

Lecture 13

The Balance of Payments: The Balance of Payments Accounts

Definitions

BOP

(Overall balance) The balance of payments is a record of economic transactions between the residents of one country and the rest of the world over a given time period. International transactions involve an exchange of goods, services, or assets between residents of one country and those of another. Residents are businesses, individuals and government agencies that make the country in question their legal domicile.

Merchandise exports show the free on board value of goods provided to the rest of the world (valued in current US\$).

Merchandise imports show the cost, insurance and freight value of goods received from the rest of the world (valued in current US\$).

Trade balance is the difference between a country's imports and its exports. It is the largest component of a country's balance of payments. Debit items include imports, foreign aid, domestic spending abroad and domestic investments abroad. Credit items include exports, foreign spending and investments in the domestic economy.

Services net

Services are the second major category, after goods, of the current account. It covers traditional items, such as travel and transportation and items such as communications, financial and computer services, royalties and license fees and many types of other business services that are becoming increasingly important in international transactions. In Singapore, services are highly differentiated and more important than merchandise. The services account is generally in a surplus.

Income net

Income covers two types of transaction between residents and non-residents:

- (i) those involving compensation of employees, which is paid to non-resident workers (e.g., border, seasonal and other short-term workers), and
- (ii) those involving investment income receipts and payments on external financial assets and liabilities. Included in the latter are receipts and payments on direct investments, portfolio investment, other investment, and receipts on reserve assets.

Current transfers net

Current account refers to the monetary value of international flows associated with transactions in goods, services, income inflows and unilateral transfers.

Capital account net

Capital account = investment by domestic in foreign assets – foreign investment in domestic assets

Capital account is where all international capital transfers are recorded. This refers to the acquisition or disposal of non-financial assets (for example, a physical asset such as land) and non-produced assets, which are needed for production but have not been produced, like a mine used for the extraction of diamonds.

The capital account is usually zero for most countries. It is broken down into the monetary flows branching from debt forgiveness, the transfer of goods, and financial assets by migrants leaving or entering a country, the transfer of ownership on fixed assets (assets such as equipment used in the production process to generate income), the transfer of funds received to the sale or acquisition of fixed assets, gift and inheritance taxes, death levies and, finally, uninsured damage to fixed assets. For example, when Thailand sells its embassy in Singapore, this is a government-to-government transaction that is accounted for by the capital account.

Direct investment net

Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital as shown in the balance of payments.

Portfolio investment net

Portfolio investment covers transactions in equity securities and debt securities; it is a passive investment of securities in a portfolio. It is made with the expectation of earning a return on it, this expected return is directly correlated with the investment's expected risk. It is distinct from direct investment, which involves taking a sizeable stake in a target company and possibly being involved with its day-to-day management. The negative figure shows that Singapore is buying more of foreigner's long-term assets.

Financial derivatives are financial instruments whose values are derived from other financial instruments (e.g. equities and debt securities), indicators or commodities, and through which specific financial risks can be traded in financial markets in their own right. Transactions in financial derivatives should be treated as separate transactions rather than as integral parts of the value of underlying transactions to which they may be linked. The value of a financial derivative derives from the price of an underlying item, such as an asset or index. The negative figure shows that Singapore is buying more financial derivatives.

Other investment net

Other investments are capital flows into bank accounts or provided as loans. Large short-term flows between accounts in different nations are commonly seen when the market is able to take advantage of fluctuations in interest rates and/ or the exchange rate between currencies. A positive figure shows an inflow of short-term capital into Singapore.

Financial account net

Financial account refers to all international purchases or sales of assets, and includes both private sector and official (Central Bank) transactions. Assets include titles to real estates, corporate stocks and bonds, government securities and ordinary commercial bank deposits.

Foreign and Capital Account (or Capital Account)

The financial account is a record of trade in assets by the private sector. It includes FDI, long-term and short-term portfolio investment. The capital account involves transactions resulting in transfer of wealth between countries. It is usually small in size and examples include debt forgiveness and transfer of wealth with immigration.

Net errors and omissions constitute a residual category needed to ensure that accounts in the balance of payments statement sum to zero. They are derived as the balance on the financial account minus the balances on the current and capital accounts.

Reserves and related items is the net change in a country's holdings of international reserves resulting from transactions on the current, capital and financial accounts. Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, and include holdings of monetary gold, special drawing rights (SDRs), reserve position in the International Monetary Fund (IMF) and other reserve assets. Also included are net credit and loans from the IMF (excluding reserve position) and total exceptional financing.

Structure of the BOP

The arrangement of transactions into BOP account requires that each transaction be entered as a credit or debit. A credit transaction (+) is a receipt of a payment from the rest of the world. A debit transaction (-) is a payment to the rest of the world. For example, merchandise exports are entered credits while merchandise imports are entered as debits. A capital outflow is a debit as it gives foreigners purchasing power. Earnings received from the services of capital abroad such as interests and dividends are a credit on the current account.

Double Entry Book-keeping

All items are entered once as a credit and once as a debit of an equal amount. One entry measures the actual transaction and the other measures the means of payment. For example, when a Singapore firm exports disk drives to the USA paid in Singapore dollars, this is a credit under merchandise exports (current account) and a debit (a fall) in foreign holdings of the S\$ (recorded in financial account as capital outflow). If the US importer pays for the drives in the US\$, it is a credit under merchandise exports and a debit under (a rise) in Singapore holdings of the US\$.

In an accounting sense, the BOP must balance as a consequence of double entry bookkeeping (allowing for net errors and omissions). Current account + Capital account + Financial account + net errors and omissions = overall balance = change in reserves and related items. The sum of the balance of payments statements should be zero. However, it is not necessary for the subaccounts of the statement to balance. A surplus means that the balance on a subaccount is positive. A deficit means that the balance on a subaccount is negative. For example, when the United States buys more goods and services than it sells (a current account deficit), it must finance the difference by borrowing, or by selling more capital assets than it buys (a capital account surplus).

In other words, a country with persistent current account deficit is, therefore, effectively exchanging capital assets for goods and services. Large trade deficits mean that the country is borrowing from abroad. In the balance of payments, this appears as an inflow of foreign capital.

If the current account registers a deficit (debits > credits), the current financial account must register a surplus (net short term or long term capital/ financial inflow). Alternatively, it has to be financed by a change in reserves or related items. If the current account registers a surplus (debits < credits), the current financial account must register a deficit (net short term or long term capital/ financial outflow). Alternatively, there has to be an accumulation of reserves or related items.

In reality, the accounts do not exactly offset each other due to statistical discrepancies, accounting conventions and exchange rate movements that change the recorded value of transactions.

There is no single balance which can be taken from the accounts which will identify whether there is a problem with the BOP, it all depends on where you 'draw the line' in the accounts and the judgment of the economy as a whole, the development stage of the economy.

A persistent current account deficit is sustainable if it finances productive investment and economic growth. Developing countries borrow from abroad to finance successful industrialization and economic development. As Singapore began to develop rapidly from the late 1960s to the mid-1980s, the current account deficit was sustainable; it was financed by the financial account.

A persistent current account surplus is bad if reserve accumulation is excessive since the country is holding low interest earning assets as reserves. It is not lending enough to the rest of the world and it constrains domestic consumption possibly because of an undervalued currency (China, Singapore), import protection (Japan and China) or excessive savings (Saudi Arabia, Singapore). Central banks generally do not want to hold reserves as it is costly, but it is required to finance BOP problems. Reserves are low interest earnings (< 0.5%). In Singapore, reserves are transferred to GIC to generate higher profits. CPF brings about a surplus of the current account; Singaporeans have lesser disposable income to consume imports. Singapore's consumption ratio to GDP is approximately 30%, significantly lower than in other countries where the ratio is 70 to 80%.

Fundamental Disequilibrium

"A persistent current account deficit which can only be corrected by heavy sacrifices in terms of domestic goals or by abandoning commitments to the international community." (IMF)

It is a large current account deficit not covered by short term or long term financial transactions resulting in one or all of the following:

1. A depletion of reserves to a low level
2. Borrowing from the IMF (Asian Financial Crisis 1997-8)
3. A currency crisis (Thailand, Indonesia 1997-8)
4. Default on international debt repayments (1983 debt crisis, Mexico 1994)

Lecture 14
The Balance of Payments: Global Imbalances

National Income Accounting records all the expenditures that contribute to a country's income and output.

For a closed economy, NIA is: $Y = C + I + G$ (1)

In an open economy, NIA includes exports (X) and imports (M), it is: $Y = C + I + G + X - M$ (2)

Alternatively: $Y = C + S + T$ (3)

Substitute (3) into (2):

$S + C + T = C + I + G + X - M$ (4) or $(S-I) + (T-G) = (X-M)$ (5)

Current account deficit: National savings < National expenditure

A budget deficit results from low savings (S) and high government expenditure (G), not raising taxes (T)

Equation (5) states that the current account balance is a reflection of the excess of national savings over domestic investment or the difference between national income Y and spending or domestic absorption C+I+G

The Flow of Financial Resources: Net Capital Outflow

Net capital outflow is the purchase of foreign assets by domestic residents minus the purchase of domestic assets by foreigners. When a local resident buys shares in a foreign company, net capital outflow increases. When a foreigner buys local government bonds, net capital outflow decreases.

The Equality of Net Exports (or Current Account) and Net Capital Outflow

For an economy as a whole, NX and NCO must balance each other so that:

$NCO = NX$

Net exports and net capital outflow are always equal because every international transaction is an exchange. For example, when the home country has a trade deficit (implying that the home country imports more than it exports) the home country will have to pay for the imports. In order to pay for the imports, the home country must sell assets to pay for this good or service (because the import is sold in the foreign currency). The value of the assets sold to pay for the imports therefore must equal the value of goods and services imported. Hence, the net value of goods and services sold by a country (NX) must equal the net value of assets acquired (NCO).

Trade Deficit (current account deficit financed by borrowing from the rest of the world)

Exports < Imports

Net exports < 0

$Y < C + I + G$

Saving < Investment

Net capital outflow < 0

Balanced Trade

Exports = Imports

Net exports = 0

$Y = C + I + G$

Saving = Investment

Net capital outflow = 0

Trade Surplus (lending to rest of the world or reserve accumulation)

Exports > Imports

Net Exports > 0

$Y > C + I + G$

Saving > Investment

Net capital outflow > 0

Net Capital Outflow for Singapore

Between the late 1960s to around 1985, Singapore developed rapidly, building infrastructure, HDB flats, airport and attracting FDI. This resulted in higher levels of domestic investment as

compared to national saving to finance the investment programme. The current account deficit is sustainable as it is financed by FDI on the balance of payments. Singapore attracts financial inflow to finance the current account deficit. Thereafter, there is a slowdown in the return on capital, leading to a fall in the level of domestic investment. The high savings rate led to a high amount of current account surplus. Singapore is possibly saving too much, with a 50% saving rate. It could be to finance the retirement.

Global Imbalances – Blame the USA?

USA is the largest foreign debtor in the world, with insufficient saving and/ or budget deficits. It relies on a continuous inflow of foreign capital to finance the massive current account deficit, the rest of the world has to finance USA's current account deficit. The loose monetary policy, excessive credit and risk-taking and weak supervision over the housing market fuels a housing bubble in the US and now in East Asia.

However, the capital inflow in the US finances productive investment for growth and jobs. Foreigners are happy to hold US dollar denominated assets, we are in fact, satisfied with financing the US current account deficit. For example, central banks and commodity traders like the US\$. A US deficit is necessary for the US dollar to be the major form of international money. The current account deficit in the USA is due to excessive imports over exports. As the US\$ is an international currency, when the US pays for imports in US\$, it increases the circulation of US\$ in the economy. The problem is the size of the deficit.

Global Imbalances – Blame China?

There is a current account and financial account surplus and this leads to an increase in the reserves. China's reserve official reserve assets have increased significantly since 2000. During the Asian Financial Crisis, China resisted the depreciation in the RMB that could have worsened the crisis, showing its commitment towards stability in the region.

China Nominal Effective Exchange Rate

The unadjusted weighted average value of a China's currency relative to all major currencies being traded within an index or pool of currencies. The weights are determined by the importance China places on all other currencies traded within the pool, as measured by the balance of trade. The NEER represents the relative value of the RMB compared to the other major currencies being traded (U.S. dollar, Japanese yen, euro, etc.). A higher NEER coefficient means an appreciation of the RMB, and a lower coefficient means a depreciation of the RMB. The NEER also represents the approximate relative price a consumer will pay for an imported good. China's NEER has been rising since 1995.

Global Imbalances – Blame Emerging Asia?

Current account surplus: $X - M$

Budget surplus: $T - G$

Within Asia, there is excessive saving and too little investment; most of the investments in Asia leave the region. There is a current account surplus.

$$Y = C + I + G + X - M$$

$$X - M = Y - (C + I + G)$$

If $X > M$

$$X > M = (Y - C - T) + (T - G) - I$$

$S - I =$ Current Account balance

There is an export-led growth and structural current account surpluses. Due to fear of a current account crisis, they lend to the USA to build up reserves. There is an increased dependence on external demand (exports) and savings is costly.

However, export-led growth has raised living standards, reserves are needed in case of further crises and eventually dependence on export-growth will give way to domestic drivers.

Global Imbalances – Blame Oil Exporters?

For Saudi Arabia and the major oil exporters, the 2012 surplus (IMF forecast) is \$740 billion compared to \$180 billion for China. The revenues are transferred from Official Reserves into opaque sovereign wealth funds. They do not import much from the USA, therefore, they are the primary driver of the US deficit. Their currencies tend to be fixed to the US\$, there is no

currency appreciation when oil revenues rise. When oil prices rise, these oil exporters will receive more revenue in US\$.

Should the international community force surplus countries such as Singapore and China to reduce their surpluses? If so, how?

Yes

Should not be a zero sum game

Chinese trade policies protectionist made for imperfect competition

The international community should force surplus countries such as Singapore and China to reduce their surpluses.

Many of the countries with current account surpluses have been criticized no less than the United States for policy failures that have encouraged the buildup of surpluses and dampened the domestic demand that will be needed to prop up the world economy if US demand falters. A common theme is that countries running surpluses must invigorate their own domestic economies so they can make a bigger contribution to global growth rather than relying on the United States to keep the global economy moving. Japan and Europe have been urged to carry out structural reforms to reduce rigidities in their product and labour markets. China has been criticized for tightly managing its exchange rate when its surpluses would drive a floating currency much higher. Although China last year allowed its currency to appreciate by 2.1% and has taken other moves to promote flexibility in its capital markets, international organizations continue to recommend broader policy reforms- not only in China, but in other emerging Asian countries as well- to encourage faster growth in domestic demand and greater exchange rate flexibility. Oil-producing countries have been urged to mop up some of their surpluses by investing more at home; in many cases, there is a pressing need to expand and modernize production infrastructure, so there is no lack of opportunities for such investment.

In industrialized countries such as Singapore, it involves the problem of ageing populations. Countries like Singapore have been saving more to meet the retirement needs of the baby-boom generation. Yet there may be fewer investment opportunities at home in economies that are less dynamic than those with younger populations. Singapore, unlike many developed economies, enjoys huge current account surpluses. The government does not spend a single on healthcare, CPF or HDB – building up huge budget surpluses and reserves. Last year's surplus was \$3.9 billion in the budget statement, or \$36.1 billion according to the Department of Statistics using IMF fiscal reporting standards – and about \$185 billion over the last 7 years or so. Also, the continuance of the HDB market subsidy pricing policy which essentially means that the government does not spend a single cent on HDB, and makes huge profits from flat sales as well as lending Singaporeans' CPF funds to flat purchasers to earn 0.1 per cent more than the 2.5 per cent paid on their ordinary accounts – which enables the HDB to sell more flats and collect more resale levies, needs to be reviewed. This is partly due to the government routinely posting budget surpluses. Saving has exceeded investment in Japan for the past quarter-century and-to a lesser extent- in the euro area for most of the past 20 years.

Emerging market economies have their own reasons to make a bigger contribution to global savings. Many Asian nations that boomed in the mid-1990s experienced recessions following the currency crises of the late 1990s. Their recovery strategy- chosen freely or out of necessity and often at the urging of the international community- has been to reduce domestic expenditures and generate current account surpluses, making them net suppliers of funds. Even non-crisis countries such as China began to accumulate foreign exchange reserves as a precautionary measure. Having been burned themselves, or seen their close neighbours burned by the financial crisis, these countries have built up “war chests” of foreign exchange reserves to protect themselves from a sudden outflow of capital. The recent rapid rise in oil prices has also contributed to higher global savings. Oil producers, many of which learned some hard lessons in the 1980s when they squandered their sudden oil wealth, have been unwilling- and to some extent unable- to spend their rising revenues as fast as they accumulate them.

During the pre-Bretton Woods negotiations, John Maynard Keynes proposed that countries would finance their payments imbalances by building up bancor balances at the putative IMF and that excessive balances (in either direction) will be penalized through interest payments. Under this scheme, surplus countries would build up large bancor balances on which they would be charged interest. The major surplus country of the day at that time was the United States, it vetoed the proposal. However, it is still a viable option that we should consider to get surplus countries to reduce their surplus.

Another alternative was proposed during the Committee of twenty negotiations on reforming the international monetary system, when the United States had already come to think of itself as a chronic deficit country. In 1972 the US delegation led by Paul Volcker proposed that all countries should be assigned a "reserve indicator." If their reserves came to exceed (or fall short of) this indicative level by a specified percentage, they would have an obligation to adjust their surplus (or deficit). One acceptable mechanism of adjustment for a surplus country was currency revaluation, although if a country preferred it could expand demand or stimulate long-term capital outflows or increase aid, but it would have an obligation to adopt effective adjustment actions. Germany was the great surplus country of the day and it vetoed the proposal, together with its European partners.

Lecture 15

The Foreign Exchange Market: The Market for Foreign Currencies

Nominal exchange rates (NER)

The nominal exchange rate S is the rate or price at which one currency exchanges for another currency or a stable basket of currencies of advanced countries, it does not take into account the costs/ prices of goods.

The nominal exchange rate is expressed in two ways:

1. The cost of one unit of foreign currency in units of domestic currency (direct quote): $S = S\$/US\$\text{}$
2. The cost of the local currency in units of the foreign currency: $1/S = US\$/S\$\text{}$

Appreciation refers to an increase in the value of the domestic currency measured by the cost of a unit of foreign currency (fall in S).

Depreciation refers to a decrease in the value of the domestic currency (rise in S).

Depreciation is NOT equivalent to devaluation; devaluation only applies to fixed currencies.

Real exchange rates (RER)

The real exchange rate adjusts S for relative price changes at home and abroad:

$$RER = S \times (P^*/P)$$

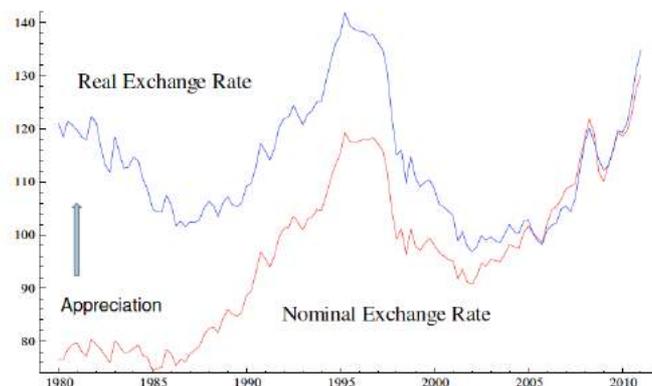
S : Nominal exchange rate

P^* : Foreign CPI

P : Singapore's CPI

1. The Central Bank can change S , but cannot change P^* and P .
2. A real appreciation means a possible loss of competitiveness for home country due to a rise in P , a fall in P^* or a fall in S (nominal appreciation). A fall in the $S\$:US\$\text{}$ graph indicates appreciation and a rise indicates depreciation. However, in this graph (see below), it shows the inverse. Therefore, a rise is an appreciation and a fall is a depreciation.
3. The price ratios do not change that much or that quickly, RER drives the NER. MAS allows for gradual appreciation of the $S\$\text{}$, the exchange rate appreciates to reduce inflation.
- 4.

Quarterly Nominal and Real Exchange Rates $S\$:US\$\text{}$ (2005=100)
IMF IFS



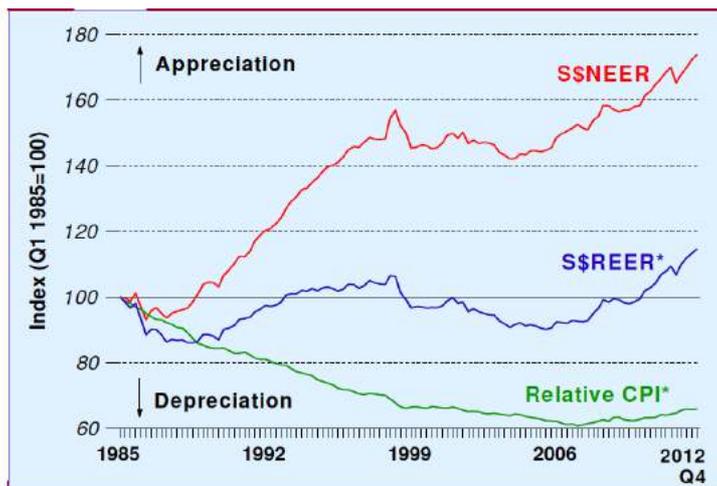
Quarterly Effective Exchange Rates for Singapore (2005=100)
IMF IFS



The Nominal Effective Exchange Rate (NEER) measures the value of a currency in terms of a basket or weighted average of bilateral exchange rates (usually trade-weighted).

The Real Effective Exchange Rate (REER) adjusts the NEER for differences in costs/ prices in the home country compared to its trading partners. $\text{Sum of } (S \times (P^*/P) \times w)$.

By convention, a rise in NEER or REER implies a loss of competitiveness for the home country. (inflation too high or currency too strong relative to basket of currencies)



Relative CPI: (P/P^*)

If domestic wages are rising, it leads to a steeper NEER. As prices increase sharply, S\$NEER increases.

The Forex Market

Foreign-exchange market refers to the organizational setting within which individuals, businesses, governments, and banks buy and sell foreign currencies and other debt instruments. The forex market is the largest and most liquid market in the world. The market is dominated by four currencies (U.S. dollar, euro, Japanese yen, British pound). Not all currencies are traded in the market.

Buyers and sellers of forex are linked through transfer of funds from one country to another and currency to another to buy/ sell goods and services and assets, they are facilities for hedging, arbitrage and speculation in spot, forward and futures markets and they are a vehicle for Central Banks to settle debts and manipulate exchange rates in line with government policies.

A typical foreign-exchange market functions at 3 levels:

- In transactions between commercial banks and their commercial

customers, who are the ultimate demanders and suppliers of foreign exchange

- In the domestic interbank market conducted through brokers
- In active trading in foreign exchange with banks overseas

Spot Market

A market that involves buying and selling of foreign currencies at the spot rate, usually within two or three working days. A spot transaction is one where you can make an outright purchase or sale of a currency now, as in "on the spot". It is the simplest way to meet your foreign currency requirements, but it also carries the greatest risk of exchange rate fluctuations as there is no certainty of the rate until the transaction is made (entering the contract and final settlement of currency).

Forward Market

A market that involves buying and selling of foreign currencies to be delivered at a future date, usually one, three or six months. A forward transaction is about receiving or paying an amount of foreign currency on a specific date in the future at a fixed exchange rate (that cannot be affected by any changes in the market exchange rates). It protects you against unfavorable movements in the exchange rate, but it will not allow gains to be made should the exchange rate move in your favor. A forward exchange contract's maturity date can be a few months or even a few years in the future.

Futures Market

A market where one can deal forward into the future in a currency on an organized market, it involves standardized contracts at a fixed contractual price, it is a legally binding agreement to deliver or take delivery of a given quantity of foreign currency if called upon to do so at a specified future date at an agreed price. Futures trading involves more of commodities rather than currencies. e.g. the Chicago Mercantile Exchange

Difference as compared to forward market:

1. The futures market has a specific geographical location and contracts are guaranteed by a clearing-house.
2. There are only a few standardized contracts trading fixed amounts.
3. Contract amounts are usually smaller than for forwards.
4. There is a daily cash-flow (margin) settlements procedure.

Black Markets and Parallel Markets

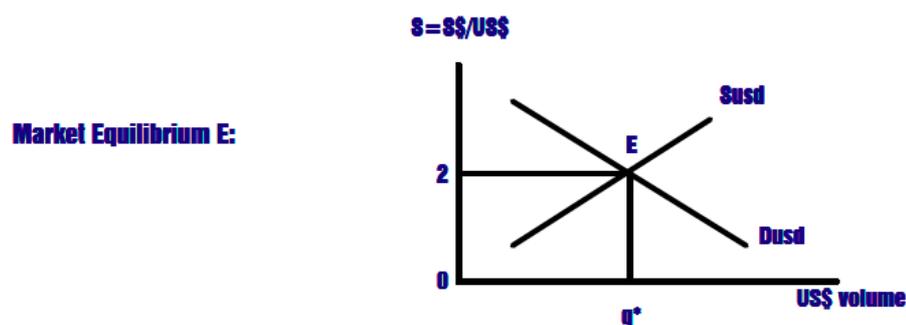
A black market is where excess demand for forex results in an illegal market for forex and a discrepancy between the official rate and the 'market' rate. It occurs usually in developing countries where the central bank has foreign exchange controls to ration scarce forex earnings towards priority imports.

A parallel market is where a free market is tolerated by the authorities and coexists with the official market.

Exchange-rate determination

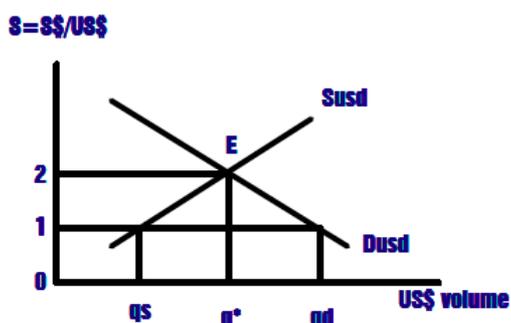
Free market equilibrium

A rise in S means $S\text{\$}$ is depreciating while foreign currency is appreciating.



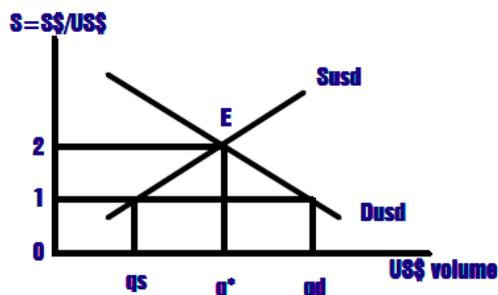
The demand curve for US\$ has a negative slope as a rise in S (depreciation of the S\$) raises the price of foreign goods, services and assets (in US\$) and hence the quantity demanded for US\$ falls.

The supply curve for US\$ has a positive slope as a rise in S makes home (S\$) goods, services and assets cheaper in the US and so demand for S\$ rises and in exchange more US\$ are supplied.



At E , demand for US\$ equals to the demand for S\$. When $S = 1$, the S\$ appreciates against the US\$, the quantity demanded for US\$ will exceed the quantity supplied. This is so as more people would want to purchase more of US goods and services. The supply of S\$ increases. This would cause S to rise (S\$ depreciate) to the initial equilibrium position, E , where $S = 2$.

A pegged currency (Hong Kong)



If the S\$ is pegged to the US\$ at $S = 1$, the quantity demanded for US\$ will exceed the quantity supplied of US\$. The Central Bank sells $q_d - q_s$ of US\$ from its reserves to keep the rate at 1. The currency is overvalued when $S = 1$ and undervalued when S is above 2. An intermediate regime such as a managed float involves a mixture of market forces and intervention (as in Singapore).

Two currency arbitrage

It is the simultaneous buying of forex when it is cheap and selling where it is more expensive to make a riskless profit. If the US\$/S\$ were 1.99 in Singapore in New York, we buy US\$ in Singapore at 1.99 and immediately resell in New York at 2.01, making a riskless profit of \$0.02 per US\$ (allowing for transaction costs). The price differential will be arbitrated away. The lower cost of US\$ in Singapore will drive up the exchange rate and the higher cost of US\$ in New York will drive the exchange rate down, the discrepancy will be eliminated.

Hedging

It involves risk avoidance, to cover an open forex position that is exposed to risk by paying a premium for it. A simple hedge using the forward market is when a Singapore importer who has contracted to buy imports from the USA for delivery in three months' time is worried of an appreciation of the US\$ to buy his US\$ at today's forward rate. In this case, covering a risk of

a loss is more important than the chance of a profit from a possible fall in US\$ in the next three months.

Hedge using a currency option

An option provides the right but not the obligation to buy (call option) or sell (put option) a given amount of currency at a fixed rate on or before the maturity date. For example, a Singapore importer buying a machine from the US in three months time could buy a call option to purchase US\$ at a fixed price over the next three months to hedge against an appreciation of the US\$. In the event of an appreciation of the US\$, the buyer of the option can exercise his option to compensate for the loss he incurs as a result of US\$ appreciating. Unlike the forward or futures market, an option is not an obligation to buy and sell.

Speculation (Risk-taking)

It is the acceptance of a forex risk (open position) in the expectation of a profit. A simple speculation is when a Singapore speculator expects a rise in the sterling so he buys it now and holds it on deposit to resell later at a higher price. If speculators guess correctly, they make profits and their joint actions stabilize the market by moving currency prices closer together over time. If they get it right, it smoothens the rise and fall in the currency. If they make a wrong guess, they make losses and speculation can therefore be destabilizing.

Speculation using the futures market

A Singapore derivatives trader believes that the US\$ will fall to S\$1.70 but observes that the present futures contract for March delivery is S\$1.72. He agrees to sell 100 contracts at \$1.72 for delivery on 1 March. If he guessed correctly and in March purchases his US\$ at 1.70 in the open market, delivers them at \$1.72, he makes a profit less the transaction costs.

Speculation using the a currency option

A Singapore speculator expects a fall in the US\$ and so buys a put option to sell US\$ at a given rate in three months time. If he is correct, he can buy US\$ cheaper in the spot market in three months time and make a profit by exercising his option to sell at the higher price prevailing when he bought the option. If he is wrong, he will not exercise the option and will lose the price he paid for it. With a forward contract, if he had been wrong, he would have been obliged to deliver the US\$ at a larger loss.

Lecture 16

The Foreign Exchange Market: The Determination of Exchange Rates

Absolute PPP – Gustav Cassel (1922), a prominent Swedish economist
According to the 'law of one price', commodity arbitrage should ensure that homogeneous traded goods sell for the same prices in all countries, identical goods should be sold everywhere at the same price when converted to a common currency.

Assumptions:

1. Traded goods are the same in each country.
2. No transport costs or other impediments to trade.
3. No structural or 'real' changes in the two countries such as wars and harvest failure.
4. No nontraded goods (haircuts) or international capital flows.

Then, if prices were to change internationally, arbitrage should ensure that exchange rates change to keep prices the same when expressed in a common currency.

$$P = SP^*$$

Where S: spot exchange rate

P: an index of the home country's prices

P*: an index of the foreign country's prices

Absolute PPP

The exchange rate between two currencies equals the ratio of the price levels in the two countries:

$$S = P/P^*$$

For e.g. S\$/ US\$ = 2 if $P(S\$)/ P(US\$) = 2/1$

Big Mac PPP

The equilibrium exchange rate between two currencies should yield the same price for a big Mac hamburger when measured in either currency. If not the currency is misaligned; it is either overvalued or undervalued. Don't take it too seriously; the Big Mac PPP is not very accurate.

Big Macs are sold in more than 40 countries. The Economist magazine publishes the Big Mac Index, in an attempt to measure the true equilibrium value of the currency based on one product, a Big Mac. If the Big Mac in Japan and US costs the same, it means the market exchange rate between \$ and ¥ is in equilibrium. If they do not cost the same, the results can be used to determine the extent to which the market exchange rate differs from the true equilibrium exchange rate.

So if say on 4 Feb 2009, a Big Max costs US\$3.54 in the US, then according to the law of one price, the Big Mac should also be sold everywhere at equivalent of US\$3.54 in the rest of the world. If in the US, a Big Mac costs \$3.54, and in Hong Kong it costs \$1.72. The HK\$, according to the law of one price, using the Big Mac as common good, is undervalued by 52%.

Relative PPP

The changes in exchange rates result from changes in the ratio of the price levels from some base year: % Change in S (nominal exchange rate) = % Change in P (local price) - % Change in P* (foreign price). So, if prices rise by 5% in Singapore and by 2% in the USA, the S\$ will depreciate by 3% against the US\$. The changes in exchange rates are determined by the changes in price levels. When prices rise by a large %, the home currency depreciates by a large %.

Exchange rates are determined by inflation differentials between countries, ceteris paribus conditions hold, making it a less demanding theory than absolute PPP. If absolute PPP holds, relative PPP holds but not vice versa. There is some empirical evidence support for absolute PPP for particular commodities and support for relative PPP for countries over long time periods. Relative PPP is supported when purely monetary disturbances occur, rapid money growth and inflation in Latin America in the 1970s and 1980s is a key reason for depreciation

of their currencies. However, short run and medium run exchange rates often deviate substantially from relative PPP and exchange rates vary more than inflation differentials. Over a longer period, countries with relatively low inflation rates tend to have appreciating currencies and countries with relatively high inflation rates tend to have depreciating currencies.

Problems in testing PPP

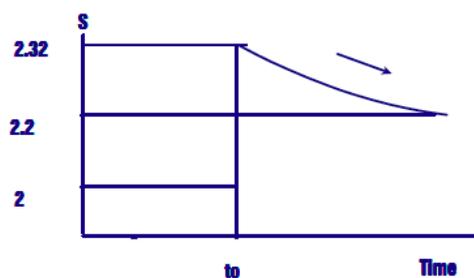
Choice of basket for the price indexes: Consumers at home and abroad may consume different baskets of goods so the law of one price could hold for individual goods but not for baskets. CPI can have different weights in different countries, there is no homogenous price index.

Goods delivery lags: Exchange rates reflect current supply and demand for currencies but goods prices today may have been set on the basis of past supply and demand. The goods market move slower than the currency market.

Asymmetric speed of adjustment: Goods prices may change much more slowly than the prices of financial assets, including the prices of currencies (exchange rates).

Overshooting in currency markets

Exchange rate is set to overshoot when its long-term response (depreciation or appreciation) to a change in market fundamentals is greater than its long-term response. Exchange rates need to appreciate or depreciate more in the short run to compensate for other prices that are slower to adjust. Exchange rate overshooting is an important phenomenon because it helps explain why exchange rates depreciate or appreciate so sharply from day to day.



A rise in the domestic money supply lowers domestic interest rates relative to foreign and increases forex demand (for home currency) as foreign assets are substituted for domestic. S rises from 2 to 2.32 overshooting its long-term equilibrium value of 2.2 as financial markets adjust rapidly. S slowly appreciates to 2.2 as goods markets adjust to long run PPP.

Assets Markets and Exchange Rates

If the interest rate on a bank deposit abroad (r^*) is higher than at home (r), we keep our money at home as it earns $1 + r$, while abroad, it earns $(1 + r^*)/ S$, where S is the cost of a unit of foreign currency in home currency or the spot exchange rate. There are country risk, default risk and currency risk involved. We are unsure of the changes in exchange rate and market signals may be wrong.

Whether it is worthwhile investing abroad depends on the interest rate differentials $r - r^*$, the expected change in the spot rate, transaction costs and the risk premium (if any) of the foreign currency.

Real interest rates

Borrowers and lenders are interested in the real interest rate (r) which is the nominal rate adjusted by the expected rate of inflation: $r = r_n - p_e$, where r_n is the nominal borrowing cost at the nominal interest rate and p_e is the expected inflation. Positive real interest rates benefit lenders whereas negative real interest rates benefit borrowers.

In practice, nominal interest rates tend to incorporate expected inflation (Fisher effect): $r_n = r + p_e$. Nominal interest rates tend to be higher during periods of high inflation, the 1970s and

1980s compared to the 1990s. Countries experiencing higher than average inflation tend to also have higher r_n .

Uncovered interest parity

$r = r^* + \text{Change in } S^e$ where r is the interest rate in Singapore, r^* is the interest rate in a foreign country and S^e is the change in expected exchange rate.

In the absence of a risk premium, profitable arbitrage will ensure that real interest rate differentials between nations tend to zero when adjusted for expected exchange rate changes. The changes in interest rates are compensated by currency movements or capital flows. If real returns on US asset r^* exceed those in Singapore r , the US\$ will be expected to depreciate against the S\$ so the interest differential will be offset by the forex loss when converting back to S\$ and capital flows will be zero.

Covered interest parity

If you want to 'cover' (hedge against risk when investing money in foreign country) against the exchange rate uncertainty arising from the foreign investment, why do we not use the forward exchange rate F ?

Buy the spot foreign currency to make the investment. Simultaneously, sell $(1 + r^*)/ S$ of the foreign currency to be received in the future in today's forward market, thus guaranteeing the investment returns in home currency.

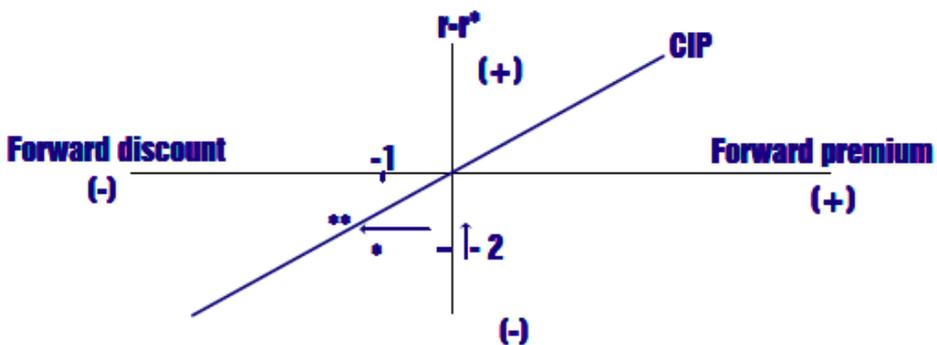
For example, the interest return on an asset in the US exceeds that in Singapore. If $r < r^*$, funds will flow to the US to buy the US asset. S will rise (S\$ depreciates) and the simultaneous sale of US\$ forward (hedge) to cover will push down the F rate on the US\$ (raise the S\$ rate). The US\$ rate will thus trade at a forward discount: $(F - S)/ S < 0$ and the S\$ at a forward premium p , $(F - S)/ S$. The discount in the forward rate would neutralize the difference in the interest rates. The cost of covering (S\$ at a premium) rises to offset the interest differential. There is no capital outflow. $r - r^* = (F - S)/ S$.

Covered interest arbitrage [$r - r^* = (F - S)/ S$]

US\$ Forward Discount = Singapore Interest Rate - US Interest Rate

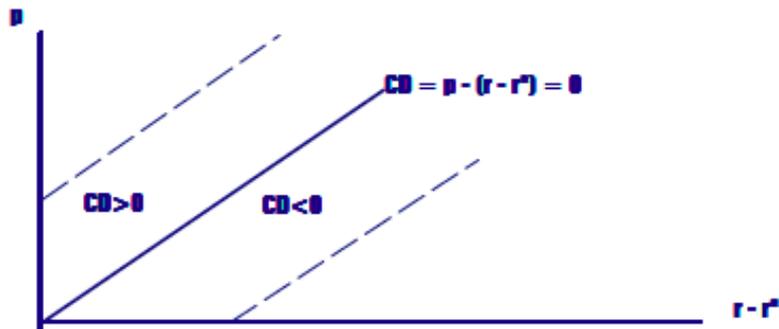
In short, the theory of foreign exchange suggests that the forward discount or premium on one currency against another reflects the difference in the short-term interest rates between the two nations. The currency of the higher-interest-rate nation should be at a forward discount while the currency of the lower-interest-rate nation should be at a forward premium.

Covered interest arbitrage



At $*$, the interest rate differential is in favour of the US and it is greater than the forward discount on the US\$. The flow of funds to the USA arbitrages $r-r$ below -2 and the covering in the forex market increases the US\$ forwards discount beyond -1 . With a higher forward discount, investors do not invest as much in US assets and the interest rate falls. This eliminates the interest rate differential between Singapore and the US. CIP is restored at $**$ and capital flow ceases.

Evidence on CIP



p is the forward discount/ premium. $R - r^*$ is the interest rate differential. CIP is strongly supported as long as adjustment for financial transaction costs and political risk lies within the band, the majority of observations will fall within the neutral band. When $CD > 0$ or $r - r^* > 0$, as long as transaction costs fall within the narrow band, CIP is strongly supported, the point would tend towards the $CD = 0$ line.

Also regression analysis: $p_t = a + b(r - r^*)_t + u_t$
 $a = 0$; $b = 1$

Lecture 17

Balance of Payments Adjustment: The Balance of Payments as a Policy Problem

Balance of Payments Adjustment

The BOP is not an equilibrium at any point in time, it only balances in an accounting sense and disequilibrium results from short term, cyclical or long term disturbances (changes in the structure of the economy and increase productivity, BOP can affect debt repayment but not in the case of Singapore as Singapore has no debt. Automatic adjustment mechanisms correct the BOP disequilibria without government intervention. BOP policies correct BOP disequilibria via government intervention.

If a country has a persistent deficit (not easily corrected) on the current account and the BOP is not covered by autonomous capital inflows.

Can automatic adjustment solve the problem? Yes to some degree. Countries in deficit, however, have less leeway in solving the deficit problem.

The Classical Gold Standard

It is a fixed exchange rate system in the late 19th century, briefly restored between 1925 and 1931. British colonies had their exchange rates fixed to the pound and the pound was fixed to gold. Each currency was fixed to gold and the domestic money supply was backed by gold. There was free mobility of gold bullion (coins and bars) or paper backed by gold. If a country earns gold through trade, there is an increase in money supply.

Adjustment Mechanism

Price-specie-flow doctrine

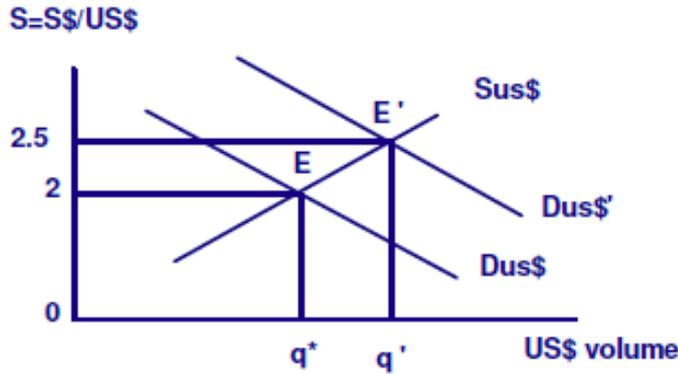
David Hume's theory provided an explanation of the automatic adjustment process that occurred under the gold standard. Starting from a condition of current account balance, any surplus or deficit would automatically be eliminated by changes in domestic price levels. A favourable trade balance was possible only in the short term and that over time, it would automatically be eliminated via changes to product prices. Gold would flow out of the deficit country and the domestic money supply would fall, the aggregate price level would fall and the trade balance would improve (exports rise and imports fall). It is the reverse for the surplus country. Hume's theory relied heavily on the quantity theory of money.

It works well if:

1. The quantity theory of money holds: $MV = PY$ (product of the amount of money and the speed the money is turning is equal to the product of the price level and the real output).
2. Wages and prices are fully flexible when P falls or rises.
3. The BOP is sensitive to changes in the aggregate price levels, elasticity of demand for exports and imports when prices fall.
4. Central banks do not offset gold flows by increasing the money supply when gold flows out through a process known as sterilizing.
5. Capital flows reinforce the adjustment as interest rates change; a fall in the money supply of a deficit country raises r and attracts foreign capital to improve the financial account. Capital flows could help economies with deficit adjust.

Classical flexible exchange rates

A deficit country will have an excess demand for foreign currency so its currency will depreciate, the country is buying too much from the rest of the world, and there is a high level of imports. Changes in the exchange rate will change the domestic currency price of foreign goods and the foreign currency price of domestic goods and eliminate the deficit.



The initial equilibrium is at E. An increase in the import demand worsens the current account deficit and shifts the demand for US\$ from $D_{US\$}$ to $D_{US\$}'$. S rises (S\$ depreciates) to clear the forex market. The S adjustment corrects the current account imbalance over time.

It works well if:

1. The forex market is driven by the current account and responds to changes in the prices of exports and imports (price elastic).
2. The forex market is stable and adjusts towards equilibrium.

The Marshall-Lerner Condition

When the Marshall-Lerner condition is met, and the sum price elasticity of demand for imports and exports is greater than 1, then the balance of trade will improve when a currency depreciates.

When the Marshall-Lerner condition is not met, and the sum price elasticity of demand for imports and exports is less than 1, then the balance of trade will worsen when a currency depreciates.

The forex market will be stable if the Marshall-Lerner conditions are satisfied: $Ed_m + Ed_x > 1$ (Ed_m is the price elasticity of demand for imports and the Ed_x is the price elasticity of demand for exports)

The sum of the price elasticities of demand for imports and exports are greater than one.

For example

If we devalue the US\$ by 10% and American demand for imports then fell by 20%, that would be a strong elastic response. If export demand also increased by 20% that is again a strong elastic response. Overall there has been a net elastic response and therefore devaluation will help US improve its balance of trade.

By contrast if Saudi Arabia devalued the Riyal by 10%, it may find its exports only increasing by 1%, an inelastic response. Its imports may also only fall by, say, 3%, another inelastic response. Overall the response to the depreciation is inelastic and Saudi balance of trade will have worsened. They are now spending more on imports and getting less from exports. In this case they shouldn't devalue; indeed they should hope their currency appreciates.

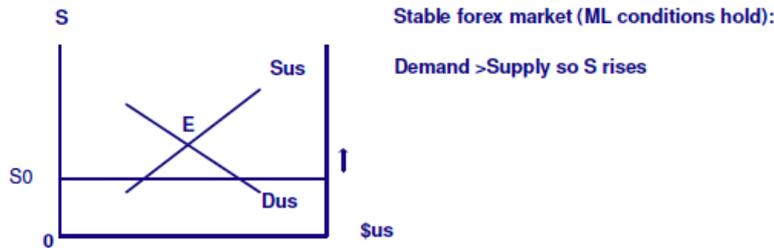
So if you are importing or exporting inelastic good and services such as energy, food and raw materials, your consumers are unlikely to import significantly less in the face of a devalued currency. So you may want to think twice about devaluation. By contrast if the goods and service you are trading are quite elastic with lots of substitutes, such as textiles, tourism and basic manufactured goods than depreciation will improve your balance of trade. This explain why China likes to have a weak Yuan (exporting elastic products such as electronics) while Australia is not that fussed by its strong dollar (exporting inelastic raw materials).

The Marshall-Lerner Conditions

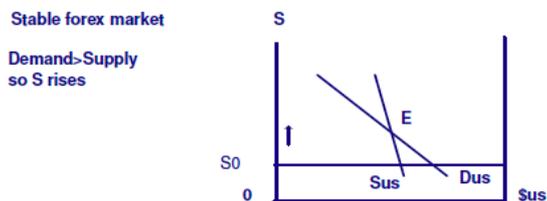
This is a special case which assumes that the supply elasticities of exports and imports are infinite, the foreign price of imports is fixed so no change in home demand can influence the

world price. The domestic price of exports is fixed so home producers can sell any quantity of exports at the prevailing world price (price-takers). This is more likely for small open economies which are price takers in world markets, such as Singapore.

Stable and unstable forex markets

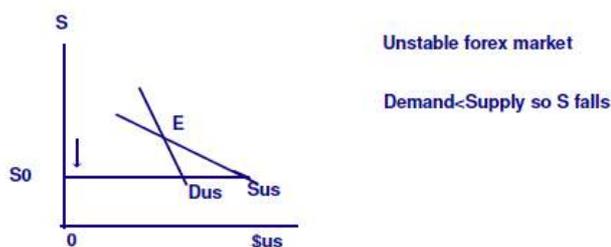


Stability if D_{US} is negatively sloped and S_{US} is positively sloped



Stability if D_{US} is negatively sloped and S_{US} is negatively sloped but is steeper (less elastic) than D_{US}

As long as the D_{US} curve is more elastic, it does not matter if S_{US} is not positively sloped.



Unstable if S_{US} is negatively sloped and is flatter (more elastic) than D_{US}

the more inelastic is Singapore's demand for US imports and the US demand for Singapore's exports the more likely this is to be

The exchange rate does not return to equilibrium and is unstable, US has to buy significantly less Singapore goods despite them being cheaper.

Evidence?

The early studies showed that the sum of E_{dm} and E_{dx} was close to unity, implying a stable forex market, but there was 'elasticity pessimism'. Later work using better econometric techniques found long run elasticities above unity ('elasticity optimism') for most industrial countries. Short run elasticities (one year adjustment) are much closer to unity. Impact elasticities (less than one year) are much lower.

Adjustment via National Income

It involves income determination in an open macroeconomic model. The multiplier (induced) changes in income lead to an automatic adjustment in the BOP. Small countries such as Singapore do not bring about important international repercussions; a reduction in demand for exports does not affect global trade much. Large economies such as the US or the EU cause repercussions on the rest of the world and feedback onto the home economy. This theory focuses on automatic changes in income to bring about adjustment in a nation's current account deficit.

Adjustment mechanism

$$Y = C + I + X - M = C + S \text{ so } I + X = S + M$$

I refer to physical investment in capital, machines

G and T are excluded as it does not affect the results and C is the income that goes to consumers

$C = a + bY$ where $a, b > 0$ and $b =$ marginal propensity to consume, C is the consumer expenditure, a is the intercept and Y is the national income

$I =$ Fixed amount

$X =$ Fixed amount

$M = m_0 + m_1Y$ where $m_0, m_1 > 0$ where $m_1 =$ the marginal propensity to import

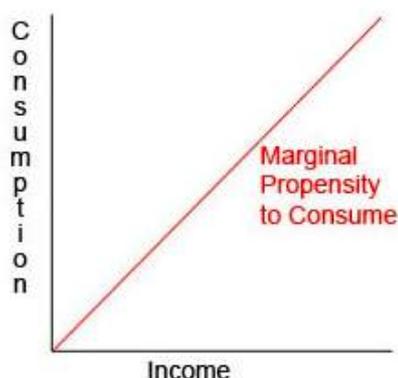
An increase in Y leads to an increase in imports for consumption, m_1 and b are crucial.

Solve by substitution for equilibrium income: $Y^* = 1 / (1 - b + m_1) \times [a + I + X - m_0]$ where $1 / (1 - b + m_1)$ is a constant.

Marginal Propensity to Consume (MPC)

The proportion of an aggregate rise in pay that a consumer spends on the consumption of goods and services, as opposed to saving it. Marginal propensity to consume is a component of Keynesian macroeconomic theory and is calculated as the change in consumption divided by the change in income. MPC is depicted by a consumption line- a sloped line created by plotting change in consumption on the vertical y axis and change in income on the horizontal x axis.

The marginal propensity to consume (MPC) is equal to $\Delta C / \Delta Y$, where ΔC is change in consumption, and ΔY is change in income. If consumption increases by 80 cents for each additional dollar of income, then MPC is equal to $0.8 / 1 = 0.8$.



Note that for simplicity we are assuming:

1. Fixed prices and wages- no supply sector
2. Fixed exchange rate
3. Fixed r , no money market
4. No government sector

Income adjustment

Keynes asserted that under a system of fixed exchange rates, the influence of income changes with current account surpluses and deficits would help restore equilibrium automatically. Given a persistent current account surplus a nation will experience rising income and its imports will increase. Conversely, a current account deficit nation will experience a fall in income, resulting in a decline in imports. These effects of income changes on import levels will reverse the disequilibrium in the current account.

INCOME ADJUSTMENT

Y^* at E with $X = IM$

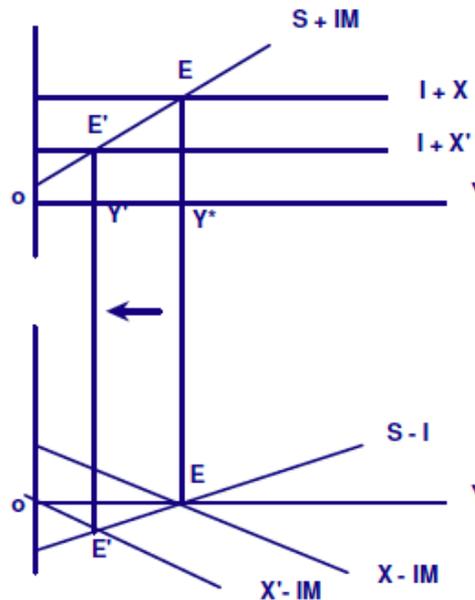
If X falls so $X < IM$

Income falls via the trade multiplier to E' :

$$K_f = dY/dX = 1/(1-b+m_1)$$

Note:

1. The fall in Y is cushioned by an induced fall in S and IM
2. The deficit will not be completely removed at E'



Initially, the equilibrium income Y^* is at E with exports equals to imports. If exports X falls so $X < M$, income falls via the trade multiplier effect to E' . When exports fall, income will fall to adjust and bring it back to equilibrium, income falls by the same amount as exports. However, actual Y does not fall by as much as exports due to leakages such as a fall in the imports and savings.

Multplier $K_f = dY/dX = 1/(1-b+m_1)$.

Note:

1. The fall in Y is cushioned by an induced fall in S and M .
2. The deficit will not be completely removed at E' .

It works well if:

1. A damped foreign trade multiplier to cushion the fall in Y is brought about by the fall in X , in this model, a large m_1 and large $1-b$ or s .
2. m_1 will be large for small highly open economies such as Singapore but small for big relatively closed economies with substantial natural resources such as the US
3. In more complicated models, there will be other cushioning factors such as taxes, expatriated profits and re-exports.

Lecture 18

Balance of Payments Adjustment: Balance of Payments Policies

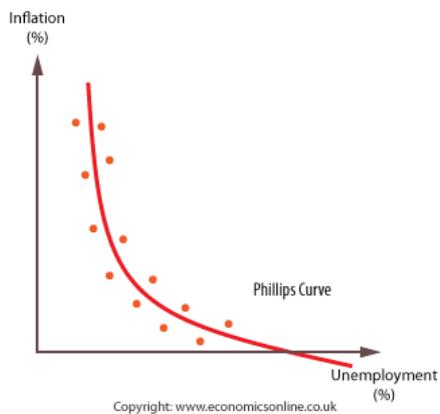
Internal and external balance

Internal balance: This goal has two dimensions, a fully employed economy and no inflation; or more realistically, a reasonable amount of inflation. Nations traditionally have considered internal balance to be of primary importance and have formulated economic policies to attain this goal.

Targets for inflation and unemployment plus trade-offs

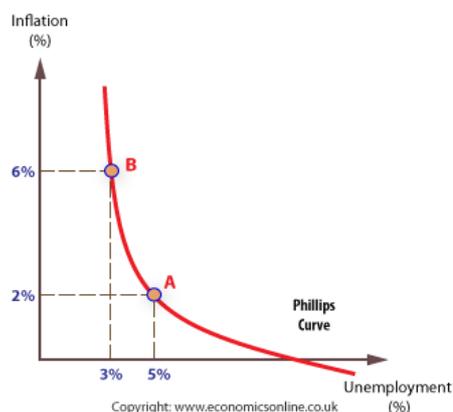
Phillips Curve

It is an economic concept developed by A. W. Phillips stating that inflation and unemployment have a stable and inverse relationship. According to the Phillips curve, the lower an economy's rate of unemployment, the more rapidly wages paid to labor increase in that economy. The theory states that with economic growth comes inflation, which in turn should lead to more jobs and less unemployment. However, the original concept has been somewhat disproven empirically due to the occurrence of stagflation in the 1970s, when there were high levels of both inflation and unemployment.



The curve suggested that changes in the level of unemployment have a direct and predictable effect on the level of price inflation. The accepted explanation during the 1960's was that a fiscal stimulus, and increase in AD, would trigger the following sequence of responses:

1. An increase in the demand for labour as government spending generates growth.
2. The pool of unemployed will fall.
3. Firms must compete for fewer workers by raising nominal wages.
4. Workers have greater bargaining power to seek out increases in nominal wages.
5. Wage costs will rise.
6. Faced with rising wage costs, firms pass on these cost increases in higher prices.



It quickly became accepted that policy-makers could exploit the *trade off* between unemployment and inflation - a little more unemployment meant a little less inflation. During the 1960s and 70s, it was common practice for governments around the world to select a rate of inflation they wished to achieve, and then expand or contract the economy to obtain this target rate. This policy became known as *stop-go*, and relied strongly on fiscal policy to create the expansions and contractions required.

External balance: This is when a country realizes neither deficits nor surpluses in its current account. An economy realizes overall balance when it attains internal balance and external balance. There is BOP equilibrium, for analytical purposes a zero overall balance but in reality, it means to have a sustainable deficit or surplus.

However, internal and external balance may conflict.

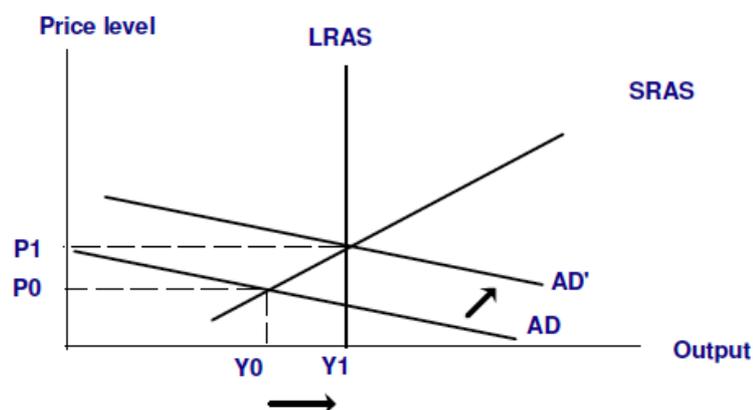
Conflict between IB and EB

Case	Policy for IB	Effect on EB
A Recession Deficit	Expand	Worse
B Recession Surplus	Expand	Improves
C Inflation Surplus	Contract	Worse
D Inflation Deficit	Contract	Improves

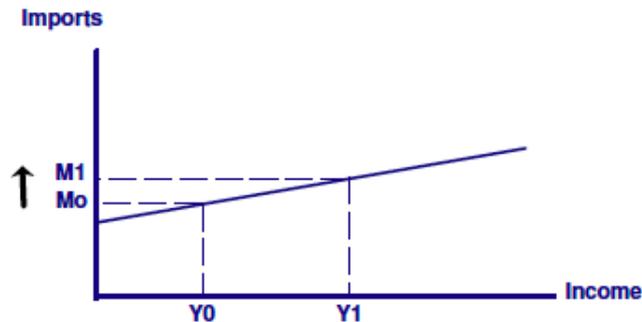
When government expenditure (G) rise and taxes (T) fall, consumption (C) and investment (I) rise. The rate of growth of money supply increases. This leads to depreciation in the home currency and an increase in imports, further worsening the BOP if it is in deficit but it improves the BOP if it is surplus by reducing the surplus.

Similarly, when government expenditure (G) falls and taxes (T) rise, consumption (C) and investment (I) fall. The rate of growth of money supply decreases. This leads to an appreciation in the home currency and a decrease in imports, worsening the BOP if it is in surplus but it improves the BOP if it is deficit.

Increase aggregate demand through an expansionary monetary policy



At Y_0 , the equilibrium output is less than the full capacity. An expansionary monetary policy (rise in G and fall in T) shifts the AD curve to the right to AD' and this raises the price level and output in the short run. The price level (inflation) rises from P_0 to P_1 and the output rises from Y_0 to Y_1 .



The increase in the money supply sucks in imports as national income expands from Y_0 to Y_1 . If exports are unchanged, the trade balance and current account ($X-M$) deteriorates.

Conflict between IB and EB

If Singapore experiences a deflationary gap, an expansionary policy (deficit budget in 2009) is acceptable to restore IB and it would reduce the BOP surplus, therefore it is moving towards EB as well. However, if Singapore experiences an inflationary gap, contractionary policy is acceptable to restore IB but this would increase the BOP surplus and the official exchange reserves. Is this a problem?

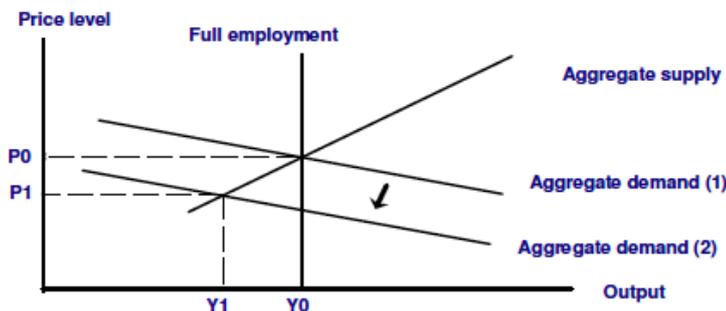
Expenditure changing policies

It is to reduce or increase the domestic spending (absorption) by a combination of monetary and fiscal policy. In order to solve a current account deficit, raise taxes, lower government spending, decrease the money supply or raise interest rates.

Note:

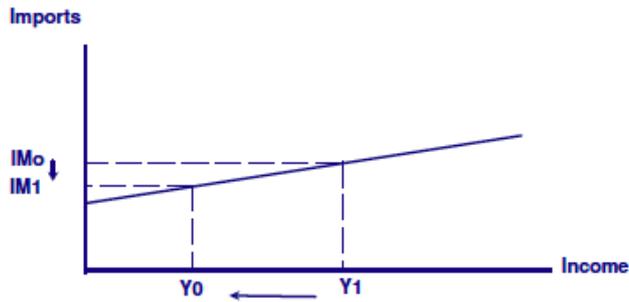
Singapore doesn't use such policies since it usually has an overall surplus BOP and a fall in exports (X) is well cushioned by automatic stabilizers (a fall in imports and S)

Improving the BOP by expenditure reducing policies



A contractionary fiscal policy reduces the AD from AD_1 to AD_2 and the income/ output falls from Y_0 to Y_1 . This solves the BOP problem (EB) but it creates unemployment (IB).

Improving the BOP through expenditure reducing policies



As income contracts from Y_1 to Y_0 through expenditure reducing policies, the spending on imports falls from IM_0 to IM_1 and if exports are unchanged, the current account ($X-M$) improves. The change in imports brought about by a change in income is the 'marginal propensity to import'.

Expenditure switching policies

In order to cure a current account deficit, switch the spending by domestic residents from imports to domestic import substitutes and by foreigners to imports. This is done principally by currency devaluation or depreciation through the central bank. The more responsive imports and exports are to a change in the value of the currency, the more effective the policy.

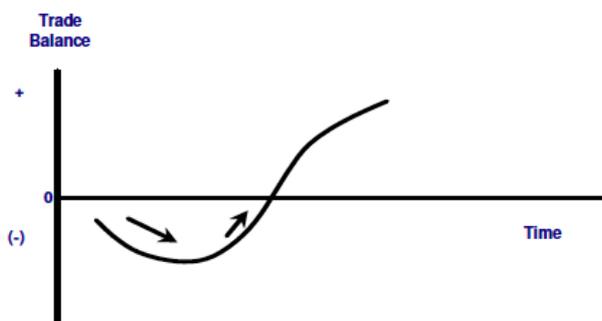
Devaluation and elasticities

Devaluation is the official lowering of the value of a currency fixed in terms of another currency or basket of currencies or international reserve asset such as gold or the special drawing rights (SDR). For example, the UK pound sterling was devalued against the US\$ by 14.3% in 1967 and 14 Central African CFA franc countries devalued their currencies by 50% against the French franc in 1994. Depreciation is a market determined fall in the value of the currency but the analysis of devaluation still applies. Can devaluation/ depreciation improve the trade balance?

Devaluation

Devaluation/ depreciation improves the trade balance by switching expenditures by domestic residents from imports to domestic import substitutes and by foreigners towards imports. It works if the Marshall Lerner condition ($Ed_m + Ed_x > 1$) holds in the longer run. In general, the larger the own price elasticities of exports and imports, the more likely it is that devaluation will work. The general rule is not to devalue if there are doubts about the elasticities. But in the short run, the trade balance may worsen due to the 'J' curve effects. For example, the UK devaluation of the pound in 1967 for 2 years, the Marshall Lerner condition may not work in the short term. The second example would be the US depreciation of the US\$ after 1985 for more than 2 years.

The J curve effect



Depreciation or devaluation initially worsens the trade balance before it improves as import values rise faster than export values

After the devaluation, it is often observed that the trade balance initially deteriorates for a while before getting improved.

Why?

The currency contract effect explains that the trade balance (X-M) can get worse if import and export orders reflect decisions made in advance of the devaluation of the currency and if imports are invoiced in foreign currency as the foreign currency price of imports may rise.

Trade invoicing and the currency contract effect

	IMPORTS INVOICED IN	
	HOME CURRENCY	FOREIGN CURRENCY
EXPORTS INVOICED IN	FOREIGN CURRENCY Exports Increase Imports constant B Improves	Exports Increase Imports Increase A: Initial surplus B Improves B: Initial deficit B deteriorates
	HOME CURRENCY Exports constant Imports constant B unchanged	Exports constant Imports Increase B deteriorates



no J curve effect J curve effect

When imports are invoiced in foreign currency, there may be insufficient adjustment during the 'pass-through' period when prices and quantities adjust to the devaluation because exporters 'price to market', they fail to change prices and allow profits to adjust to keep their export prices stable in foreign currency. It could be that the pass-through in prices is complete but quantities are insufficiently elastic (failure of the Marshall Lerner condition).

Following the devaluation of the currency, the import prices rise in the home country and export prices fall in the foreign country, but prices do not adjust instantaneously. When there is a persistent BOP deficit and devaluation occurs, the home demand for imports falls and the foreign demand for exports rises. This leads to an improvement in the BOP in the long run.

How do prices adjust to exchange rate changes in the short run?

Differences in the pass-through effect across countries lead to producers adjusting their profit margins.

Example: When the yen appreciated against the dollar substantially during late 1980s, Japanese automakers limited the pass-through of higher prices by reducing the profit margins on their products.

The initial demands tend to be inelastic. For example, suppose Mexico imports good X from the US and exports good Y to the US. After devaluation, the exchange rate of Mexican Peso/US\$ rises. The price of exports in pesos for good X rises and the price of imports in US\$ for good Y falls, the quantity demanded of good X falls and the quantity demanded of good Y rises. But if Mexican demand for good X is price inelastic, the percentage decrease in the quantity demanded for good X would be smaller than the percentage increase in the price of good X in pesos so that imports equals the product of price of good X in pesos and the quantity demanded of good X would increase. Further, if US demand for good Y is inelastic, the percentage increase in the quantity demanded of good Y would be smaller than the

percentage decline in the price of good Y in US\$ so that exports equals the product of price of good y in US\$ and the quantity demanded of Y would fall.

Devaluation is more likely to succeed if:

1. The Marshall-Lerner conditions are satisfied.
2. The 'J' curve effects are small.
3. There is a flexible labour market, real wages are allowed to fall to improve international competitiveness but this is not in the case in Europe where wages are 'sticky' downwards, wage rates in Europe are rigid.

Expenditure switching in Singapore

Exchange rate policy is not used in Singapore to boost export competitiveness because:

1. The currency appreciation would quickly 'pass-through' into higher domestic prices and wages and offset the competitive advantage given by the initial depreciation, Singapore is extremely dependent on imports.
2. Income effects (global demand) dominate price effects (exchange rate changes) on Singapore's domestic exports.
3. It would send the wrong signal to producers and lead them to neglect supply-side issues and productivity.
4. A large fall in the currency would reduce the value of private savings, CPF and the official reserve assets. MAS would not allow the S\$ to fall sharply, its aim is to keep it slightly increasing to combat inflation).

Devaluation and the absorption approach (Alexander, S., 1952)

How does domestic spending on domestic goods (A) change relative to domestic output (Y)?

How does currency devaluation affect A given Y?

The absorption approach

Y (output) = $C + I + G$ (absorption) + $X - M$ (trade balance)

$Y = A + B$

$Y - A = B$ where $B = X - M$

Where $A = C + I + G$ is the total domestic spending or absorption. If $Y > A$, then $X - M > 0$ (B improves) or $BOT > 0$. If $Y < A$, then $X - M < 0$ (B worsens) or $BOT < 0$.

Does devaluation always improve BOT?

Recall: If $Y = Y^* \equiv$ Full employment level of output, then all resources are already employed and hence, $X - M \uparrow$ needs $A \downarrow$. If $Y < Y^*$, then $X - M \uparrow$ obtains through increasing Y with A unchanged, i.e. by producing more to sell to foreigners. Therefore, when $Y < Y^*$, devaluation would improve BOT. However, when $Y > Y^*$, devaluation would increase $X - M$ but create inflation.

Implications

For a depreciation (devaluation) to improve trade balance B, either Y must increase or A has to fall. However, since it is difficult to increase Y in the short run or the economy may be at full capacity, the focus is on reducing A through austerity measures, this is a key feature of the IMF, 'conditionality'. In order to cut A , it means to cut spending through fiscal and monetary contraction.

Direct controls

When other BOP policies are not effective or quick enough, introduce tariffs, quotas, exchange controls, domestic price and wage controls. However, this introduces distortions/inefficiencies such as the currency black market and it may violate the WTO rules. Singapore does not use these policies in a negative way, but it does sometimes try to cut wages and costs through public cost-cutting exercises.

Lecture 19

Exchange Rates and International Money: The Choice of Exchange Rate Regime

De facto exchange rate arrangements

Hard peg (fixed)

1. No separate legal tender: they do not have their own currency, US\$ circulates as if it is their own currency. The currency of another country circulates as the sole legal tender (formal dollarization). Adopting such an arrangement implies complete surrender by the monetary authorities of control over domestic monetary policy. Exchange arrangements of countries that belong to a monetary or currency union in which the same legal tender is shared by the members of the union are classified under the arrangement governing the joint currency. e.g. Timor Leste (US\$)
2. Currency Board: a rigid discipline system that Singapore adopted until 1973, the US\$ peg. A currency board arrangement is a monetary arrangement based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuance authority to ensure the fulfillment of its legal obligation. This implies that domestic currency is usually fully backed by foreign assets, eliminating traditional central bank functions such as monetary control and lender of last resort and leaving little room for discretionary monetary policy. Some flexibility may still be afforded, depending on the strictness of the banking rules of the currency board arrangement. e.g Hong Kong (US\$)

Soft peg

1. Conventional peg: oil exporters. The country formally (de jure) pegs its currency at a fixed rate to another currency or a basket of currencies, where the basket is formed, for example, from the currencies of major trading or financial partners and weights reflect the geographic distribution of trade, services, or capital flows. The anchor currency or basket weights are public or notified to the IMF. The country authorities stand ready to maintain the fixed parity through direct intervention (i.e., via sale or purchase of foreign exchange in the market) or indirect intervention (e.g., via exchange-rate-related use of interest rate policy, imposition of foreign exchange regulations, exercise of moral suasion that constrains foreign exchange activity, or intervention by other public institutions). There is no commitment to irrevocably keep the parity, but the formal arrangement must be confirmed empirically: the exchange rate may fluctuate within narrow margins of less than +/-1% around a central rate or the maximum and minimum values of the spot market exchange rate must remain within a narrow margin of 2% for at least six months. e.g. Saudi Arabia (US\$)
2. Stabilization arrangement: It entails a spot market exchange rate that remains within a margin of 2% for six months or more (with the exception of a specified number of outliers or step adjustments) and is not floating. The required margin of stability can be met either with respect to a single currency or a basket of currencies, where the anchor currency or the basket is ascertained or confirmed using statistical techniques. Classification as a stabilized arrangement requires that the statistical criteria are met and that the exchange rate remains stable as a result of official action (including structural market rigidities). The classification does not imply a policy commitment on the part of the country authorities. e.g. Vietnam (US\$)
3. Crawling peg: The currency is adjusted in small amounts at a fixed rate or in response to changes in selected quantitative indicators, such as past inflation differentials vis-a-vis major trading partners or differentials between the inflation target and expected inflation in major trading partners. The rate of crawl can be set to generate inflation-adjusted changes in the exchange rate (backward looking) or set at a predetermined fixed rate and/or below the projected inflation differentials (forward looking). The rules and parameters of the arrangement are public or notified to the IMF. e.g. Botswana
4. Crawl-like arrangement: The exchange rate must remain within a narrow margin of

2% relative to a statistically identified trend for six months or more (with the exception of a specified number of outliers), and the exchange rate arrangement cannot be considered as floating. Usually, a minimum rate of change greater than allowed under a stabilized (peg-like) arrangement is required. However, an arrangement is considered crawl-like with an annualized rate of change of at least 1%, provided the exchange rate appreciates or depreciates in a sufficiently monotonic and continuous manner.

5. e.g. China
6. Pegged within horizontal bands: The value of the currency is maintained within certain margins of fluctuation of at least +/-1% around a fixed central rate, or a margin between the maximum and minimum value of the exchange rate that exceeds 2%. It includes arrangements of countries in the ERM of the old European Monetary System, which was replaced with the ERM II of the Economic and Monetary Union (EMU) on January 1, 1999, for countries with margins of fluctuation wider than +/-1%. The central rate and width of the band are public or notified to the IMF. e.g. Tonga

Other managed arrangement

This category is a residual and is used when the exchange rate arrangement does not meet the criteria for any of the other categories. Arrangements characterized by frequent shifts in policy may fall into this category.

Floating

A floating exchange rate is largely market determined, without an ascertainable or predictable path for the rate. In particular, an exchange rate that satisfies the statistical criteria for a stabilized or a crawl-like arrangement is classified as such unless it is clear that the stability of the exchange rate is not the result of official actions. Foreign exchange market intervention may be either direct or indirect and serves to moderate the rate of change and prevent undue fluctuations in the exchange rate, but policies targeting a specific level of the exchange rate are incompatible with floating. Indicators for managing the rate are broadly judgmental (e.g., balance of payments position, international reserves, parallel market developments). Floating arrangements may exhibit more or less exchange rate volatility, depending on the size of the shocks affecting the economy. e.g. Philippines

Free Floating

A floating exchange rate can be classified as free floating if intervention occurs only exceptionally and aims to address disorderly market conditions and if the authorities have provided information or data confirming that intervention has been limited to at most three instances in the previous six months, each lasting no more than three business days. If the information or data required are not available to the IMF staff, the arrangement is classified as floating. Detailed data on intervention or official foreign exchange transactions will not be requested routinely of member countries, but only when other information available to the IMF staff is not sufficient to resolve uncertainties about the appropriate classification. e.g. Japan

Fixed or pegged exchange rates

Fixing your currency to a large low inflation country means 'anchoring' your monetary policy to that country's central bank, you get the credibility of that central bank.

A hard peg with credibility:

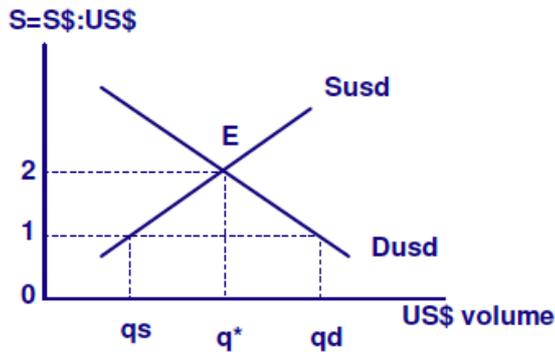
1. Dollarization- adoption of the anchor currency as legal tender e.g. Ecuador (2000) adopted the US\$
2. A currency board system where the currency is 100% backed by foreign assets with free convertibility at the official rate, neither the central bank nor the government can 'print' money. Central bank cannot finance deficit and print money unless they earn foreign currency. It is not relevant to Singapore anymore. e.g. Hong Kong (1983), Argentina (1991-2002)

Note:

1. Between 1973, when the Singapore dollar floated, and 2002, Singapore had a Currency Board but not a currency board system, Singapore could not exchange the S\$ for another currency at a fixed rate.

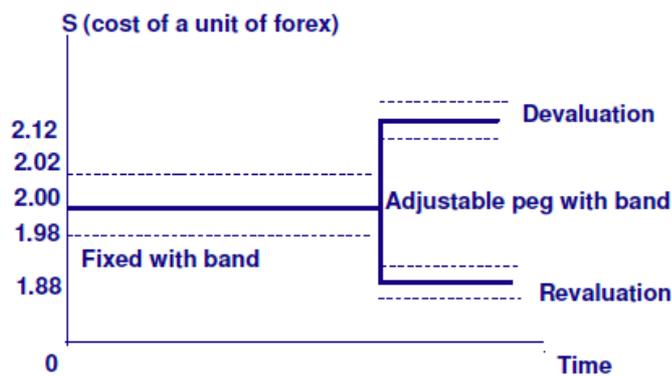
- In 2002, the Board of Commissioners of Currency was dissolved and its functions transferred to MAS.

A pegged currency



The home currency is pegged to the US\$ at $S=1$. When $S=1$, the demand for US\$ is greater than the supply of US\$, this leads to a depreciation of the S\$ to E . However, since the currency is pegged at 1, the central bank has to satisfy the demand for US\$ and therefore it sells $Q_d - Q_s$ of US\$ from its reserves. It may have to sell a lot of its reserves to satisfy the demand.

The Bretton Woods Adjustable Peg (1944-1971)

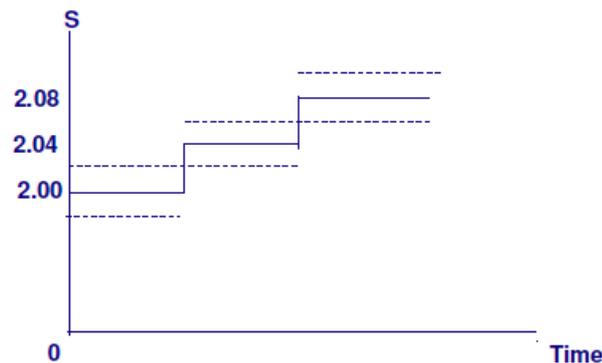


The rate is initially fixed at 2.00 but includes a market determined band of plus or minus 1%

If the exchange rate becomes seriously misaligned devaluation or revaluation can move the peg to 2.12 or 1.88

When the surpluses on BOP are too large, there is a need for revaluation.

Crawling peg with band



The central bank announces a depreciation by about 2% at the end of each time period from 2.00 to 2.08 so there is less uncertainty and incentive for speculation

The policy path can be revised if circumstances change e.g. the inflation figures are not so bad

The intention to devalue is made known so that speculators cannot make money out of it, the exchange crawls towards it.

Advantages of fixed systems

1. It provides a stable environment for trade and finance by lowering uncertainty and exchange rate risk and anchors domestic inflation and inflationary pressures
2. It is a simple, transparent 'rules-based' system that is good for emerging economies with weak political and monetary institutions

Disadvantages of fixed systems

1. Fixed systems are vulnerable to shocks from the anchor country since the exchange rate cannot adjust. For example, during the German reunification in 1990, the mark from East Germany was exchanged 1-for-1 to the mark in West Germany and monetary policy was tightened to prevent inflation, political unity outweighed the economic cost.
2. No independent monetary policy to respond to domestic shocks, contain domestic inflation or reflate the economy (if there is a high degree of capital mobility). For example, Brunei's central bank is the MAS in Singapore and they have no independent monetary policy
3. Removes 'signals' from interest rate and currency movements and risks of exchange rate misalignment, have to trust the central bank to get it right
4. Risk of a run on the currency if speculators expect a devaluation (UK Exchange Rate Mechanism (ERM) Crisis in 1992, Mexico in 1994 and East Asia in 1997)

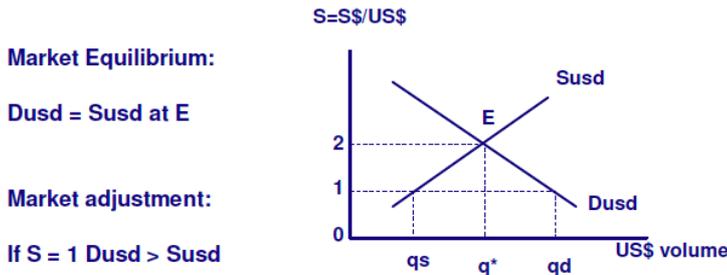
Not popular for emerging economies (they do not like the rigidity of fixed rates)

1. Although it is convenient, there is no obvious single nominal anchor if trade is diversified. It provides stability to an economy at the expense of some of the government's autonomy, when a government pegs its currency to another, it reduces the uncertainty in exchange rates but also gives the government less ability to combat inflation or otherwise change the money supply.
2. The inflation anchor is not necessary for most East Asian countries; most of the developing countries are able to keep inflation low by developing countries' standards.
3. There is a lack of credibility unless it is a hard peg but they are not willing to give up the central bank. Hong Kong is credible but not Vietnam, Vietnam has a poor central bank that lacks credibility.

Social benefits of flexible rates (Friedman 1953)

The forex market adjusts more quickly and more efficiently than bureaucrats. The adjustment of one “price” (the spot exchange rate) to real shocks is easier than changing all the domestic wages and prices. Economies in the holding of forex reserves which have high opportunity costs in developing countries. This is not so important nowadays. The forex reserves can be used to lend at the prime rate or stimulate investment as developing economies need money. With flexible exchange rates, there is no need to have high reserves. Singapore’s high reserves is an exception.

Free Market Equilibrium

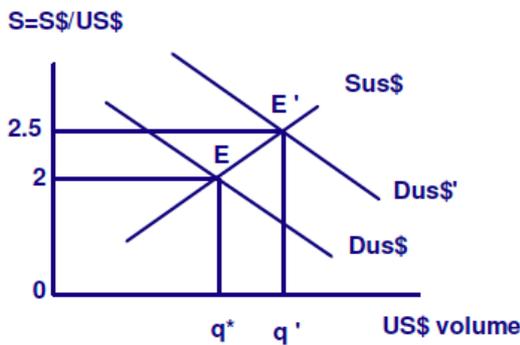


So

S rises (S\$ depreciates) until E

At market equilibrium, E, the demand for US\$ is equal to the supply of US\$. If $S=1$, the demand for US\$ exceeds the supply of US\$ and so S rises (S\$ depreciates) until the market equilibrium at E.

Exchange rate adjustment



The initial equilibrium is at E, where the demand for the US\$ equals the supply. An increase in import demand due to the monetary stimulus worsens the current account and shifts the $D_{US\$}$ to $D_{US\$}'$. S rises, indicating a currency depreciation, to clear the forex market. The S adjustment corrects the current account imbalance over time.

Advantages

1. There is flexibility in policy. The focus is on domestic goals and let the balance of payments adjust automatically through appreciation and depreciation (focus on internal balance and let currency determine the external value).
2. The exchange rate changes to offset changes in domestic inflation to maintain competitiveness so this allows countries to inflate at different rates and choose a different inflation-unemployment trade-off, allow currency to depreciate when the inflation is too high.
3. Insulation from external shocks as a fall in external demand leads to a depreciation and improvement in competitiveness. A negative external shock leads to a fall in the export and GDP, leading to a recession. When the currency is allowed to depreciate,

exports rise and it corrects the fall in exports without having the government to intervene.

Disadvantages

1. Excessive changes in nominal and real exchange rates could lead to serious misalignment and harm export competitiveness.
2. Increased exchange rate volatility and uncertainty might deter FDI and trade.
3. Destabilizing speculation could lead to a financial crisis.
4. Built-in inflationary bias as a consequence of flexibility, the depreciation raises import prices and generates cost-push and demand-pull inflation but appreciation does not have symmetric effects.

There have been large swings in the yen-dollar rate since 1971.

Floating is risky for emerging economies

1. It causes disruptive volatility. The REER is either too strong or too weak. If the REER is too strong, the country cannot sell its exports.
2. Destabilizing speculation given regional capital market imperfections.
3. Institutions are not able to cope, they are not independent.

Intermediate regimes

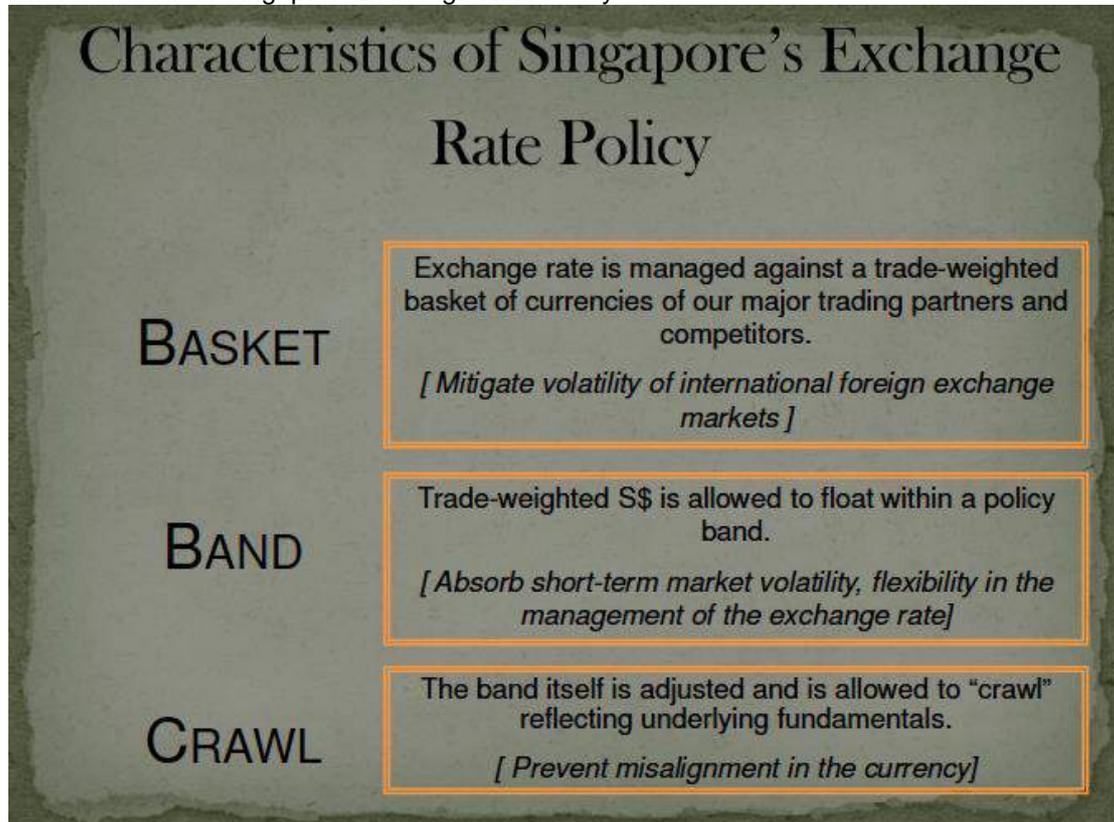
It involves the return of the "Middle Way." If a hard peg is unpalatable and floating is too risky, a possible option is to choose an intermediate regime.

Managed floating

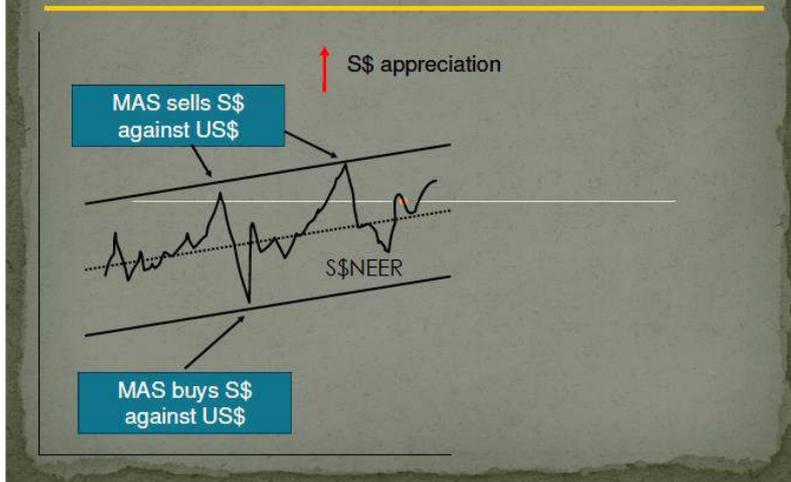
There are no explicit rules, but the central bank intervenes in the forex market to limit market determined movements in the exchange rate in order to:

1. Stabilize the currency without affecting its trend (leaning against the wind)
2. Maintain the currency at a depreciated level to enhance export competitiveness (dirty floating)
3. Neutralize the impact of imported inflation to keep domestic inflation low and stable (Singapore since 1981)

Characteristics of Singapore Exchange Rate Policy



Characteristics of Monetary Policy



MAS can intervene earlier to sell the S\$, it can decide to sell regardless of where the S\$NEER is on the graph; it may not intervene only when the margins are hit. The tendency is for the S\$ to appreciate, a modest appreciation and not to let it fall. If the S\$ falls, inflation would increase rapidly and the purchasing power of savings would be worth less. It is only in very dire circumstances where MAS is forced to depreciate the S\$.

Lecture 20

Exchange Rates and International Money: The Choice of International Money

What is international money?

Money is anything acceptable as payment for goods, services, and assets or in settlement of debt; it is anything that people have confidence as a medium of exchange. It could be gold and silver, cowrie shells in ancient Africa, knives in the Philippines or cigarettes in POW camps.

International money performs the same functions as domestic money; it is a medium of exchange, unit of account and store of value. The international reserves equal the liquid foreign assets available for official intervention in the forex market, convertible foreign currencies (internationalized or major currencies such as the pound, Yen, US\$, Euro and some AUD), Special Drawing Rights (SDRs), gold and net reserve position at the IMF).

Composite Reserve Money – the Special Drawing Rights (SDR)

An artificial currency composed of a weighted average of several major currencies, presently the US\$, Yen, Euro and GBP. The SDR gets transferred between Central Banks; it is used by Central Banks to settle debts amongst themselves. It is used by countries as an anchor for their exchange rates (stable and diversified), as an official numeraire (measure) e.g. IMF data and salaries and for small private use as the denominator for bank deposits and loans.

Composition of official reserve assets in the world

In 1950, gold was the centre of the universe, the gold exchange standard where the US\$ was fixed to gold and Central Banks held gold. In terms of forex, the US\$ dominated, followed by Yen, the German Mark and Swiss Franc. In 2012, there is more gold than it should be. Banks are irrational to hold gold unless they feel that the US\$ will collapse, the US\$ is a financial asset but not so for gold. Gold is heavy and there is a need to test for its quality. There was an orderly removal of gold from the reserves.

Why hold international reserves?

It is a store of value, to settle debts, to intervene in the forex market (a crucial major function of the Central Bank) and it is a form of national savings. It meets the transactions demand (the day to day intervention in the forex market), the precautionary demand (unexpected swings in the BOP or to lend to other Central Banks) and due to asset demand, a default portfolio of assets to maximize social return or savings given risk and return (usually highly risk averse).

In Singapore, should we hold higher reserves?

Yes

1. Singapore is stable but vulnerable, trade and factor flows are volatile.
2. Heavy dependence on imports (risk of a current account crisis).
3. Vulnerable to speculative short-term capital outflows (risk of a capital account crisis), there are no restrictions on capital movements or forex movements.
4. Active intervention in the forex market by the Central Bank. The MAS intervenes daily in the forex market but may not do much.

No

1. Unable to attract short-term capital quickly or borrow, Singapore has a sovereign debt rating of AAA and hence can borrow easily.
2. Slow automatic BOP adjustment or weak policy effectiveness, it is not really the case for Singapore as the BOP is cushioned heavily by leakages. BOP is always a surplus for Singapore.
3. The rough rule is to hold enough reserves to finance 3-4 months of import coverage but 'excessive' reserves have an opportunity cost. Singapore has the highest reserves per capita in the world in 2012 (US\$).

Gold does not have much gold, it is a lousy financial asset, it is illiquid and expensive to store.

Singapore's justification for high foreign reserves is to strengthen social safety nets, and to cope with volatility and uncertainty. There is a need to have a sovereign wealth fund although people say that the world is safe and Singapore can float its currency. Singapore's stand is that there are things you cannot calculate and your models may not predict all the events that can go wrong.

Are Singapore's reserves too high?

No

1. It is necessary to buy imports in an emergency.
2. It is to prevent a speculative attack.
3. It is to give credibility to Singapore as a financial centre. (Singapore already has credibility though)
4. It is to pay for the future pensions of CPF holders.
5. It serves as a 'war-chest' against future political uncertainty.

Yes

1. The reserves are excessive and reflect excess savings, an excess BOP surplus. It is driven by CPF; the high savings rate drives reserves.
2. The reserves are not supposed to be used for national savings purposes, only justifiable to some extent in Singapore and other politically vulnerable countries.
3. The centralized investment of reserves is inefficient.
4. The reserves have become politicized.

Lecture 21

The International Monetary System: The Bretton Woods System

The Bretton Woods System 1944-71

In July 1944, representatives of 42 countries draw up the Articles of Agreement for:

1. International Bank for Reconstruction and Development (IBRD), later known as the World Bank to provide long-term capital in the absence of an active private market.
2. International Trade Organization (ITO) (GATT in 1947 and then WTO in 1995) to provide the basis for a commercial organization to reduce trade barriers.
3. IMF to supervise international monetary arrangements, to manage financial relationships between countries, including interest rates.

Objectives:

1. Currency convertibility, to do it slowly so that trade can recover
2. A fixed exchange rate system but with more flexibility than the gold standard (the gold standard is too rigid)
3. To reduce protectionism
4. Short-term BOP assistance on an equitable basis, the gold standard was a disciplined and cruel standard with austerity measures to cut imports, wages or prices and devaluation of currency is not allowed
5. Not just to restore a workable system but to design a new international economic order (there was a great deal of optimism)

The Gold Exchange Standard (Half-way standard)

The US\$ was backed by gold at US\$35/ ounce, all other currencies were tied directly or indirectly to the US\$. US\$ became the international currency, the pound was fixed to the US\$ and the US\$ was fixed to gold. There was an adjustable peg exchange rate mechanism with the IMF as arbiter (authority), rates were fixed but a little flexible, 'par' rates with margins of plus or minus 1%, devaluation/ revaluation for 'fundamental disequilibrium'. Fund assistance is based on 'quotas' for short-term adjustment with 'conditionality' or larger borrowings.

Assessment of the Bretton Woods System

Advanced countries kept inflation low, below 2%. The system worked well up to the mid-1960s coinciding with rapid growth in trade, low inflation and unemployment in developed countries. However, the system had in-built contradictions which led eventually to its breakdown in 1971.

1. The Triffin Dilemma (1960)

The dilemma was first identified in the 1960 by the Belgian-born Yale economist Robert Triffin. This is when the incessant foreign demand for a reserve currency (US\$) would force its issuing country (US) to run persistent current account deficits. The US\$ is held in countries' official reserves because of its importance as a medium of exchange and its inherent stability. The US enjoys the consumption benefit of running a current account deficit to provide the liquidity for global trade expansion, but the larger the deficit, the less confident were Central Bankers that the US could maintain the gold price of US\$36/ ounce. Pressures built up to convert the US\$ into gold before devaluation.

Keynes proposed a true World Bank that is separated from any one country or politics; it should be able to print money by financial intermediation, independent of political troubles and get both countries with high surplus and borrowings to pay interest.

2. Problem of Symmetry

Deficit countries were unwilling to devalue and reduce spending to adjust their BOP; they were unpopular especially before elections. UK devalued the pound in 1967, France in 1957 and then again in 1959 but Italy never did. On the other hand, developing countries frequently devalue their currencies. Surplus countries were reluctant to revalue. Revaluations were made by West Germany in 1961 and 1969, Japan never did. It was the height of the Japanese miracle, with just-in-time stocking,

top entrepreneurs communicating with government officers who in turn communicate with top financiers.

3. Problem of Seignurage

It is the value of 'the first spend' less the costs of production whenever money is created, both domestic money and international money. It is the difference between the value of the money and the cost to produce it, it is the economic cost of producing a currency within a given economy or country. If the seignurage is positive, the government will make an economic profit. If it is negative, it will result in an economic loss.

Originally, a tax added to the total cost of a coin (metal content and production costs) that a customer of the Mint, such as a government Treasury, had to pay to the sovereign.

There is opposition to the US seignurage to finance its war in Vietnam, the US prints money but do not have to give up anything while the rest of the world pays for it. However, the US loses control over its monetary policy and balance of payments (benign neglect) and the demand for the US\$ outside the US (Eurodollars) was to some extent demand driven.

4. Problem of Speculation

The development of short-term capital markets (e.g. Eurodollar market) in the 1960s, led to speculative attacks against weak currencies, the GBP, Italian Lira, French Franc and German Mark. In 1967, the devaluation of the GBP shook the confidence in the ability of the US to maintain the gold price; it was a major shock to the system as the UK was still a major economy. The biggest weakness of the Bretton Woods System was that countries were not devaluing when they should. On 15 August 1971, then US President Nixon temporarily suspended gold convertibility. An agreement was made at the Smithsonian Institute in Washington, the price of gold raised to US\$38/ ounce so de facto dollar revaluation of 8% and revaluation of stronger currencies was agreed upon. There was a joint float by 6 European currencies in March 1972 (snake in the tunnel) and a managed floating of other major currencies in March 1973.

5. The Failure of Reform

There were attempts between 1971-4 to reform the Bretton Woods System (1972 IMF Committee of 20). However, the first oil shock left them no choice but to continue with managed floating. In 1976, the IMF Articles of Agreement amended to ratify the events and make the 'non-system' work better. The choice of reserve assets depends on the central bankers portfolio decisions, the role of gold in the system was ambiguous, there was no official price but it can be included in reserves at market prices and countries can choose any exchange rate regime they like, they only have to inform IMF of their decision. The IMF was set up to manage exchange rate adjustments but Central Banks can now do what they like and inform the IMF. The main role of IMF is to manage short-term BOP.

Lecture 22

The International Monetary System: The Present Non-System

The Floating Rate Dollar Standard

The US dollar remains the dominant medium of exchange (economies of scale), intervention currency, store of value (reserves) and unit of account for commercial transactions. Industrial countries pursue independent monetary policies with open capital markets. They opened up gradually in the 1970s and converted from fixed to flexible exchange rates. Industrial countries smooth fluctuations in the dollar exchange rate without fixing a par value, foreign exchange markets are relatively small.

The US Federal Reserve is largely passive in the forex market, it can only influence the interest rates and not the exchange rate as the US\$ is fully flexible currency. The lack of coordination meant highly variable monetary movements and fluctuations in exchange rates with rapid inflation in the 1970s and deep recession between 1982-4, evident among developed countries and some developing countries. There are highly variable capital movements and no inherent 'discipline' compared to the Gold Standard or Bretton Woods System.

The 1982 Debt Crisis

In the 1960s and 1970s many Latin American countries, notably Brazil, Argentina, and Mexico, borrowed huge sums of money from international creditors for industrialization, especially infrastructure programmes. However, their money was squandered on inefficient projects. These countries had soaring economies at the time so the creditors were happy to continue to provide loans. Initially, developing countries typically garnered loans through public routes like the World Bank. After 1973, private banks had an influx of funds from oil-rich countries and believed that sovereign debt was a safe investment. During the 1970s the world fell into an international recession that strained and put stress onto the economies of countries all over the world. Many major nations and countries attempted to slow down and stop inflation in their countries by raising the interest rates of the money that they loaned, causing Latin America's already enormous debt to increase further. In between the years of 1970 to 1980, Latin America's debt levels increased by more than one-thousand percent.

In August 1982, emerging countries such as Mexico, Argentina and Brazil threatened to default on debt repayments. The IMF was called in to mediate between debtors and creditors to prevent a breakdown in the financial system as 3 big countries simultaneously defaulting would create a large systemic threat. There was no real mechanism to solve the sovereign debt problems. There was recognition that the IMF must go beyond short-term assistance to focus more on development issues and coordinate more closely with the World Bank.

The intervention by the IMF was crucial. According to the Brady Plan in October 1985, the IMF increased its lending to these countries conditional on them making market-based reforms and structural adjustment. They coordinated further commercial lending, rescheduling and persuaded G7 countries (then US, Canada, Japan, UK, France, Germany and Italy) to write-off debt of the poorest countries, mostly African.

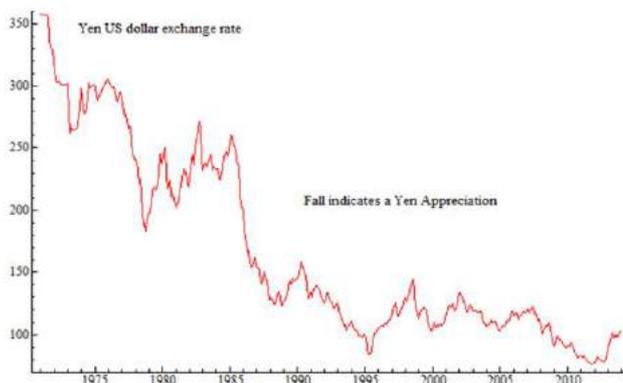
The Plaza and Louvre Intervention Accords

The breakdown of Bretton Woods and move to flexible exchange rates had led to two problems for the international monetary system by the mid-1980s, excessive exchange rate volatility and policy spillover effects from national macroeconomic policy management. In the 1990s, a further problem emerged, how to deal with speculative capital flows into emerging economies.

Currency volatility

Exchange rates had been both volatile and uncertain and changed more than 'fundamentals' with associated costs:

1. Excessive changes in export-competitiveness requiring BOP adjustment.
2. Increased currency uncertainty for traders.
3. Destabilizing speculation such as the rise in the pound sterling in 1979, irrational or destabilizing speculation in the US\$ 1980-5 and the Yen between 1985-90.



Between 1980-5, irrational exuberance led to massive appreciation of the US\$, interest rates rose. It was irrational because fundamentals in the US did not justify this. Between 1985-90, there was a horrendous fall in the value of the US\$, the Japanese economy went into a prolonged deflationary period.

Policy Spillovers

Since the early 1970s, there was rapid integration of goods and capital markets and global interdependence resulted in policy spillover effects on other countries:

1. Income expenditure effects via the trade balance: a fall in US imports decreases EU exports and income since both are big players.
2. Monetary impulses via interest rates and short-term capital flows, a rise in US interest rates induces a capital outflow from the EU.
3. Relative price effects of the terms of trade, the depreciation of the US\$ lowers Japanese exports to the US.

The game of exporting unemployment

Objective: to improve the current account

	US contracts	US expands
EU contracts	Recession in both; CA=0	CA favours the EU
EU expands	CA favours the US	Boom in both; CA=0

Cooperative solution both expand (Bonn Summit 1978)

Selfish solution: both contract

Assuming fixed exchange rates, a monetary expansion worsens BOP balance and a contraction improves BOP balance. When the money supply increases, interest rates fall. The aggregate demand rises and the trade account worsens. Also, there will be net capital outflow and the capital account worsens. The overall BOP worsens. The Nash equilibrium will be recession in both countries; CA = 0 and the least-worse outcome is to contract.

Plaza Accord (1985)

G7 countries agree to:

1. 'Talk' the US\$ down from its overvalued rate, move the US\$ down to its fundamental value.

2. Germany, Japan and US agreed to act in concert to keep their currencies within flexible agreed unpublished boundaries and adjust them as fundamentals change.
3. Modest success in reducing exchange rate fluctuations but lack of explicit 'rules', lack of discipline in the system.

Louvre Accord (1987)

An agreement in principle by the G7 to establish loose reference zones or target zones between the US\$, Deutsche Mark and Yen with rules for managing them. It was a major step towards international monetary policy coordination but was derailed by the 1987 stock market crash and there has been no real progress ever since, it has not continued since its collapse. The Europeans found their own solution in the European Monetary System (EMS 1979-99) and the Economic and Monetary Union of the European Union (EMU 1999).

The Asian Financial Crisis

On 15 May 1997, there was a speculative attack on the Thai Baht and the Thai authorities were unable to stop the loss of foreign exchange reserves. On 2 July 1997, Thailand got rid of its pegged currency system to allow it to float, which quickly devalued the baht. Up until that time, the Baht was pegged at 25 to US\$1. IMF arranged a 'standby' loan of US\$17 billion. The currency crisis in Thailand led to a banking crisis and since Thailand has an open capital market, there was a short-term capital outflow, investors were selling the Thai Baht and moving funds out of the country. There were no capital controls in place. Other Asian countries in the region with open capital markets were affected by the crisis through 'contagious' selling of their currencies which trigger banking crises and further exodus of capital. All the major Asian currencies fell; the Rupiah fell by a massive amount. China received praises for doing the right thing and not devalue its currency, showing its commitment towards stability in the region.

Contributing factors to the Asian Financial Crisis

Asian emerging countries were unable to cope with the large inflow of foreign capital in the 1990s and the its sudden reversal:

1. Too much short-term borrowing to finance stock and property booms e.g Thailand
2. Poor supervision of the banking system
3. Poor corporate governance
4. Currencies managed too tightly and against the US\$ so they lost competitiveness when the dollar appreciated against other major currencies, the Central Banks in many of these Asian countries pegged their currency to the US\$ to keep it stable (a mistake that should have been picked out by the IMF)

Failure of the IMF?

1. Failed to spot the early warning signals, the rising current account deficits in Indonesia.
2. Failed to warn against currency mismatches, the borrowing short-term from abroad and to lend long-term domestically and the borrowing in US\$ to lend in Baht in the case of Thailand.
3. Failed to 'name and shame' when weaknesses were found
4. Wrong diagnosis as the Asian countries were not like Latin America during the 1984 debt crisis or Mexico in 1994, most of the Asian countries had higher savings, fiscal austerity (good budget positions), most foreign investment was productive FDI, low inflation, currencies were not substantially overvalued but a little too tightly pegged, there were adequate official forex reserves and the 'contagion' was not their fault. It was a financial account crisis and not a current account crisis. The crisis was due to a fall in the Baht and contagion, it had nothing to do with the current account, the IMF made a mistake.
5. Bad policy advice and excessive conditionality, one size does not fit all. The programmes in Thailand and Korea were excessively contractionary when fiscal deficits were not the problem; the Indonesian reforms had over 100 conditions including the abolition of the clove monopoly when it does not contribute to the systemic financial crisis.
6. The result was steep currency depreciation, high and rising interest rates and tight budgets.

7. IMF as the lender of the last resort generates 'moral hazard'.
8. IMF recommended the wrong medicine that exacerbated the problem in Indonesia, for example. IMF recommended Indonesia to raise interest rates to save the currency, cut government spending to improve the balance of payments, make quick economic and political reforms and keep the capital market open. Malaysia did well by doing the exact opposite of what was recommended by the IMF.

Reforms after the Asian Financial Crisis

1. The G20 process for ministers and central bank governors
The Group of Twenty (G20) is a group of twenty major advanced and emerging economies. The group started in 1999 as a meeting of Finance Ministers and Central Bank Governors in the aftermath of the Asian financial crisis. In 2008, the first G20 Leaders Summit was held to deal with the global financial crisis. G20 leaders have met eight times since 2008, and there is now a Leaders Summit each year.

2. Basel Committee on banking supervision
In accordance with its mandate, the working group did not try to evaluate in detail the supervisory lessons of the Asian crisis for debtor countries or their credit institutions. However, in the course of its work, the group was asked to comment on the adequacy of the "Core Principles" for debtor banks in the light of the Asian crisis. The major issues identified by the working group in this regard relate to:

Foreign currency liquidity management: the need for guidelines on liquidity management in stress conditions, closer follow-up of liquidity management.

Credit risk management: the importance of knowing the customer's business, risks associated with directed loan activity, issues of (implicit) guarantees and collateral.

Relationship between different risk categories in times of crisis: the importance of stress testing and scenario analysis.

Clear and conservative accounting and loan valuation rules: as a precondition for adequate credit assessment.

Basel Capital Accord as a minimum standard: the need to tailor capital levels to the riskiness of the bank.

Adequate corporate governance: the role of the board of directors and the management committee of a bank, relationship between the bank and its shareholders.

The Asian crisis has evidenced the need for countries to comply with the "Core Principles". Countries could be encouraged to implement these Principles by tying compliance to preferential risk weightings. G10 countries may also wish to condition their authorisations of foreign bank operations on compliance with the Core Principles.

3. Establishment of the Financial Stability Forum (FSF)
The Financial Stability Forum (FSF) was a group consisting of major national financial authorities such as finance ministries, central bankers, and international financial bodies. The Forum was founded in 1999 to promote international financial stability. Its founding resulted from discussions among Finance Ministers and Central Bank Governors of the G7 countries, and a study which they commissioned.^[1] The Forum facilitated discussion and co-operation on supervision and surveillance of financial institutions, transactions and events.

4. Increase in IMF surveillance and liquidity and less rigid conditionality

Global Financial Crisis

It started in the summer of 2007 in the US subprime mortgage market and exploded with the collapse of Lehman Brothers in September 2008. Its effects were truly global in breadth and magnitude. The epicenter was not a peripheral country but the largest and most financially sophisticated economy in the world and the source of the dominant international currency.

Failure of the IMF during the Global Financial Crisis 2007-9

The financial deregulation went too far and it involved rating agencies, the government and financial institutions. There was a failure in the macro-supervision and detection of the build-up of systemic risks in the US and other advanced countries, toxic assets were accumulated. No Asian country called upon the IMF for assistance for fear of excess conditionality.

What is to be done?

Create international mechanisms for resolving bad debt and insolvent financial firms: collective action clauses in the new sovereign bond issues, continue the Basel Capital Account Accord and look into the possibility of forming a world financial organization.

Further reform of the IMF: top-down macro-financial surveillance, more liquidity support (lender of last resort?), country-specific and appropriate conditionality and changes in governance to review voting rights and appointments.

The Executive Board of the International Monetary Fund (IMF) has recommended to the IMF Board of Governors a package of reforms on quotas and voice in the IMF to better align the current governance regime with members' relative positions in the world economy and to make it more responsive to changes in global economic realities while, and equally important, enhancing the participation and voice of low-income countries in the IMF. It is expected that the Board of Governors will vote on the package of reforms by its upcoming Annual Meeting in Singapore on September 19-20, 2006.

The quota and governance reforms are designed as an integrated two-year program that should be completed no later than the Annual Meeting of the IMF Board of Governors in 2008. The reform package consists of the following elements: initial ad hoc increases in quotas for a small group of the most under-represented countries comprising China, Korea, Mexico and Turkey; to start immediately work on a new formula to guide the assessment of the adequacy of members' quotas in the IMF and be completed by the 2007 Annual Meetings; a second round of ad hoc quota increases based on the new formula; and work on a proposal to increase the basic votes that each member possesses to ensure adequate voice for low-income countries in the IMF.

Capital Inflows and Financial Instability

(A) Problems of Massive and Rapid Capital Inflows

- Macroeconomic imbalance
 - If free floating ER system, currency volatility which affects export competitiveness
- Strong currency leads to loss of export market; difficult to regain export market even if currency weakens later
 - If fixed ER system, increase in domestic money supply, loose monetary conditions leading to inflation and overheating
- Financial market instability
 - Domestic lending boom and asset market bubbles resulting from loose monetary conditions and strong liquidity

(C) Policy Tools for Managing Capital Flows

- Macroeconomic Tools: to address macroeconomic imbalance
 - Greater exchange rate flexibility: to correct for currency under-valuation
 - Sterilized Foreign exchange intervention: to avoid loose monetary conditions (if currency not under-valued)
 - Monetary policy and fiscal policy adjustment: to reduce/ offset inflationary effects of capital

inflows

- Prudential measures: to address financial market instability
 - Improve resilience and soundness of financial institutions and whole financial system, to enhance economy's capacity to absorb inflows and cope with outflows to avoid volatility
 - Not targeted at directly reducing quantity of capital inflows/outflows but at limiting the amount of inflows that financial sector can absorb

- Example: capital adequacy ratio, loan to value ratios

- Capital controls

- Designed specifically to manage the amount of capital inflows/outflows, not just impact of capital flows
 - Can address problems of both macroeconomic imbalance and financial market instability
 - Examples: Taxes on certain foreign currency transactions; minimum holding periods for foreign currency inflows etc.

(A) What is a financial crisis?

Failure of one or more economic agents to meet their financial obligations

Types of financial crisis

A currency crisis occurs when a speculative attack on a country's currency forcing central bank to abandon the fixed ER, resulting in devaluation or sharp depreciation of the currency

A banking crisis occurs when actual or potential bank runs (failures) induce banks to suspend the internal convertibility of their liabilities (e.g. deposits) or force the government to intervene to prevent this by providing banks with large-scale financial support

(B) Linkages among various financial crises

Different types of financial crisis often overlap. Once a crisis erupts in one sector, it can quickly feed into other

Currency crisis/banking crisis

Currency crises → Banking crises

- If the CB defends the currency by increasing interest rates, this will produce a slowdown in economic growth and a deterioration of bank assets
- A currency devaluation can lead to a banking crisis if the banks have large un-hedged position in foreign currency or if they have lent in foreign currency to corporations that earn only home currency revenue

Banking crises → Currency crises

- If the CB finances bail-out of a financial institutions and provides liquidity, its ability to defend the currency is eroded

(C) Understanding Asia Financial Crisis and Policy

Response

Macroeconomic imbalance → Currency crises

- Why macroeconomic imbalance?

Currency devaluation → Banking crisis and sovereign debt crisis

- Higher interest rates leads to recession (less revenue collection for government) and deterioration of bank assets (rise in non-performing loans)
- Banking and sovereign debt crisis worsened by currency mismatch and maturity mismatch

Banking and debt crises → aggravate currency crisis

- Capital flight

Intervention by the IMF → aggravate economic recession and worsen crises

- Cut government spending (tighten fiscal policy)

Use of capital controls

- Allow for independent monetary policy while keeping the ER fixed (or managed)
- Caution: Capital control is like a protectionist policy
 - Free capital movement is like free trade: gains from trade
 - Distortional effects. Deadweight loss.
 - Price-based vs quantity-based capital controls
- Changing views on the use of capital controls:
 - Impact of the Asia financial crisis and the view on capital controls
 - IMF's position on capital controls
 - Increased international capital inflows over the years, especially into Asia