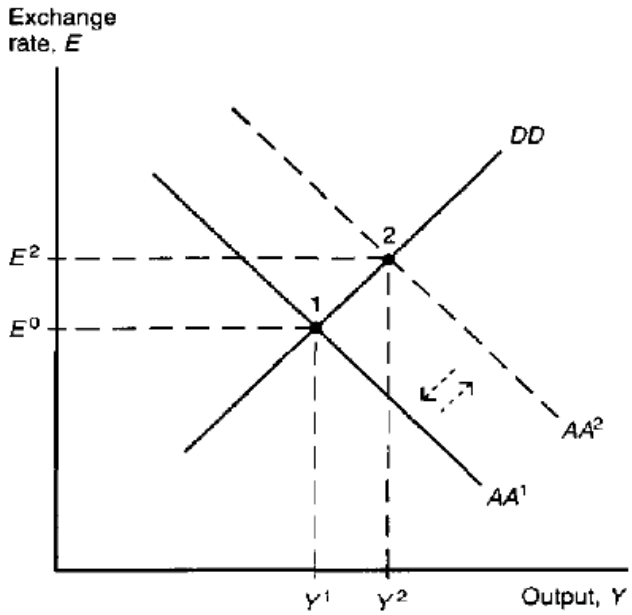
5.3. Fiscal and Monetary Policies under Fixed Exchange Rate Regime

In fixed exchange rate policy, monetary authorities gives up their ability to make changes through money supply. Fiscal can be used to influence output and employment and lets suppose that the future exchange rate fixed at E^o

Monetary Policy: in the figure below, the economy is at equilibrium at 1, E^o exchange rate and Y^1 output level. Suppose now so as to raise output, the central bank raises the money supply via purchasing domestic assets. In floating rate, the rise in MS reduces the exchange rate.

Figure 5.7. Effects of change of Money supply on Short run Equilibrium under fixed exchange rate

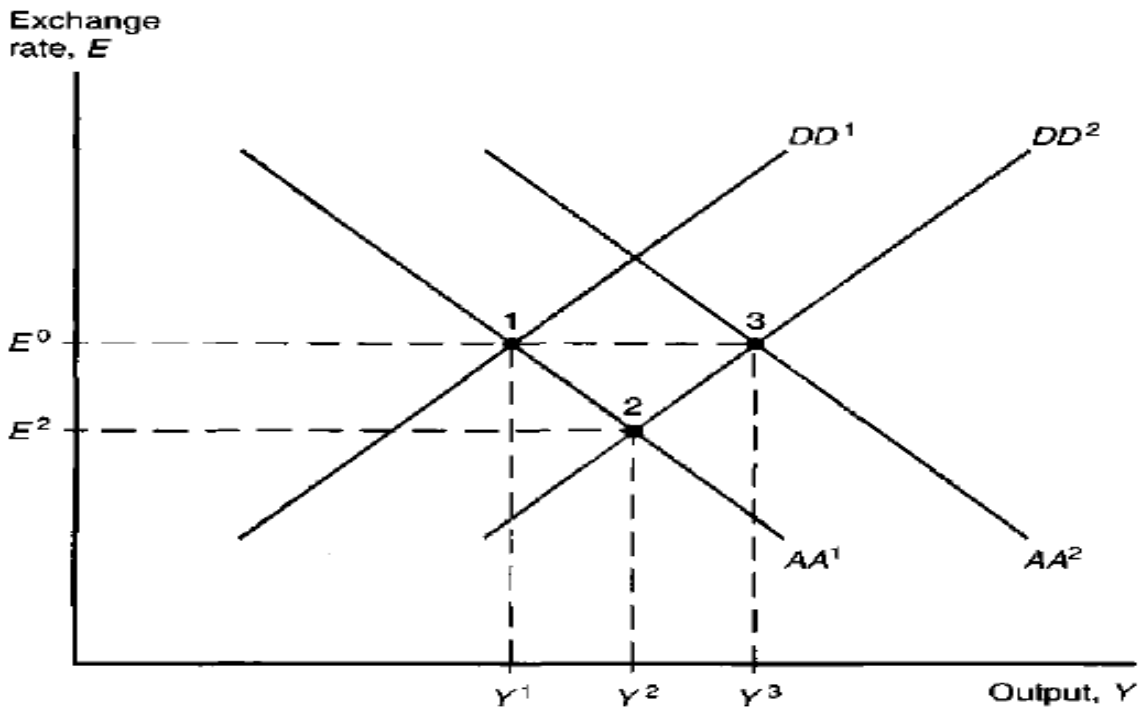
Initial equilibrium is shown at point 1, where the output and asset markets simultaneously clear at a fixed exchange rate of E^0 and an output level of Y^1. Hoping to increase output to Y^2, the central bank decides to increase the money supply by buying domestic assets and shifting AA^1 to AA^2. Because the central bank must maintain E^0, however, it has to sell foreign assets for domestic currency, an action that decreases the money supply immediately and returns AA^2 back to AA^1. The economy's equilibrium therefore remains at point 1, with output unchanged at Y^1.



The AA^1 curve shifts leftwards to AA^2 and to point 2. To prevent a fall in exchange rate, the central bank sells exchange currency, pulls the MS back and ER restores. It is only after when the new money circulated is pulled back that initial equilibrium and exchange rate restores. A change in money supply under fixed exchange system leaves the economy at its initial state with fixed ER. Central bank monetary policy tools are thus ineffective in influencing an economy under fixed exchange rate

Fiscal Policy: the economy is at equilibrium at point 1. A fiscal expansion raises aggregate demand to DD^2 and if central bank refrains, output rises to y2 and ER falls. But central bank intervenes to keep exchange rate fixed by buying foreign currency assets with domestic money. The rise in money supply takes the exchange rate to its initial position and output rises with out affecting price. In fixed exchange rate regime, fiscal policy maintains equilibrium by making domestic goods more expensive. The added expansionary effect of more money supply by the central bank makes fiscal policy more potent.

Figure 5.8. Effects of change of Fiscal policy on Short run Equilibrium under fixed exchange rate



5.4. Fiscal and Monetary Policies under Flexible Exchange Rate Regime

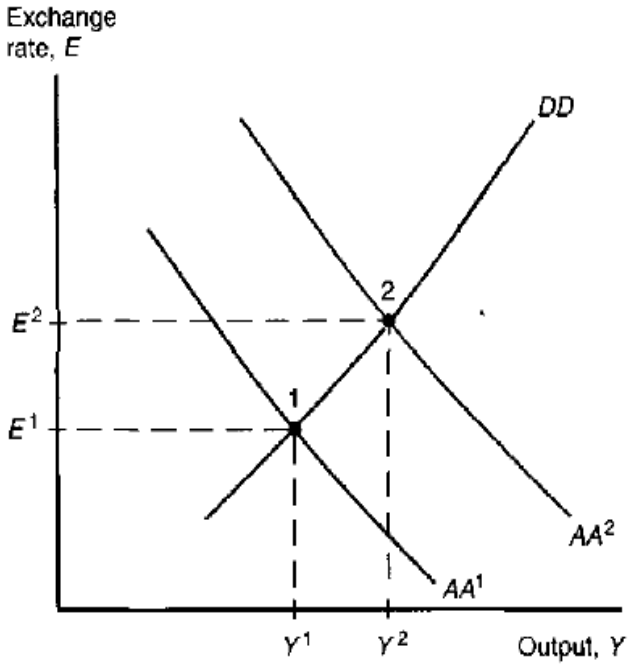
Having determined the short run equilibrium, we see now effects of macroeconomic policies on equilibrium. Macroeconomic policies are used to counteract changes causing imbalances in output, inflation and employment. We will thus examine how macroeconomic policies can be used to main full employment in open economies. We focus on monetary policies via money supply and fiscal policies through government spending and tax.

Monetary policies: a temporary rise in money supply shifts the AA curve outward but does not affect the DD. A shift in the AA schedule shifts short run equilibrium. A rise in money supply causes currency depreciation and a rise in national output and expansion in employment. A rise in money supply lowers interest rate that raises exchange rate and domestic price lower and AD higher. A higher aggregate demand is followed by higher output.

Fiscal Policy: expansionary fiscal policy involves a rise in spending, a cut in tax or a combination of the two. Expansionary fiscal policy thus raises aggregate demand.

Figure 5.9. Effects of change of Money supply under floating exchange rate

By shifting AA^1 upward, a temporary increase in the money supply causes a currency depreciation and a rise in output.



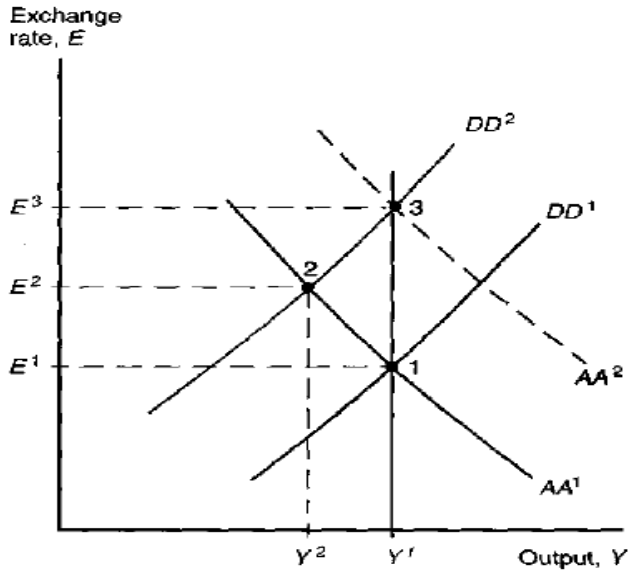
An expansionary fiscal policy that does not affect future expected exchange rate shifts the DD curve rightwards. An expansionary fiscal policy increases output and raises exchange rate and tax cuts have similar effects. The rise in output or real income raises the aggregate demand for money in turn raising IR and reducing ER. Temporary monetary and fiscal expansion can be used to fight effect temporary disturbances that lead to recession. Because both policies raise the national output and employment levels, they can help ease disturbances.

Policies to Maintain Full Employment

The monetary and fiscal policies can be adopted to maintain full employment in an open economy. Suppose that an economy is initially at equilibrium at point 1 and demand for domestic goods suddenly falls. This leads to a shift of the DD curve inwards to point 2. Exchange rate rises, output falls below full employment level and the economy is supposed to be in a recession. A temporary fiscal expansion or monetary expansion restores full employment output and exchange rate level.

Figure 5.10. Effects of change fiscal policies to full employment

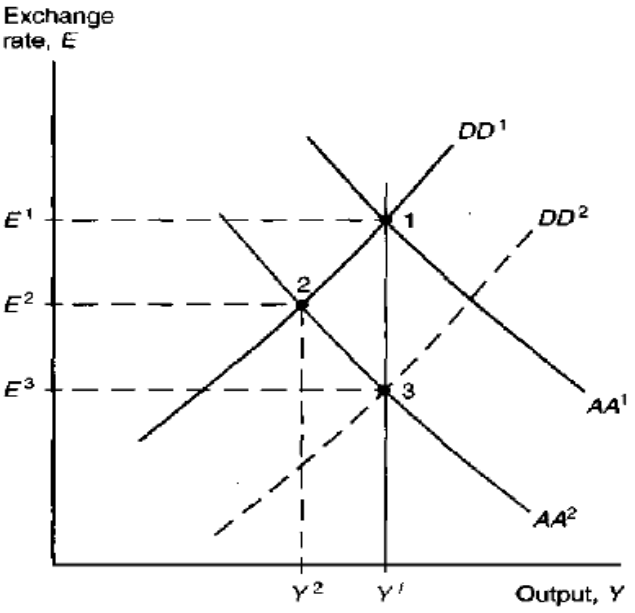
A temporary fall in world demand shifts DD^1 to DD^2 reducing output from Y^f to Y^2 and causing the currency to depreciate from E^1 to E^2 (point 2). Temporary fiscal expansion can restore full employment (point 1) by shifting the *DD* schedule back to its original position. Temporary monetary expansion can restore full employment (point 3) by shifting AA^1 to AA^2. The two policies differ in their exchange rate effects: The fiscal policy restores the currency to its previous value (E^1); the monetary policy causes the currency to depreciate further to E^3.



Expansionary fiscal policy increases aggregate demand for money and restores the leftward shift in DD curve. Expansionary monetary policy raises exchange rate in turn enhancing output via increasing aggregate demand. Hence, the monetary and fiscal policies discussed above can be used to maintain full employment.

Figure 5.11. Effects of change of monetary policies to full employment

After a temporary money-demand increase (shown by the shift from AA^1 to AA^2) either an increase in the money supply or temporary fiscal ease can be used to maintain full employment. The two policies have different exchange rate effects: The monetary policy restores the exchange rate back to E^1, the fiscal policy leads to greater appreciation (E^3).



Review Questions

- Discuss the goods market equilibrium, and show graphically?
- Discuss the Money market equilibrium, and show graphically?
- Discus the effect of Fiscal and Monetary Policies under Fixed Exchange Rate Regime, which policy is more effective, show graphically?
- Discus the effect of Fiscal and Monetary Policies under Floating Exchange Rate Regime, which policy is more effective, show graphically?

CHAPTER SIX: INTERNATIONAL MONETARY ARRANGEMENTS AND INTERNATIONAL INSTITUTIONS

6.1. International Monetary Arrangements

The international monetary system starts from Gold Standard to the present day situation. International monetary arrangements are consisting of those traditions, rules, procedures and institutional arrangements, which influence the international payments. International monetary arrangements are divided on the basis of exchange rate determination or on basis of reserve currency. So far as exchange rate determinations are concerned it deals with Gold Standard, fixed exchange rate system, a mixer of fixed and flexible exchange rate and flexible exchange rate.

6.1.1. Classical Gold Standard (1870s - 1914)

It remained in operation during the period of 1870 to 1914 and it has the following properties.

- ✓ Under the system, gold coins were circulated and was accepted all over the world in payment
- ✓ The price of dollar and pounds were fixed in term of gold as £ =113.006 grains of gold and $ = 23 grains of gold. The Bank of England and federal reserve system of US used to sell the gold at such official rates against pounds and dollars
- ✓ The exchange between dollars and pounds was also determined on basis of gold. If we divided 113.006 grains of gold by 23 grains of gold we get the exchange rate between $ and £. E = £/$ = 113.006/23 = 4.87. It means that one pound is = $4.87
- ✓ Gold was used as the primary form of money to facilitate and support the global economic activities. Therefore, gold stock was equivalent to money supply. Hence:
    - ➢ Exports increase the domestic money supply
    - ➢ Imports reduce the domestic money supply

Under this system, there were no lasting current account deficits and surpluses. Why? The system will automatically restore BOP equilibrium. How was the equilibrium restored?

- Trade deficit ➔ exports < imports ➔ outflow of gold ➔ reduction in money supply ➔ relatively lower domestic prices VS higher foreign prices ➔ exports > imports ➔ trade balance.

- Trade surplus ➔ exports > imports ➔ inflow of gold ➔increase in money supply ➔ higher relative domestic prices vs lower foreign prices ➔ exports < imports ➔ trade balances!

Under the gold standard, a balance of payment disequilibrium will be corrected by a counter-flow of gold. Suppose that ETH imports more from the U.K. than it exports to the latter. Under the classical gold standard, gold, which is the only means of international payments, will flow from ETH to the U.K. As a result, ETH will experience a decrease in money supply and U.K. will experience an increase in money supply. This means that the price level will tend to fall in ETH and rise in the U.K. Consequently, the ETH products become more competitive in the export market, while U.K. products become less competitive. This change will improve ETH balance of payments and at the same time hurt the U.K. balance of payments, eventually eliminating the initial BOP disequilibrium.

Why the Gold Standard fall apart?

World War I marked the end of an economic era. Faced with an urgent need for more liquidity, the combatant countries took their currencies off the stabilizing gold standard and printed more money. This triggered high inflation, which persisted after the war. The cost of the "World War" was staggering when compared with the costs of earlier hostilities. Governments were forced to stop redeeming their currencies for gold, since they had to print so much paper money to pay for the war that resulted in runaway inflation in many countries. With the beginning of 1st world war, floating exchange rate system was adopted and heavy fluctuation in exchange rate was observed during 1919 to 1924. Economists desire for restoration of gold standard because with this system fluctuation in exchange rate was very minimum. In 1925 U.K restored the convertibility of pound in to gold and restriction of inflow and outflow of gold were abolished. But the new and revised system was given the name of Gold exchange standard.

6.1.2. Gold Exchange Standard or managed gold standard (1926-1931)

Under this system along with gold, convertible into gold currency was used as a reserve currency. This economizes the gold. In that time U.K was not well economically and on other hand France's BOP was surplus. In 1928, law was passed in France that France will accept its international receipts in gold instead of pounds. This affects negatively the British economy, particularly when France attempted to convert all of its pounds in gold. In 1931 U.K devalue its currency and suspended the convertibility of pound into gold. With this the era of Gold exchange standard came to an end.

So, in conclusion decision of France to convert pounds into gold, international mobility of capital from London to new monetary and trade centers like Paris and New York and great depression of 1929, collapsed gold exchange standard.

Advantages and disadvantages of Gold Standard

The advantages of the gold standard include: Since the supply of gold is restricted, countries cannot have high inflation; any BOP disequilibrium can be corrected automatically through cross border flows of gold. The standard produced global financial stability. This in turn supported global investments and thus, economic growth. On the other hand, the main disadvantages of the gold standard are: the world economy can be subject to deflationary pressure due to restricted supply of gold; the gold standard itself has no mechanism to enforce the rules of the game, and, as a result, countries may pursue economic policies that are incompatible with the gold standard.

1931– 1944: Period of Economic Nationalism

- ✓ Cannot talk about the existence of an international monetary system
- ✓ Economic nationalism:
  - – Competitive devaluations
  - – Protectionism
  - – Trade wars, international trade cut almost in half
  - – Less international provision of credit and investment
  - – Economic instability, large unemployment, currency depreciating went on increasing and the value of gold tend to increase.
  - – Every county had a craze to transfer its assets into gold.
- ✓ Reasons for unsuccessful initiatives for the formation of a consistent international monetary system:
  - – Countries were not prepared to make and implement international agreements that would limit their freedom in leading national economic policies
  - – Unresolved debt problem of some European Countries from World War I

6.1.3. Fixed Exchange Rate: Bretton Woods System (1944-1972)

The desire for economic cooperation stemmed from fear of repeating the post-World War I mistakes that had led to inflation, financial instability, and the Great Depression.

Representatives from 44 countries managed together for a conference at Bretton Woods. Their goal is to design the framework for postwar international economic cooperation.

The Bretton Woods meeting was a success. The delegates agreed on the fundamental principles of a new monetary system – ***fixed but adjustable exchange rates*** - to encourage economic stability and prosperity. Moreover, the delegates established two intergovernmental institutions to further these principles: ***The International Monetary Fund and the World Bank.*** The main objectives of the Bretton Woods system are to achieve exchange rate stability, promote international trade and development. Under the Bretton Woods system, the U.S. dollar was pegged to gold at $35 per ounce and other currencies were pegged to the U.S. dollar. Each country was responsible for maintaining its exchange rate within ±1% of the adopted par value by buying or selling foreign reserves as necessary. The Bretton Woods system was a ***dollar - based gold exchange standard.***

Advantages of fixed ER

- ✓ Fiscal policy is effective under fixed ER with perfect capital mobility
- ✓ Reduce transactions costs and exchange rate risk and this stimulates international trade & investment.

Disadvantages of fixed ER

- ✓ Loss of monetary policy autonomy
- ✓ Loss of exchange rate as a shock absorber
- ✓ Loss of seignior age revenue

Reasons of fall of Bretton-Woods system:

- ✓ **Defective Economic policies of US**

In BWS, US $ was like a king without a crown. There was a need that $ could remain a scarce currency. But same could not happen rather there was an excess of $ all over the world, US spent these dollars in different heads, in this way US deficits in budget went on mounting, with this the supply of $ increase heavily with this the world had to see the era of "dollar Shortage to dollar surplus" the currency which was international currency failed to maintain its value in international market, confidence on $ decreased.

- ✓ **Increase in Unofficial price of gold**

Dollar convertibility of gold was fixed at the rate of $35/ounces officially but as we know that supply of $ increase due to one or other reason so the value of $ could not be maintain. In 1969, the price of gold went to $200 in the market of London and New York, besides this speculators of gold anticipated that price of gold would further increase in future, so they started the purchase of gold against $. In addition to it, France started accumulating gold

- ✓ **Insufficient Sources of IMF**

As we know that due to increased supply of $, value of $ reduced while the economic adversity of Britain led to dethrone British pounds. Besides this price of gold went on increasing in the world market, this led to accumulation of gold with individuals and govt. This shows that components of BWS that is Gold, Dollars and pounds had to face certain complications. It was realize to enhance world liquidity. So, Special Drawing Rights (SDR) were issued and quotas of SDR were fixed for member of IMF. Against such SDR a country can borrow from IMF for removal of BOP deficit. In spite of such measures BOP position of poor countries can not improve.

- ✓ **Fixed exchange Rate**

We know that BWS was a representative of fixed exchange rate, where the value of each currency was remained fixed in $ or in £. The country faced deficit in its BOP had to make the payment in gold or it had to devalue its currency, because through exports would increase and imports decrease. Through devaluation poor nations did not improve their BOP as their exports were agriculture in nature. The loan or drawing rights of poor countries with IMF were meager (insufficient). The major share of such drawings was taken by rich countries. The gov't of UDCs wishes to maintain the exchange rate once it was settled. The artificial exchange rate was attempted to be maintained as a result the exchange rate in the open market happened to be different from the official exchange rate and BWS lost its efficiency.

6.1.4. Flexible exchange rate system (1973-Present)

The currency's value is determined solely by supply and demand in the market, rather than official policy. It could result in excessive fluctuations. Such fluctuations disrupt international transactions by constantly altering the cost of goods and value of payments between companies in different countries. On the other hand, export oriented countries like China and Japan are

accused of actively managing their currency valuation by affecting the forces of supply and demand in the foreign exchange market to achieve their political and economic policy objectives.

The benefits of floating system are:

- ✓ The currency's value respond to external shocks and help the economy adjust quickly.
- ✓ Additionally, the effect of monetary policy actions can be amplified. For example, when the NBE lowers short term interest rates to create more credit and thus help to stimulate economic activities of consumption and investment and shift the aggregate demand curve, the lower interest rates may also depreciate the currency and help promote exports. This will further stimulate economic activities.

The disadvantages of floating system are:

- ✓ The effectiveness of fiscal policy may be eroded. Why? Government spending and tax cuts may increase consumer spending and business investment. Increased economic activities may increase interest rates or cost of funding, and this may attract global capital inflow and appreciating the home currency value. The currency appreciation may hurt exports while fueling imports. Therefore, the simulative effects of the fiscal policy action may be eroded
- ✓ Exchange rate uncertainty

6.2. International institutions

6.2.1. International Monetary Fund (IMF)

The IMF was established at a meeting at Bretton woods in Hampshire in USA, in July 1944. The aim was to add stability to the international economy and avoid the competitive currency devaluation of the inter war periods by providing emergency currency loans to countries suffering from bop problems. The IMF came into official existence in 1945 and commenced its operation in 1947.

Activities of IMF

- ✓ Involves monitoring economic and financial developments and provision of policy advice
- ✓ Its lending activity involves, providing temporary loans to countries with bop difficulties and providing loans to low-income countries to assist poverty reduction.
- ✓ It provide policy advice to assist countries in their efforts to overcome their economic difficulties and may attach conditions to loans
- ✓ It provides technical assistance concerned with economic expertise and trainings to governments

- ✓ Loans to member countries are based on quotas.
- ✓ Each member of the country is assigned a quota and the quotas are expressed in SDRS, which are a unit of account with in IMF.
- ✓ A member quota determines its maximum financial commitment to the IMF and its voting power. The largest member of the IMF is the USA. Therefore, the USA has the largest single vote in decision making within IMF - 17% of the total vote.

6.2.2. The World Bank

The World Bank also established at Breton woods in 1944. Provide low interest rate loans, interest free credit and grants to developing countries to encourage their economic development. It began life after World War II by assisting the reconstruction of the European economies but since then its primary focus has been on improving the economic welfare of the poorest peoples in the world. Today it is one of the largest sources of development assistance internationally, providing financial technical assistance over 100 developing countries. In 2002 the World Bank provided 19.5 b. dollars to these countries. The World Bank provides direct financial grant, loans and technical assistance. The loans have generous repayment terms of 35 to 40 years.

Its fund comes from 40 rich countries, which make contribution every four years. The World Bank is involved in loans for infrastructure, advising on economic restructuring including privatization and trade liberalization and providing education and health programs.

The IMF lends mainly to assist with bop problems and maintaining exchange rates while the World Bank is primarily concerned with financing economic development.

Review Questions

- ➢ Why International monetary arrangements are so important?
- ➢ Differentiate the international institutions such as World Bank and IMF
- ➢ Why the Gold Standard falls apart?
- ➢ Discuss the advantages and disadvantages of fixed exchange rate
- ➢ Discuss the advantages and disadvantages of floating exchange rate