Exchange Rate

Factors affecting Exchange rate

Exchange Rate Determination

- Three basic approaches
  - Parity conditions
  - Balance of Payments
  - Asset market
- These theories are not competing theories but complimentary ones
- Along with an understanding of the theories, an understanding of the complexities of international political economy, societal and economic infrastructures, and random political and social events is needed when viewing the foreign exchange markets

Please see the Picture on next page.

Purchasing Power Parity

- Purchasing Power Parity (PPP) theory, represents the application of ''the law of one price''.
  - This states that arbitrage forces will lead to the equalization of goods prices internationally once the prices are measured in the same currency.
- PPP theory provided a point of reference for the long-run exchange rate in many of the modern exchange rate theories.

Asset Approach

- With an increase in liberalization and opening up of capital accounts the world over, capital flows have become important in determining exchange rate behaviour.
- The relation between capital flows and exchange rates is hypothesized to be negative (with the exchange rate defined as the price of foreign currency in domestic currency).
- This is because capital inflow implies purchase of domestic assets by foreigners and capital outflow as purchase of foreign assets by residents. Since the exchange rate is determined by the supply and demand for foreign and domestic assets, the purchase of foreign assets drives up the price of foreign currency. Likewise, the purchase of domestic assets drives up the price of domestic currency.
- Thus, an increase in capital inflows leads to appreciation of the domestic currency when there is no government intervention in the foreign exchange market

Exchange Risk Management

Forwards, Futures

- **Forward-** a forward contract or is a **non-standardized** contract between two parties to buy or sell an asset at a specified future time at a price agreed today
- **Futures-** a futures contract is a standardized contract between two parties to exchange a specified asset of standardized quantity and quality for a price agreed today (the futures price or the strike price) but with delivery occurring at a specified future date, the delivery date. The contracts are traded on a futures exchange.

Options

- An option is a derivative financial instrument that specifies a contract between two parties for a future transaction on an asset at a reference price.
- The buyer of the option gains the right, but not the obligation, to engage in that transaction, while the seller incurs the corresponding obligation to fulfill the transaction
- An option which conveys the right to buy something is called a call; an option which conveys the right to sell is called a put. The reference price at which the underlying may be traded is called the strike price or exercise price.

Interest Rate Swap, Currency Swap

- **Interest Rate Swap-** An agreement between two parties (known as counterparties) where one stream of future interest payments is exchanged for another based on a specified principal amount.
- **Currency Swap** - A swap that involves the exchange of principal and interest in one currency for the same in another currency.

Interest Rate Cap or Collar

- An **interest rate cap** is a derivative in which the buyer receives payments at the end of each period in which the reference interest rate (say LIBOR) exceeds the agreed strike price.
- The buyer of an **interest rate floor** receives money if on the maturity, the interest reference rate (say LIBOR) is below the agreed strike price of the floor.
- **Interest Rate Collar-** The investor purchases an interest rate ceiling for a premium, which is offset by selling an interest rate floor. This strategy protects the investor by capping the maximum interest rate paid at the collar's ceiling, but sacrifices the profitability of interest rate drops.

Forward Rate Agreement

- Typically, for agreements dealing with interest rates, the parties to the contract will exchange a fixed rate for a variable one.
- Assume Company A enters into an FRA with Company B in which Company A will receive a fixed rate of 5% for one year on a principal of $1 million in three years. In return, Company B will receive the one-year LIBOR rate, determined in three years' time, on the principal amount. The agreement will be settled in cash in three years.
  - If, after three years' time, the LIBOR is at 5.5%, the settlement to the agreement will require that Company A pay Company B. This is because the

LIBOR is higher than the fixed rate. Mathematically, $1 million at 5% generates $50,000 of interest for Company A while $1 million at 5.5% generates $55,000 in interest for Company B. Ignoring present values, the net difference between the two amounts is $5,000, which is paid to Company B.

Forward Contracts

- (1) A person resident in India may enter into a forward contract with an Authorised Dealer Category-I bank in India to hedge an exposure to exchange risk in respect of a transaction for which sale and/or purchase of foreign exchange is permitted under the Foreign Exchange Management Act subject to the following terms and conditions
  - the AD Category I bank through verification of documentary evidence is satisfied about the genuineness of the underlying exposure
  - the maturity of the hedge does not exceed the maturity of the underlying transaction
  - the currency of hedge and tenor are left to the choice of the customer
  - where the exact amount of the underlying transaction is not ascertainable, the contract is booked on the basis of a reasonable estimate;
  - foreign currency loans/bonds will be eligible for hedge only after final approval is accorded by the Reserve Bank
  - Global Depository Receipts (GDRs) and American Depository Receipts (ADRs) will be eligible for hedge only after the issue price has been finalized;

- (2) AD Category I banks may also allow **importers and exporters** to book forward contracts on the basis of a declaration of an exposure and based on past performance subject to conditions.
- **(3)** AD Category I banks may allow Small and Medium Enterprises (SMEs) to book forward contracts to hedge their direct and / or indirect exposures to foreign exchange risk *without production of underlying documents*, subject to conditions
- **(4)** AD Category I banks may allow resident Individuals to book forward contracts to hedge their foreign exchange exposures arising out of actual or anticipated remittances, both inward and outward, *without production of underlying documents*, up to a limit of USD 100,000, based on self-declaration and subject to conditions
- **(5)** Residents having **overseas direct investments** (in equity and loan) are permitted to hedge the exchange risk arising out of such investments

Contracts other than Forward Contracts

- A person resident in India who has borrowed foreign exchange in accordance with the provisions of Foreign Exchange Management (Borrowing and Lending in Foreign Exchange) Regulations, 2000 , may enter into an
  - Interest Rate Swap or Currency Swap or Coupon Swap or Foreign Currency Option or Interest Rate Cap or Collar (purchases) or Forward Rate Agreement (FRA)
- Provided
  - the contract does not involve the Rupee
  - the notional principal amount of the hedge does not exceed the outstanding amount of the foreign currency loan

- maturity of the hedge does not exceed the unexpired maturity of the underlying loan.

Currency Futures

- Currency futures contracts have been permitted to be traded in recognized stock exchanges or new exchanges, recognized by the Securities and Exchange Board of India (SEBI) in the country.
- The currency futures market would function subject to the directions, guidelines, instructions issued by the Reserve Bank and the SEBI, from time to time.
- Currency futures are subject to following conditions:

Permission

(i) Currency futures are permitted in US Dollar (USD) - Indian Rupee (INR), Euro (EUR)-INR, Japanese Yen (JPY)-INR and Pound Sterling (GBP)-INR.

(ii) Only 'persons resident in India' may purchase or sell currency futures contracts to hedge an exposure to foreign exchange rate risk or otherwise.

- Nominal Effective Exchange Rate-
- Real Effective Exchange Rate-

Based on presentation by Prof Pushkal Pandey to RBI Officers.