Chapter 2
CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1. Preview

The review of selected literature has been presented in three sections. The first section deals with the theoretical studies and concepts. The second section reviews the empirical studies dealing with foreign exchange management practices. The third section describes the foreign exchange market scenario in India.

2.2. Theoretical studies

In order to manage foreign exchange risk, today's financial managers must understand the evolution and the functioning of the international monetary system, with its historical background and its present scenario. "The international monetary system is the structure within which foreign exchange rates have been determined, international trade and capital flows accommodated and balance of payments adjustments made."

2.2.1. Historical Evolution of International Monetary System:

The gold exchange standard buttressed by the International Monetary Fund, Special Drawing Rights, Swap agreements among Central Banks and a considerable spirit of cooperation, managed to hold together during the period 1944-1971. However, continuing U.S. balance of payments deficits during the 1960s weakened the ability of U.S. dollar to function as the world's main reserve currency. A further devaluation followed in 1973, at which time the U.S.
abandoned any attempt to retain the dollar’s tie to gold. Thus began the period of floating exchange rates, which still exists today. The first oil price crisis of 1973-74 removed any hope of quickly returning to a fixed exchange rate system. Freely floating exchange rates have been made official by the Jamaica Agreement of 1976, which also initiated other reforms in the international monetary system to recognize the realities of the new order.

2.2.1.1. Bretton Woods System

Under the provisions of the Bretton Woods Agreement, all countries had been free to choose the exchange rate arrangement best suited to their needs. As observed by Robichek and Eaker (1976), until August 1971, rates of exchange among leading currencies were permitted to fluctuate only within approximately one percent of their official parities and adjustment of parity values were pegged in very narrow parity bands. McRae and Walker (1980) stated: “The Bretton Woods Agreement of 1946 fixed the exchange rates between currencies within narrow limits and set down clear rules for altering these rates. The agreement was astonishingly successful - possibly the most successful international agreement of all times. Most countries, and certainly all major countries, stuck by the rules. The fluctuations in foreign exchange rates were not a major problem of international trade.”

The U.S. dollar was the only currency that was fully convertible to gold; other currencies were not directly convertible to gold. Countries held gold and U.S. dollar as international means of payment. Thus, the Bretton Woods system was also termed as dollar-based gold-exchange standard.

Under gold exchange system, the reserve currency country should run balance of payments deficits to supply reserves, but if such deficits are large and
persistent, they can lead to a crisis of confidence in the reserve currency itself, causing the downfall of the system. This dilemma known as the Triffin Paradox, was responsible for the collapse of the dollar-based gold-exchange system in the early 1970s.

U.S began to experience trade deficits with the rest of the world in the late 1950s and persisted and aggravated in the 1960s. To undo the situation, efforts were taken and the remedies centered around (i) a series of dollar defense measures taken by the U.S. government and (ii) the creation of a new reserve asset, special drawing rights (SDRs) by the IMF.

For over twenty years the Bretton Woods arrangement worked very soundly indeed, and the system became, in practice an exchange standard based on a gold-dollar rate that endured as long as the U.S. dollar was exchangeable for gold by foreign banks. Herring (1983) expressed that: "Of all the dramatic events during the turbulent decade of the seventies, perhaps none has had such important consequences for economic policy and the conduct of international business as the collapse of the Bretton Woods System of fixed exchange rates. The resulting greater flexibility of exchange rates has had a pervasive impact on the world economy."

The foremost reason for the collapse of the Bretton Woods System was that the arrangement for adjusting the currencies could not deal with the stresses created by the escalating worldwide inflation. The Bretton Woods system was tightly wedded to the U.S. dollar and its downfall resulted from the pressure in the U.S. economy after 1965. The Johnson administration financed the escalating Vietnam War in addition to the costly Great Society programs by means of borrowing rather than higher taxes. The combination resulted in inflationary
pressures in the U.S. that were disproportionately high relative to other industrial nations. However Switzerland, West Germany, and Japan were able to bring their inflation down to rates well below those that the U.S. could achieve. This disadvantage in amount of inflation put pressures on the relative values of the currencies and resulted in a loss of confidence in the U.S. dollar.

2.2.1.2. Floating Rate System:

The fixed exchange rate system formulated in the Bretton Woods Agreement of 1944 and reaffirmed in the Smithsonian Agreement of 1971, underwent major changes when the U.S. floated the dollar in the mid-August 1971. Even though the principal nations reverted to a modified fixed parity system in December 1971, the currency relationship never approached the stability prevailing prior to the summer of 1973. Finally, in March 1973, the modified fixed parity exchange rate system was abandoned and the world currency system became a floating exchange rate system in which the dollar fluctuates relative to other major currencies.

The Flexible Exchange Rate Regime was ratified in January 1976 by the Jamaican Agreement. The key elements of the Jamaican Agreement include: (i) flexible exchange rates were declared acceptable to the IMF members and the central banks were allowed to intervene in the exchange markets to iron out unwarranted volatilities; (ii) gold was officially abandoned; (iii) non-oil exporting countries and less-developed countries were assured greater access to IMF funds.

The movements of the currencies were the fundamental purpose of the floating exchange rate process in which pressures could be accommodated through continual and small changes than jolting adjustments. Artus (1983)
stated, "At present there is a wide spread feeling of dissatisfaction with the exchange rate system borne out of the 1971-1973 crisis, in particular because of the large movements of floating exchange rates." According to Logue and Oldfield (1977), "After 1973, firms operating in international business have been interested to develop ways to protect themselves from the possible losses caused by randomly fluctuating exchange rates." According to Eun and Resnick (2001) "Changes in exchange rates can affect not only firms that are directly engaged in international trade but also purely domestic firms. Changes in exchange rates may affect not only the operating cash flows of a firm by altering its competitive position but also home currency values of the firm's assets and liabilities."

2.2.1.3. Comparison between Fixed and Floating Exchange rate System

A research study conducted by Chikeleze (1980) compared the behavior of the foreign exchange markets in a stable fixed period and also in a relatively stable floating period. The specific objective was to determine, among other things, if the cost of forward contracts measured by the forward premium or discount and the benefits of forward cover measured by the difference between the forward rate and the subsequent spot rate, are significantly different between the two exchange rate systems. The findings were as follows:

(i) For either the fixed or the floating exchange rate system, significant costs are incurred and significant benefits are obtained by a firm, that consistently covered its foreign exchange risk in the forward market.

(ii) A significant difference existed between the fixed and the floating exchange rate system in the cost of and benefits from forward cover as well as in
the cost of leaving the foreign exchange risk uncovered. In each case, greater values are obtained under the floating exchange rate system.

(iii) The variability in the cost of and benefits from forward cover as well as in the cost of assuming an open position was significantly greater under the floating exchange rate system.

(iv) The net incentives for covered interest arbitrage had not changed significantly between the two periods, though the incentive was generally higher for the floating exchange rate system.

(v) For each currency and for each exchange rate system, the cost of covering through the spot market and money market is significantly greater than the cost of forward cover.

(vi) For most currencies under the fixed exchange rate system, the cost of forward cover is significantly greater than the cost of not covering, while, for floating exchange rate system, the reverse is true - cost of not covering is greater than the cost of forward cover.

Two basic conclusions were drawn from the analyses of the data. The first was that floating exchange rate system increased the costs and the risks of firms engaged in international trade. The second was that while covering a foreign exchange exposure might not be necessary under fixed exchange rate system, forward cover could not be ignored without severe penalties under the floating exchange rate system.

Choudri and Levis (1980) used the Great Depression to demonstrate contrary to the popular belief, a flexible exchange rate is helpful in protecting a country from business cycle disturbances. In examining eight small European countries during that time, the authors found that those with flexible exchange
rates were virtually unaffected by the Depression. Those with fixed rates were severely affected. Finally, the countries that allowed their exchange rates to float during this time were less adversely affected than the fixed-exchange rate countries.

2.2.2. Conceptual studies

A review of conceptual and theoretical studies revealed that, when analyzing foreign exchange management in theory, researchers use two basic approaches: accounting and economic.

2.2.2.1. Accounting Approach:

Accounting studies seek to identify those items or accounts on the balance sheet of a foreign subsidiary, which can be considered as exposed to foreign exchange risks and those, which should not be. Leading these studies is the article by Ashdown (1922) which distinguished current from non-current assets and liabilities. In 1956, Hepworth introduced the distinction between monetary and non-monetary items. In 1972, Parkinson presented arguments for the current rate method. The following quote by Parkinson summarises the balance sheet items that different translation methodologies treat as exposed to foreign exchange risks and those that are considered unexposed.

a. The temporal method translates cash, receivables and payables, and assets and liabilities carried at present or future prices at the current rate and assets and liabilities carried at past prices at applicable historical rates.

b. The monetary/non-monetary method generally translates monetary assets and liabilities at the current rate and non-monetary assets and assets at applicable historical rates. For translation purposes, assets
and liabilities are monetary if they are expressed in terms of a fixed number of foreign currency units. All other balance sheet items are classified as non-monetary.

c. The current-non-current method generally translates current assets and liabilities at applicable historical rates.

d. The current rate method translated all assets and liabilities at current rates.\textsuperscript{13}

As discussed by Tran (1980), for the purpose of translation, a foreign subsidiary's balance sheet consists of the following major items:\textsuperscript{14}

a. Monetary assets, consists of cash, marketable securities and accounts receivable. Marketable securities can be valued at cost or market prices.

b. Current assets consists of monetary assets plus inventories and prepaid expenses. Inventories can also be carried at cost or market prices.

c. Current liabilities consists of all liabilities due currently, with in twelve months. Accounting wise, they are also classified as monetary liabilities.

d. Monetary liabilities consists of current liabilities plus long-term debts and deferred income (charges).

e. Fixed assets

f. Stockholders equity consists of capital stock and retained earnings.

The result of the distinction between historical and current exchange rates in translating balance sheet items is the exclusion of those items translated at the historical rate from the foreign subsidiary's exposure to foreign exchange rates.
They are considered exposed to foreign exchange risks because their dollar values change with exchange rates. Conversely, those items translated at historical rates are unaffected. Since the four mentioned methods differ in the items translated at historical rates, they yield different results as to the effects of exchange rate changes on a foreign subsidiary and, therefore, its exposure to foreign exchange risks. However, none of the four methods is generally accepted as correct, by economists.

As stated by Glover (1975) part of the problem is that choice of a particular translation method has been a reflection of the circumstances of the time rather than being based on theoretical consistency.\textsuperscript{15} Thus, the current/non-current method gained acceptance during a period when the U.S. dollar strength was undoubted and when the United States involvement was skewed towards imports and exports transactions.

Aliber and Stickney (1975) suggested that the distinction between monetary versus non-monetary and current versus non-current assets and liabilities should not be a critical variable in the measurement of foreign exchange exposure for a foreign subsidiary.\textsuperscript{16} In fact, they argued that the assumption underlying the monetary-non-monetary method is logically inconsistent and empirically unjustifiable.

If prices are stable within each country, exchange rates should remain unchanged. The money interest rates in each country should be approximately equal as a result of arbitrage. If one country then follows inflationary monetary policies, its currency will depreciate in proportion to increases in its prices relative to those in other countries. Interest rates denominated in its currency will increase to reflect the anticipated change in the exchange rate. The increase in
its relative price level and in its interest rate should equal in terms of percentage points, the expected change in the exchange rate, unless expectations and realizations differ significantly. The assumption underlying the monetary-non-monetary method is derived from the relationships between price levels, exchange rate changes and interest rates. This method assumes that exchange gains or losses on non-monetary items are largely offset by changes in the local prices of the assets. It thus implicitly accepts that the Purchasing Power Parity Theory is valid. On the other hand, in translating monetary items at the current rate, it rejects the proposition that exchange rate changes are reflected in the relative interest rate differentials on similar assets denominated in several currencies. This proposition is called the Fisher Effect.

Maurice D. Levi (1998) speaks of the theory and evidence for a long-run relationship between inflation and exchange rates, the connection being termed as Purchasing Power Parity Principle (PPP). The PPP plays an important role in foreign exchange risk and exposure. In the words of Levi (1998), "Whereas there are no implications of interest rate parity for exposure and risk the situation is quite different for PPP. In the case of PPP there are implications for exposure and risk on real assets such as real estates and equities, the prices of which can systematically vary with exchange rates. There are also implications of PPP for exposure and risk on the operating incomes of export-oriented, import-competing and import intensive firms. It is useful to consider the implications of PPP for real assets-called fixed assets by accountants - separate from those for operating incomes."
PPP does have its implications on the foreign exchange risk and exposure of Indian hotel industry with regard to two aspects. First from the real assets perspective, Indian hotel chains own properties abroad and the international chains who have set their shops in India do have properties here and therefore their real estates are exposed to foreign exchange risk. Second aspect relates to the fact that Indian hotel industry being recognized as part of export sector. It is the second/third largest foreign exchange earner adding precious foreign exchange reserves to the exchequer and in the mean time a generous spender of the foreign exchange, as it is an import intensive sector. Thus PPP holds highly pertinent to Indian hotel industry.

Aliber and Stickney (1975) examined the data on prices, exchange rate changes and interest rates in six developed countries and seven less-developed countries. They found that for the developed countries the deviations from the Fisher Effect were all smaller than the deviations from the Purchasing Power Parity Theory. They therefore suggested that if the validity of the Purchasing Power Parity theory was accepted as it was implicitly in the monetary non-monetary method, then the Fisher Effect should have been accepted as well. The implication is that monetary items should be translated at historical rates and therefore considered unexposed to foreign exchange risks, the same as non-monetary items. For the less developed countries the deviations from the Fisher Effect were larger than the deviations from the Purchasing Power Parity Theory in all but one country.

Giddy (1977) tested the Purchasing Power Parity theory and Fisher effect for four developed countries (Canada, Britain, France and Italy) over a 24-year span consisting of periods of various lengths, from one to twenty four years. In
all cases, he found that the deviations from the Fisher Effect were all very much larger than the deviations from the Purchasing Power Parity theory. Both studies, however, confirmed marked deviations from the two theories in the short run. In Aliber and Stickney’s study, the deviations were large enough for them to conclude that for periods two to three years, all assets and liabilities tend to be exposed to foreign exchange risk. In Giddy’s tests, the deviation did not appear to diminish with the length of the period.

The above two studies and other tests of Purchasing Power Parity theory and Fisher Effect tend to support the conclusion, as stated by Officer (1976) that “in the short run the two theories are less reliable as predictors of exchange rates than they are in the long run.”22 The implication is that in the short run, all assets and liabilities are exposed to exchange risk.

2.2.2.2. Economic Approach:

The supporters of economic approach are of the opinion that accounting approach to measuring foreign exchange exposure is not correct. They believe the accounting approach wrongly places emphasis on the valuation of the stock of assets and liabilities of the foreign subsidiary that exist at the valuation (balance sheet) date on current period accounting income, but excludes the future cash flows. Principally, these future flows consists of, revenues from sales of the subsidiary’s products and costs of its production inputs. To the extent that exchange rate change causes revenues to increase more or less rapidly than the increase in costs, the change in the exchange rate would be more or less beneficial to the foreign operation than the accounting measurement would indicate. In a different perspective, economic theory seeks to define a foreign operation’s exposure as the change in its rupee value as a consequence of
exchange rate changes; the dollar value of the foreign subsidiary is defined as
the discounted net present value of all future cash flows. The above discussed
discrepancy and its implications on financial policies, were analyzed in great
detail by Dufey (1972). He pointed out that the effects of devaluation on a foreign
operation go beyond its assets and liabilities. First, as a going concern, the
subsidiary needs a certain minimum amount of financial assets. Second, in
addition to the cash flows generated by the liquidation of its assets/liabilities, if
they are liquidated at all, which may be more or less than the amounts realized in
the event that the devaluation had not occurred depending on whether it is a net
debtor or a net creditor, the going foreign operation would enjoy additional
benefits or suffer additional detriments from the devaluation. These incremental
gains or losses arise from the changes in the structure of its revenue and cost
streams induced by the devaluation.

Dufey (1972) gave some examples: "Devaluation should improve the local
currency (LC) revenues that result from a firm's export sales. The firm may either
maintain its product prices in terms of foreign currency, ..........If the firm is
producing goods for a sector of the domestic market where import competition is
not a factor, LC revenues will suffer because demand is weakened by falling real
income attributable to more costly imports and the rise of domestic cost of
exports benefiting from devaluation .......In any event, the devaluation will cause
a rise in the LC cost of inputs of most firms. Obviously, those companies whose
expenses include a high proportion of imported materials will be hardest hit. "24
Dufey concluded that any final effect of devaluation on the profits received by the
parent company can be computed only after the expected revenue and expense
streams have been adjusted.
The analysis suggests that the computation of a foreign exchange exposure should be derived from the foreign operation's future cash flows rather than from the balance sheet. It is worthwhile to observe that if a firm's planning horizon is fairly short, one year for example, its fixed assets per se do not generate any cash flows, and therefore should not be considered exposed. On the other hand, as its current assets and liabilities normally have a turnover rate of less than one year, they should be considered exposed. This suggests the critical role of firm's planning horizon in the computation of its foreign exchange exposure, although for a reason different from that cited by Aliber and Stickney (1975). This observation can be used to point out the widespread disagreement between economists, corporate practitioners, and the accounting profession in arriving at an acceptable conceptual basis to measure a foreign operation's exposure to foreign exchange risk. In fact, Aliber and Stickney's data indicated that the Purchasing Power Parity theory and Fisher Effect were valid only in certain periods and in certain countries (currency denominations). Under these circumstances, it is no surprise that there is yet no economic formulation of foreign exchange exposure that is acceptable, even to economists. Before the article of Dufey (1972) was published, Heckerman (1972) attempted to formulate a quantitative definition of a foreign operation's exposure to foreign exchange risk. This formulation follows the future cash flows approach to compute discounted present value of a foreign operation's income stream due to price and exchange rate changes, therefore, it includes a residual over and over and above the balance sheet items. Heckerman (1972), however assumed that real sales and costs remain constant over time. Along the lines of Dufey's approach, Shapiro (1975) criticized that this assumption is unrealistic. He then proceeded to
quantitatively demonstrate that the effects of an exchange rate change on a foreign operation depends on (i) the distribution of the foreign subsidiary’s local and export markets, (ii) the amount of import competition it faces locally, (iii) the degree of substitutability between its local and imported factors of production, and (iv) import and export demand elasticities for its products. However, Hendershott (1975) pointed out that this analysis regrettably lacks the elementary distinction between movements along the demand curve and shifts in demand.

Hendershott went on to argue that Shapiro’s conclusion that the multinational company is less affected by inflation and exchange rate changes than a traditional export company because it can shift its production and exporting activities from one country to another is not warranted by his assumptions. These assumptions stated that the price level in the home country (where parent company is located) is held constant and that profits are denominated in the home currency. These assumed conditions should have led to the conclusion that there is no effect on production in the home country due to changes in the price level in the local country (where its foreign subsidiary is located) and exchange rate changes.

From the foregoing discussion, it can be concluded that the accounting approach tends to misstate the exposure to foreign exchange risks of a foreign operation, for it excludes the effects of an exchange rate change on the subsidiary’s revenue and cost stream. Additional research is needed to account fully for these effects.

Holder (1982) suggested an approach to measuring a firm’s exposure which depends on the stochastic relationship between the firm’s real rate of return and exchange rate movements. Using a simplified two-country model,
exposure was shown to depend on the extent to which individual asset prices adjust with exchange rates, the distribution of adjustment between countries, and the relationship between domestic inflation and exchange rate movements. Holder continued to show that while the distribution of real and nominal positions across countries is also a determinant of exposure, purely domestic firms would be typically exposed.

2.3. Foreign Exchange Exposure:

Bhalla (1999) says, "the general concept of exposure refers to the degree to which a company is affected by exchange rate changes." An asset, liability, or income is said to be exposed exchange risk, when a currency movement changes, for better or for worse, its parent or home currency value. Exposure is thus a neutral concept signifying that a company has assets, liabilities or income streams denominated in currency other than its own. The "risk" element is that the currency movement will produce adverse results, which will not necessarily be the case.

Foreign exchange exposure is a measure of the potential for a firm's profitability, net cash flow, and market value to change because of a change in exchange rates. Foreign exchange exposure is usually classified into the following three groups:

2.2.2.3.1. Translation Exposure:

Translation exposure, sometimes called accounting exposure, arises from the need to report consolidated worldwide operations according to predetermined accounting rules. Assets, liabilities, revenues, and expenses originally measured in a foreign must be restated in terms of a home currency in order to be consolidated with home currency accounts. This restatement, termed as
"translation," follows rules set up by a parent firm's government, an accounting association, or by the firm itself.29

2.2.2.3.2.Transaction exposure:

Transaction exposure refers to gains or losses that arise from the settlement of transactions whose terms are stated in a foreign currency. Transactions include (i) purchasing or selling on credit goods or services whose prices are stated in foreign currencies, (ii) borrowing or lending funds denominated in foreign currencies, (iii) being a party to an unperformed forward foreign exchange contract, and (iv) otherwise acquiring assets or incurring liabilities denominated in foreign currencies.30

2.2.2.3.3.Economic Exposure:

Foreign exchange economic exposure is defined as the profitability that the net present value of a firm's expected cash flows will change due to an unexpected change in foreign exchange rates. The change in value could be up or down, depending on the effect of the exchange rate change on sales volume, prices and costs.31

The present international monetary system is characterized by frequent changes in exchange rates. Such changes expose the multinationals to different types of risks. Srinivasulu (1981) demonstrated that foreign currency risk alter the opportunity set available to multinationals and hence require a strategic reorientation of objectives and policies to cope with these risks.32 He suggested foreign exchange risk analysis should be made an integral part of strategic planning. In dealing with these three different types of risks, managers must know that each type of risk involves a different planning horizon. Moreover, each type
can be managed by different corporate departments, whose decisions have a vital bearing on the currency risk profile of the firm.

2.2.2.4. Foreign Exchange Risk Management:

According to Bhalla (1999), "Foreign exchange risk management (FERM) is the systematic management of the risk of loss from exchange rate movements on international transactions and translations. It is typically a defensive posture in the international corporation." He speaks of two questions to be answered by the corporate in order to formulate FERM strategy. The crucial questions are:

a. Which definition(s) of exposure is the corporate concerned with? If the answer embodies more than one definition then prioritize the exposures to be handled. Time frame consideration of the corporate enables it to prioritize the exposures.

b. What is the corporate attitude towards risk? Is the attitude of the corporate towards minimizing foreign exchange losses or maximizing foreign exchange gains.

The typical FERM programme consists of the following steps defined by Evans, Taylor, and Holzmann (1987):

a. Define the FERM objectives; decide whether to manage the risk associated with international transactions, translations, or both; and decide on the goal for this function: no losses, no gains or minimum losses.

b. Measure the current exposure to loss, and project this exposure into the future in accordance with the corporate horizon.

c. Forecast exchange rates, and determine the expected gain or loss; compare this with the predetermined goal; and decide whether any actions are necessary.
d. Implement the appropriate exchange adjustment techniques.

e. Monitor the actual developments, and make adjustments as necessary.

2.2.2.4.1. Hedging Methods:

Tran (1980) classified hedging methods into financial hedge and real hedge.\textsuperscript{35} The financial hedge consists of those defensive strategies which are aimed at altering the foreign exchange exposure by manipulating the balance sheet accounts by “buying insurance” against the foreign exchange risk on a cash receipt payment via the forward exchange market. It can also be distinguished from the real hedge by its often short-term nature. In contrast, the real hedge is necessarily long-term and more permanent in nature. It seeks to alter the very structure of a firm’s international operations by diversification, expansion and even contraction of its overseas investments.

McNew (1997) presented how a hedger views foreign exchange market and determines currency management styles as passive and active.\textsuperscript{36} He was of the view that passive currency management style would suit the perfectly efficient market and would lead to optimal results. He concluded that since foreign exchange market is not efficient, the style of active foreign exchange management would be more conducive for optimal results.


Exchange risk and management strategies in global financial markets by V.K. Bhalla (1999), Multinational Business Finance, by Eitman and Stonehill
International Financial management, by Rodriguez and Carter (1976),
International financial Management, by Zenoff and Zwick (1969). There are also
other sources which devote attention to specific hedging methods such as:
Wemhoff (1978), Feskoe (1980) and Srinivasulu (1983). Table 2.1 summarises
the hedging methods described by such sources

**Table 2.1.**

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5. **Money and Foreign Exchange market operations**

   5.1. Local currency borrowings
   5.2. Foreign currency borrowings
   5.3. Forward exchange contracts on payments/receipts arising from import or export transactions
   5.4. Forward exchange contracts on payments/receipts for Commitments not recorded on the books.
   5.5. Forward exchange contracts on the net exposed balance sheet positions.

6. **Rearrange Inter-Subsidiary Cash Flows**

   6.1. Adjust the flows of remittances to parent company
   6.2. Adjust planned parent company’s dollar investments
   6.3. Negotiate foreign currency and/or credit swaps.

7. **Asset and Liability Management**

   7.1. Reduce short-term assets and increase short-term liabilities denominated in depreciating currencies and vice versa.
   7.2. Adjust local/foreign currency long-term debt.

8. **Inter–subsidiary Netting**

9. **Inter - Currency netting** (Leave open the exposure in one currency anticipating that its loss will be offset by the gain from the exposure in another currency)

**Source:** Compiled from review sources
In addition to the methods shown in table 2.1, there has been some attention directed toward the policies and organization of foreign exchange management. Most notably, Ankrom (1974) advocated the use of committees in foreign exchange management decision making and argued for central control and direction at the parent head quarters. Booth (1982) attempted an integrated analysis of foreign exchange exposure and hedging. The analysis of translation exposure and the hedging to avoid such exposure showed such operations to be unrelated to economic value and therefore of doubtful validity. Booth concluded that hedging operations were justified only if the effects of translation exposure were to affect investors' expectations and thus market value.

Cornell (1980) claimed that there is no need to consider exchange risk once one has taken account of inflation and relative price risk. The implication is that both international and domestic firms face the same difficulties and require similar strategies in this regard. Some authors like Shapiro and Rutenberg (1976), Logue and Oldfield, (1977) have suggested that while financial hedging may be effective in smoothing out period-to-period fluctuations in reported earnings, it may be a misdirection of corporate resources. First, as the Sharpe-Lintner-Mossin capital asset pricing model suggests, the cost of equity to a firm is dependent on its systematic risk which it cannot reduce unless, carrying the argument to the extreme, it converts all assets into some risk free investment. Therefore, the best a company could do to protect itself from foreign exchange risk is through foreign currency diversification (in order to reduce the unsystematic risk). However, an investor can accomplish this risk reduction without some sacrifice of expected return by holding a diversified portfolio of securities. This conclusion is based on the assumption that investors are well
informed about international investment opportunities and that barriers to international investments are no greater for individuals than for corporates. Second, under conditions of efficiency in the markets of foreign exchange, securities, and goods, changes in the exchange rates are reflected in the price of goods and money. Therefore, corporate hedging against the foreign exchange risk becomes superfluous. Furthermore, to the extent that foreign exchange markets are efficient, hedging in the forward exchange markets might even be costly. In fact, some evidence (Robbins and Stobaugh, 1973) exists that the cost of forward contract hedging over a one-to-three-year period averaged about .7 percent.\textsuperscript{41} Shapiro (1977) suggested that under these conditions, companies should concentrate on what they are presumed to do best: manufacturing and marketing.\textsuperscript{42} Therefore, the tasks of management in multinational firms should be directed to planning, production, and marketing strategies in anticipation of exchange rate fluctuations so as to alter pricing, product, credit, and market selection strategies on which plant locations, materials sourcing, and investment decisions depend. However, these authors were aware that market imperfections do exist. When hedging is undertaken for profiting from exchange rate fluctuations due to market imperfections or to reduce variability in returns or cash flows, economic theory suggests that companies should aim at reducing cash flow fluctuations rather than balance sheet exposure. In the latter case, the overall foreign exchange management strategy should be to match cash inflows with cash outflows rather than matching assets with liabilities. In this regard, Makin (1978) suggested that attention should be paid to the total return of the portfolio of exposures in all the currencies rather than inflow-outflow matching on a currency-by-currency basis.\textsuperscript{43} This is the portfolio approach to foreign exchange
management. It is in fact, what Folks (1972) called Netting, which is described as follows.\textsuperscript{44}

\textbf{2.2.2.4.2. Foreign exchange defense measures}

Folks (1972) classified the techniques available for adjusting the average risk posture of the firm into four categories: (i) adjustment of funds flows, (ii) forward contracts, (iii) exposure netting and (iv) borrowing technique.\textsuperscript{45}

Adjustment of funds flow techniques involve an alteration in the planned funds flow of parent and/or subsidiaries, in amount and/or currency of denomination, with the view of reducing (or increasing) the local currency accounting exposure of the corporation. This exposure is defined as the difference in the local currency assets translated at the same exchange rate. If the objective of the management is to decrease exposure, the technique must increase local currency denominated liabilities or decrease local currency denominated assets. Techniques for increasing liabilities include local borrowing and stretching payables. Techniques for decreasing assets include reduction of cash balances and other liquid assets, reduction in investment in accounts receivables (either by tightening credit terms or factoring), and reduction in inventory investment (if inventories are translated at the current exchange rate).

Attempts by the exchange risk manager to transfer the risk of loss from exchange rate adjustment to those with whom he does business, a technique known as exchange risk shifting, illustrates one form of funds adjustment. Folks (1972) continued by suggesting that rather than billing sales to a weak currency area in local currency, the corporation should attempt to bill in its own currency.\textsuperscript{46}

At the corporate level, a local currency asset is thus eliminated and a hard currency asset substituted, a form of funds adjustment shifting can be used by
purchasers as well; to decrease exposure, a firm will request billing in the local currency rather than in a harder currency. If reevaluation of the local currency were expected, the firm should engage in the opposite type of risk shifts. In any case, a general method funds analysis would encompass risk shifting.

Exposure netting as defined by Folks (1972) is another exchange adjustment technique available, but only to those multinational companies that develop positions in more than one foreign currency. If the financial decision maker believes that exchange rate movements of the two currencies are highly positively correlated, he might use a short position in one currency to offset a long position in the other currency. If the currencies were negatively correlated he might use long positions in both currencies (or short positions) that would offset each other. (If the assets exceed the liabilities, the company is said to be “long” in that currency. If liabilities exceed assets, it is said to be “short” in that currency)

Shapiro and Rutenberg (1976) questioned the value of hedging in the absence of market imperfections. They claimed that evidence existed which showed that firms engaged in hedging could expect to break even in the long run at best. According to the authors, the costs of protection appeared to be slightly greater than the benefit derived. The cost of hedging by borrowing locally, for example, was the higher interest rate invariably associated with a soft currency loan. Even shifting funds from one country to another was not a costless means of hedging. The net effect of speeding up remittances while delaying receipt of intra company receivables is to force local currency borrowing to finance these additional working capital requirements. As mentioned before, this involves paying higher interest rates.
The above analysis by Shapiro and Rutenberg (1976) has been supported by previous research. A study by Robbins and Stobaugh (1973), indicated that the cost of hedging using forward contracts over a three year period in seven countries averaged about .7 percent more than a do-nothing policy. More later estimates by Kohlhagen (1975) of forward contract costs in six major currencies during the floating period April 1973 to December 1974, put this average cost at about .65 percent. In addition, Mandelbrot's theoretical view that prices in speculative markets behave as a martingale (Patterns in price movements are so weak as not to justify transaction costs) has been confirmed by Giddy and Dufey (1975). They used 1973-74 data to predict the United states prices of the Canadian dollar, British pound, and French franc for 1, 7, 30 and 90 days ahead. They concluded that it is a random walk, an even tighter property than martingale, that says it is profitless to predict even if transaction costs were zero. However, it should be noted that Shapiro and Rotenberg (1976) supported the idea that where market imperfections exist and are significant, exchange risk management policies may be useful.

2.2.2.4.3. Risk Analysis:

According to Kettell (1979), "the advantages of allowing foreign subsidiaries to manage their exposure are frequently in the best position to judge the timing of impending exchange rate changes and/or exchange control changes." Moreover, delegating this responsibility to local managers is a stimulus to their motivation. If they can consistently perceive the benefits of their actions they are likely to become more highly motivated. An advantage of centralized control is that a worldwide view of exposure can be achieved. Decentralization, however, does have disadvantages. Due to large-scale
intracompany payables and receivables the use of leads may simply shift the exposure to another subsidiary.

Giddy (1977) argued that exchange risk management in multinational firms should be a centralized activity. According to Giddy (1977), "in a world of floating exchange rates one may argue that exchange rates follow essentially a random walk, that is, in the long run, it is not possible to forecast more accurately than the market. If speculators are forced to play the foreign exchange game against one another, instead of against the world's central banks, then no one forecaster is likely to outsmart competitors consistently." As was shown by Giddy and Dufey (1975), the foreign exchange market seems to discount all new information immediately, so that the best available forecast is the forward rate, or the spot exchange rate adjusted for interest rate differences. Even when exchange rates are fixed, interest rates tend to adjust to reflect currency expectations. Hence, the subsidiary's management is no more able to beat the market in currency forecasting than is likely to be gained from decentralizing.

The second reason given by Giddy was that since exchange risk is associated with variations in cash inflows and outflows, and not merely with assets and liabilities, intracompany transactions account for a large proportion of the cash flows of most overseas subsidiaries. In an integrated company the efforts of one subsidiary to reduce perceived exposure through the timing of receivables and payables, for example, may simply increase exchange risk in another subsidiary. Cash flows should be consolidated on a worldwide basis by currency in order to identify overall variability after offsetting flows have been netted out.

Kettell (1979) suggested that, whether centralized or decentralized decision-making is introduced, the company needs to use the expertise of a
currency committee. This usually consists of economists, treasurers, planners and marketing representatives. Basically, all major areas of the business need to be incorporated. The currency committee has a twofold role: first, to establish the currency weights needed for the histograms analysis, and second, to educate the functional business areas about currency developments and their likely corporate impact. The currency committee can provide guidance and consultation in the development of the strategy and hedging options, bringing together knowledge and expertise outside the finance area and beyond the technical inputs dealing with tax, accounting, and legal questions. It should consider long-term hedging options which may lie outside the treasurer's authority, or which may involve conflict of authority.

Theoretical studies have also concerned with risk analysis and currency forecasting. To apply financial hedging techniques, currency forecasts are required. Most researchers in the area of currency forecasting have attempted to find some key economic indicators of when a currency is in trouble. Some of these indicators mentioned by Shapiro and Rutenberg (1976) are balance of payments deficit, reserves of gold and hard currencies, borrowings in SDRs, official swap arrangements and rate of inflation relative to that of the United States. Other economic indicators pointed out by Thomas (1973) relevant to exchange rate forecasting include relative interest rates and national incomes. The Sodhani Group identified the reserve requirement as the major impediment for the development of term interbank money market and recommended that it should be lifted. The group also suggested that commercial banks should be permitted to deposit or borrow short-term dollars abroad, up to the limits specified
by RBI. Unless these prerequisites are met forward exchange rates will not be
determined by the operation of the principle of interest rate parity.59

Apte (2002) presents his view on exchange rate forecasting as: Exchange
rate forecasts are an important input into a number of corporate financial
decisions.60 Whether and how to hedge a particular exposure, the choice of
currency for short and long term borrowing and investment and choice of
invoicing currency, pricing decisions, all require some estimate of future
exchange rates. Forecasting methodologies may be divided into two broad
categories. The first is the class of methods, which have a structural economic
model of exchange rate determination such as PPP or the monetarist model. The
model is econometrically estimated and used for prediction. A practitioner’s view
of the forces impinging on exchange rates and the consequent difficulty of short-
run forecasting of exchange rates, is brought to light by Gyothen and Volcker
(1992). They are of the view that the factors market practitioners take into
consideration have certainly changed over time, and on the whole they have
multiplied almost beyond our calculations.61

In order to measure the degree of exchange risk faced by the company,
Kettell (1979) suggested certain steps to be followed: (i) Establish the total
position in each currency to both translation and economic exposure, (ii)
Undertake market analysis of the expected fluctuation range of exchange rates,
(iii) Establish the risk magnitude, and (iv) Introduce the decision format.62 Once
the risk magnitude is defined, the company can then decide, given the costs of
hedging policies, whether to hedge or to leave the position open. An important
step in measuring exchange risk, according to Kettell (1979), is to accurately
identify future exchange rate movements.63 Broadly speaking, two alternatives
are open to the company. First, the company can employ "in-house personnel." The company can alternatively use bought-in exchange rate forecasts. One type is that provided by major banks, and the second type involves specialized forecasting services, such as those provided by Forex, Predex, Rueters, FEDAI, Schase Econometrics and the like.

No matter which alternative is used, the review of the literature related to risk analysis shows that many studies on risk in foreign exchange management were modeled after the mean variance pioneered by Markowitz (1959). Like the Markowitz model, they all require the specification of a potentially large number of covariances. They also require quadratic utility functions for deterministic solutions. An early application of the mean-variance framework to calculate an efficient risk-return frontier was proposed by Leitaer (1971) for evaluation of investment alternatives in two-country situations. The decision variables are interest rate, exchange rate and the firm's risk performance curve.

Another type of optimization model which has been used to aid decision making in financial hedging uses mathematical programming techniques. This approach requires a careful modeling of the firm's behaviour and seeks to maximize an objective function within assumptions of uncertainty, subject to set of constraints. Necessarily these models require the analysis of a fairly large number of variables, including exchange rates.

In contrast to the deterministic nature of the decision models described in the previous paragraphs, heuristic models seek to simulate the decision making process, but leave the choice of objectives, or risk-return trade-off to the decision maker. Models of this type include the criteria of expected monetary value, minimax, minimum variance suggested by Folks (1972) and the decision-tree
The concept of "break-even" rate has also been used to compute the costs of alternative financing or hedging strategies, and was used in the analysis of a specific swap transaction by Zenoff and Zwick (1969).^{68}

As a concluding remark on the above review, it is useful to cite the results from a survey done by Carter and Rodríguez (1977) pertaining to the use of management models for hedging in practice.^{69} This survey's results indicated that of the forty firms in the sample, only 9 used a model. The models that were used, however, were of the simulation variety; none involved mathematical programming. The reasons for this lack of appeal were several, but the complexity and excessive data requirement of the models and the corporate manager's lack of faith in their usefulness seemed to be the major drawbacks.

2.3. Empirical studies:

There has been very few studies which can be claimed as empirical research of the problem of foreign exchange management under floating exchange rates. Cheu and Tsaur (1983) rejected the traditional theory that flexible exchange rate may insulate a country from monetary disturbances originated in the rest of the world.^{70} They suggested that this is true only if the residents of the country do not hold foreign currency. They further suggested that when the possibility of substituting foreign currency for domestic currency exists, flexible exchange rates may no longer provide a cushion against external shocks. In their model they showed how an open economy in which residents hold foreign currency as well as domestic currency will be affected by a change in the rate of inflation abroad. In a study of annual reports of seventy multinational companies, Rodríguez (1977) examined how widespread the impact of FASB 8 (Financial
Accounting Standards Board, statement number 8) was on the reported earnings of these companies in the fiscal year of 1975. The results indicated that only thirteen companies reported an impact greater than five percent of their net income, and twenty three companies reported a "material" impact. Rodriguez's explanation was that most firms have investments in both strong-currency and weak-currency countries, thereby evening-out the effects of currency fluctuations over a year's time. Her conclusion was that the implementation of FASB 8 had not significantly changed the earnings reported by most multinational companies. 

Stavenga (1984) investigated the foreign exchange gains and losses of selected U.S. multinational corporations as presented in their annual reports from 1978 to 1982. A sample of eighty five U.S. multinational corporations was obtained, and their annual reports were examined. The findings confirmed that the larger the firm, the better its foreign exchange management abilities. As industry groups, motor vehicles and oil companies performed best, while pharmaceuticals and cosmetics groups performed most poorly. It was also found that the firms applying FASB 52 in 1981 and 1982 had significantly poorer results than the firms still applying FASB 8. He concluded that most firms should reevaluate their foreign exchange management programs, and the information content of the financial statements regarding foreign exchange reporting should be improved. 

An earlier study by Combes and Houghton (1973) addressed translation practices used by companies. The authors surveyed the year-end foreign translation practices of forty five, Fortune 500, United States based multinational companies. The survey covered the following topics: translation of foreign subsidiary balance sheet and translation of foreign subsidiary income statement. The forty-five surveyed firms came from three business sectors: consumer
products, natural resources and equipment manufacturers. The study found that a lack of authoritative standards for foreign translations existed in those companies. The companies followed Generally Accepted Accounting Principles (GAAP), but neither current-noncurrent nor monetary-non monetary translation in their pure academic forms, were used by the multinational firms.

Under FASB 8, translation gains and losses were included in the group consolidated profit and loss account and caused wide fluctuations in reported corporate profit and earnings per share. Referring to the U.S. standard, Shapiro (1992) commented that "nothing is surer to upset a chief executive than an accounting provision that disturbs the smooth year-to-year earnings gains so cherished by the securities analysts." This kind of reasoning on the part of some large multinationals has undoubtedly led to some questionable decisions designed to hedge translation exposure by incurring transaction exposure.

Did reporting requirements of FASB 8 affect the stock market performance of companies reporting translation gains and losses? There have been three major investigations in this area. These have been undertaken by, John Makin (1977), Ronald Dukes (1978), and Garlicki et al. (1987) and their results are by no means identical. Makin assessed share price performance for three sample groups consisting typical multinational companies, comparable domestic companies and a group of multinationals typically considered sensitive to FASB 8 reporting requirements. He found that accounting standard requirements did not affect share price performance for the typical multinational group, but he did find a downgrading in share price performance for the sensitive group. While he interprets this as implying FASB 8 reporting requirements affecting share prices, Ian Giddy (1978a) has challenged this interpretation on the
basis that the sensitive group of multinationals would be affected not only in
terms of income statement reporting but also in terms of dollar remittances from
the dividends declared by overseas subsidiaries- an area to which Makin's study
failed to address itself.

Ronald Dukes (1978) sought to investigate the stock market effect of
FASB 8 reporting requirements in a study in which he compared security returns
from a sample of 479 multinational companies with a control sample of domestic
firms. The empirical results are that security return behavior of portfolios of
multinational firms, despite the impact of FASB 8 on reported earnings, is not
significantly different from the return behavior of comparable portfolios of
domestic firms. Although Duke's methodology can be challenged, his conclusions
are that the U.S. stock market is not fooled by pure translation gains and losses.

Dukes' study findings were reinforced by the study of Garlicki et al. (1987).
Their work was concerned with estimating shareholders effects pursuant to the
announcement of the change in translation guidelines from FASB 8 to FASB52.
The researchers focused their attention in particular upon two announcement
dates- the initial exposure draft date 28 August 1980 and the date of subsequent
statement by the Financial Accounting Standards Board that FASB 52 was to be
adopted, 8 December 1981. In respect of neither of these significant dates the
researchers could identify any abnormal loss or gain accruing to the shares of the
companies affected by the revised standard. They conclude that this was
consistent with shareholders having the sophistication not to be moved by the
revised accounting translation guidelines. Moreover, the actions of some
multinationals in hedging translation exposure with transaction exposure was
seen not only to be illogical from a deductive standpoint but also to be unjustified
empirically, since stock market analysts seem not to be interested in pure translation gains and losses.

A number of papers have been written by corporate officers to describe their companies' foreign exchange management practices. Verroen (1965) described how his company, International Telephone and Telegraph Corporation managed its foreign exchange. According to Verroen, the company created a committee at their head quarters in New York for the purpose of continuously determining the corporate approach towards foreign exchange problems and of advising management on specific foreign exchange situations. The committee was composed of the area executive the treasurer, the tax director, the comptroller and his specialized assistant.

Another example from within a corporate is a report by Hyot (1972). Hyot described how his company, Singer, managed foreign exchange exposure. He said that the level of parent company investment in a subsidiary can be the chief determinant of the exposure of the parent in the currency of the country in which its subsidiary is located. If consolidated financial statements report fixed assets no matter where located at their historical dollar costs less dollar depreciation; and if the parent's investment does not exceed the value of the subsidiary's net fixed assets: and if the subsidiary's current assets and current liabilities are equal and, therefore, hedged, then the parent will incur neither gains nor losses as the local currency changes its dollar value. Thus, the amount and form of parent company investment are key elements in the management of exchange risk. As reported by Hyot, in 1972 the sum of the exchange losses incurred and the extra expenses associated with hedging in the previous two years averaged less than twenty percent of losses that would have been realized if no action had been
taken. Singer management recognized at the outset that to lessen exchange risk, it would be necessary to reduce parent company investment and to increase significantly the amount of local currency borrowings. To accomplish the latter, the capital structure of each branch and subsidiary had to be attractive to local bankers. Guided by the simple proposition that in any business an entrepreneur would be obliged to finance the assets that a bank or other lender would be willing to finance, a formula was worked out that provided a rough but reasonably satisfactory approximation of the amount of investment required in a given foreign subsidiary. Following that formula, 75 percent of the assets of the manufacturing subsidiary were supported by parent company investment. In the subsidiary the exchange risk is relatively low because of its high proportion of fixed assets and the substantial inventory component susceptible to upward price adjustment. The retailing subsidiary, with its installment accounts receivables that were fully exposed to exchange risk and its inventories of finished goods which were vulnerable because of potential pricing constraints, had only 45 percent of its assets financed by parent company investment. A number of executives have taken advantage of the seminars on foreign exchange management to express their views about this subject matter or describe their companies' practices.

In the early period of floating exchange rate regime, Fieleke (1973) conducted two mail surveys to study whether or not the floatation of the Canadian dollar in 1970 and the Deutsche mark in 1971 inhibited U.S. firms from hedging their transactions in the forward exchange markets. The results of these two studies indicate that none of the respondent firms had forgone any transactions with the Canadian or German residents due to the difficulties in the forward markets of the two currencies or were unable to engage in forward exchange
transactions of either market. His conclusion was that because the period investigated was one of considerable exchange-rate change and uncertainty, the results were strong enough testimony to the capacity of the mark-dollar forward market to perform well during a continuing floatation, especially after exchange rates had been allowed to approximate their market equilibrium levels.

One of the leading authorities in the field of foreign exchange management, Rita Rodriguez, has also conducted several studies. Rodriguez categorized the attitude towards foreign exchange into three major groups: risk paranoid, neutral risk aversion and asymmetrical risk aversion. The author then proceeded to relate these attitudes to foreign exchange risk management strategies of 36 companies. The data were obtained by sampling interviews. The findings indicated that the risk paranoid syndrome (always reducing exposure to zero) was not a dominant management policy. Neither did management have a neutral risk aversion (ignoring foreign exchange risks). Instead, the attitude towards risk in each currency was either random or selective. Although risk asymmetry was the prevalent attitude, the degree of asymmetry appeared to be dependent on the currency and access to domestic financial markets. These two variables were found to help determine the signs (positive or negative) of the exposure.

Jia He and Lilian K. Ng (1998) studied the foreign exchange exposure of Japanese multinational corporations with a sample of 171 Japanese multinational corporations. They found that about 25 percent of the sample multinationals' stock returns experienced economically significant positive exposure effects for the period January 1979 to December 1993. The extent to which a firm is exposed to exchange rate fluctuations has been explained by the level of its
export ratio and by variables that are proxies for its hedging needs. Highly leveraged firms and firms with low liquidity, tend to have smaller exposures. Foreign exchange exposure was found to increase with firm size. It was also found that Keiretsu multinational firms were more exposed to exchange rate risk than nonkeiretsu firms.

It is conventional wisdom that exchange rate movements affect both the cashflows of a firm’s operations and the discount rate employed to value these cash flows. Measuring foreign exchange exposure is now a central issue of international financial management. Existing empirical evidence on foreign exchange exposure, seems perplexing; studies have so far documented a weak link between contemporaneous exchange-rate fluctuations and stock returns of U.S. multinational firms. Example: Jorion (1990), Bodnar and Gentry (1993), Amihud (1994) and Bartov and Bodnar (1994). Gendreau (1994) found it difficult and unconvincing that weak results imply that exchange rate changes have no effect on the exporters’ stock returns. Bartov and Bodnar (1994) attributed the observed insignificant relationship between exchange rate changes and stock returns to probable problems associated with the previous studies’ sample selection procedure, or to mispricing caused by investors’ errors in estimating the linkage.\(^{83}\) Levi (1998) argued that the lack of evidence was due to the difficulty in obtaining stable measures of exchange-rate exposures.\(^{84}\)

Yang (1997) investigated exchange rate pass-through in U.S. manufacturing industries during the sample period 1980 to 1991 and found that the pricing behavior of foreign exporting firms is generally consistent with partial passthrough.\(^{85}\) Table presents the pass-through coefficients of different industries; the coefficient would be 1 for complete pass through and 0 for no pass

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through. The average coefficient is 0.4205, implying that when the U.S. dollar appreciates or depreciates by 1 percent, import prices of foreign products change, on average by about 0.42 percent. It is noteworthy that partial pass through is common but varies a great deal across industries. Import prices would be affected relatively little by exchange rate changes in industries with low product differentiation and thus high demand elasticities.

The first comprehensive survey of how corporations are actually attempting to manage the exchange risk was a mail survey by Jilling (1978). He received 107 responses, a response rate of 27 percent. The questionnaire covered exchange rate forecasting procedures, translation methodology and balance sheet exposure management (identification of defensive strategies, and cost comparison among them,) and problems encountered by the companies under floating exchange rates. However, the percentage of no response was high on several important issues: (1) division of responsibility (72 percent), (2) use of various defensive strategies (up to 69 percent), and (3) the inclusion of future transactions in the computation of currency exposure (up to 92 percent). Pointing out that the responding companies may have been more active in foreign exchange management than the non-respondents, Jilling found that approximately 90 percent of U.S. multinational companies had implemented an exposure management program with some perceived degree of success. In the majority of cases, the responsible executives were most preoccupied with the impact of translation losses on the consolidated dollar earnings of their companies.

Another key research study conducted by Tran (1980) focused on foreign exchanger decision making in multinational firms and the effects of accounting
rules on economic behavior.87 The purpose of Tran's research effort was: (i) to examine the process of and the factors involved in the foreign exchange management in large multinational firms in multi-currency context under floating exchange rates, (ii) to analyze the effects of floating exchange rates on their defensive strategies, (iii) to study how these companies were affected by FASB 8 in regard to the measurement of their currency exposures and the ways they hedge, and (iv) based on the empirical findings, to develop a model descriptive of the foreign exchange management process. Tran's data was obtained by in-depth interviews with financial executives of a sample of ten multinational manufacturing companies on the 1977 Fortune 500 list. With respect to currency exposure management, none of the sampled companies measured the currency exposure based on future cash flows. Tran found that nine of the ten companies had as their main objective the minimization of foreign exchange losses, and in particular translation losses. The exception was one company whose earnings had not been significantly affected by FASB 8. However, there were three other companies, which had the same experience, yet were also concerned with the translation effects. Tran pointed to the fact that there was often a conflict between the reported earnings objective and economic performance. This conflict was difficult to solve and frequently led to the involvement of top management in exposure management activities.

Tran concluded that the companies surveyed implemented a well-organised effort to manage their exposures which include active use of various defensive strategies, a sophisticated information system to collect data on the exposures, central control and coordination of subsidiaries' foreign exchange
management activities, and active involvement by the top level of the management.

Daroogar (1984) investigated the exposure defense strategies used by U.S. multinational corporations and examined the variables of different currencies, size of organization and organizational structure of those corporations. All data were secured by mailing questionnaires to U.S. multinational manufacturing companies and service organizations. The results showed that U.S. multinational corporations most frequently utilized the forward contract method. The borrowing technique was the second most frequently used method, followed by exposure netting and funds flow adjustment technique. The corporations had internal as well as external obstacles to their management of foreign exchange. The most important internal obstacles were justification of the costs, as well as problems with having timely information about exchange rate fluctuations and the lack of reliable forecasts. External obstacles were limited forward markets and governmental regulations. Manufacturing companies used the borrowing technique more frequently. The more centralized the company, the more frequent the use of borrowing and exposure netting techniques. Service organizations were more concerned with profit making from exchange rate fluctuations than were manufacturing companies.

Jeswin, Kwok and Folks (1995) documented the extent of knowledge and use of foreign exchange risk management products by U.S. corporations. Based on a survey of Fortune 500 firms, they found that the traditional forward contract was the most popular product. About 93 percent of the 173 respondents of the survey used forward contracts. This old, traditional instrument has not been supplanted by recent "fancy" innovations. The next commonly used instruments
were foreign currency swaps (52.6 percent) and over-the-counter currency options (48.8 percent). Such recent innovations as compound options (3.8 percent) and look back options (5.1 percent) were among the least extensively used instruments. The findings indicated that most U.S. firms met their exchange risk management needs with forward, swap and option contracts.

The Jesswein, Kwok and Folks survey also revealed that among the various industries the finance, insurance, and real estate industry stood out as the most frequent user of exchange risk management products. The industries had more skillful finance experts at using derivatives securities and also the industry handles financial assets which tends to be exposed to exchange risk. The survey also exposed that the corporate use of foreign exchange risk management products was positively correlated to the firm's degree of international operations. As the firm became more internationalized through cross-border trade and investments, it is likely to handle an increasing amount of foreign currencies, giving rise to a greater demand for exchange risk hedging.

A study by Bank of America on Corporate America's Foreign Exchange Risk Management revealed details on the different types of exposures managed by American corporates. The study showed that 80 percent U.S. corporates identify translation exposure, 70 percent identify anticipated exposure, 60 percent identify transaction exposure, 54 percent identify economic exposure and 52 percent identify contingent exposure. While it was found that only 15 percent fully hedge translation exposure, 70 percent do not hedge translation exposure; 30 percent fully hedge transaction exposure and 20 percent do not hedge transaction exposure; only 5 percent fully hedge economic exposure while 95 percent do not hedge economic exposure. The study also brought to light that the
The majority of corporates had hedging maturities of 6 months to one year and the functional currency of foreign affiliates of U.S. corporates was the local currency in the case of 66 percent.

Allayannis and Ofek (2001) related the use of derivatives to foreign exchange exposure of a sample of 378 non-financial U.S. firms and found that the use of derivatives significantly reduced the foreign exchange exposure of the sample firms.

Geczy et al. (1997) found that firms with larger size, R & D expenditure and exposure to currency rates through foreign sales are more likely to hedge using currency derivatives. Zhuo's study was in consistency with Geczy et al. study and Froot et al. (1993) theory of optimal hedging and high hedging start up costs explanations.

In Makin et al. (2001) report of a survey on the use of derivatives, of a large sample of UK non-financial firms, the instrument used by 48 per cent firms to manage foreign exchange risk was forward contracts.

"Asian exposure of U.S. firms: Operational and risk management strategies", was a study conducted by Jongmoo and Yong. The study identified contemporaneous and lagged changes in the real exchange rate currency value had significant impact on the firm value due to currency exposure on 30 per cent of the U.S. firms with Asian operations. A strong dollar had a negative impact on firm value when the firm has initial negative exposure and is related to exports and local sales of the firm. However asset deployment in Asia raised exposure position despite the initial exposure condition. The final disaggregate part of the study showed intra-regional studies, indicating the different ways in which the US firms used their subsidiaries operationally.
Mahesh Pritamani, Dilip K. Shome and Vijay Singhal (2003) presented a study entitled, "Foreign exchange exposure of exporting and importing firms." The study proposed a dual-effect hypothesis where the total exposure exhibits firm specific and macroeconomic exposure.


2.4. India’s Foreign Exchange Rate System and Foreign Exchange Market:

Since the transition to widespread floating in 1973, fluctuations in exchange rates have concerned Central Banks of most countries. By resorting to intervention in the foreign exchange market, they have tried to stabilize the exchange rates and reduce volatility caused by speculative transactions. After the value of Indian Rupee became market determined in August 1994, Reserve Bank of India too has used both direct and indirect measures to reduce volatility in the INR/USD rates.

According to Dr. Y.V. Reddy, the main objective of India’s exchange rate policy is to ensure that economic fundamentals are reflected in the external value of the rupee. Subject to this predominant objective, the conduct of exchange rate policy is guided by three major purposes.

First, to reduce excess volatility in exchange rates, while ensuring that the market correction of overvalued or undervalued exchange rate is orderly and calibrated.
Second, to help maintain an adequate level of foreign exchange reserves.

Third, to help eliminate market constraints with a view to the development of a healthy foreign exchange market.

Market players in foreign exchange of India became active in the seventies, consequent upon the collapse of Bretton Woods Agreement. However India was somewhat insulated against volatility, since stringent exchange controls prevailed and banks were required to undertake only cover operations and maintain a "square" or "near square" position at all times. In 1978, the RBI allowed banks to undertake intra-day trading in foreign exchange and as a consequence, the stipulation of maintaining "square" or "near square" position was to be complied with only at the close of business hours each day. This perhaps marked the beginning of foreign exchange market in India. As opportunities to make profits began to emerge, the major banks started quoting two-way prices against the rupee as well as in cross currencies and gradually, trading volumes began to increase. During the period 1975 to 1992 the exchange rate regime in India was characterized by daily announcements by the RBI of its buying and selling rates to Authorized Dealers (ADs) for merchant transactions.

There were two discrete two steep devaluations in July 1991. The informal dual rate system introduced with EXIM Scrips was formalized in February 1992 and finally in February 1993 a unified market determined exchange rate system was put in place. In August 1994, the Reserve Bank of India announced the Indian Rupee will be made convertible on current account. Proposals of gradually lifting restrictions on capital account were submitted to the government in 1997, but were relegated to the backburner after the Asian currency crisis of 1997 and the Russian collapse in 1998.
Thereafter there was sharp depreciation in September 1995 and then rupee touched a low of Rs.38 against the dollar in February 1996, before recovering back to under Rs.35. The rupee weakened during the aftermath of the Asian currency crisis in the summer of 1997 and the collapse of the Russian ruble in 1998, but remained pretty stable till early 2000 when it came under downward pressure as a result of the widening current account gap and sluggish capital market inflows through both portfolio and direct investments. The Reserve Bank of India responded both by tightening monetary policy as well as imposing certain administrative controls on foreign exchange transactions.

The foreign exchange market in India comprises of customers, Authorized Dealers (ADs) in foreign exchange and Reserve Bank of India. The Authorized Dealers are banks especially authorized by RBI to do foreign exchange business. Major public sector units, corporates and other business entities with foreign exchange exposure, access the foreign exchange market through the intermediation of the ADs. The foreign exchange market operates from major centers – Mumbai, Delhi, Calcutta, Chennai, Bangalore, Kochi and Ahmedabad, with Mumbai accounting for the major portion of the transactions. The customer segment is dominated by Indian Oil Corporation and certain other large public sector units like Oil and Natural Gas Commission, Bharat Heavy Electricals Limited, Steel Authority of India Limited, Maruti Udyog and also Governemnt of India (for defence and civil debt service) on the one hand and large private sector corporates like Reliance Group, Tata Group, Larsen and Tubro, and the like on the other. Foreign exchange market can be classified into two segments. The merchant segment consists of the transactions put through by customers to meet their transaction needs of acquiring/offloading foreign exchange, and inter-bank
segment encompassing transactions between banks. The average daily gross turnover in the dollar–rupee segment of the Indian foreign exchange market (merchant plus inter-bank) was in the vicinity of U.S.$ 3.0 billion during 1998-99. The daily turnover in the merchant segment of the dollar-rupee segment of foreign exchange market was U.S.$ 0.7 billion while turnover in the inter-bank segment was U.S.$ 2.3 billion.\footnote{100}

2.4.1. Market Environment

The largest participants in the foreign exchange market are the medium sized and large companies because banks and financial institutions have limited ability to hold currency positions. Since currency regulations require corporates to have underlying exposures such as imports, exports, or loans to book currency contracts, it is these flows which supply the bulk of the supply and demand for the currency market. Corporates are permitted to book against their exposures and then cancel and rebook again if their views support such actions. This has resulted in corporates taking an active interest and actively participating in market movements. It has also disassociated cash inflows and outflows from market moves since foreign exchange managers actively book and cancel forward exchange contracts.

The recent growth in Indian trade has created a rapid growth in the market participation. The total volume of Indian trade for each year which ended March 1996 is expected to be around U.S.$ 68 billion. To add to this, investment flows have increased dramatically with the liberalization of the Indian capital markets as has the growth of Indian borrowings from OECD countries. All this has resulted in large increase in corporate foreign exchange turnover over the years. The rapid growth in trade is expected to continue and invisibles movements are also
growing with debt service costs, inward remittances from expatriates and tourism all registering expansion. Cash investment flows into the stock market, into corporate GDRs and into direct industrial ventures should cross U.S.$ 7 to 10 billions per year, and this excludes new loan draw downs, old loan repayments and other flows on account of overseas borrowings. The rapid industrial growth and liberalization on both the trade and capital accounts are expanding Indian foreign exchange markets dramatically.

2.4.2. Market Characteristics

The U.S. dollar /rupee domestic market is active between 9.00 a.m. and 4.00 p.m. every working day with an active interbank two-way market. Estimated volumes are around U.S. $ 1-1.5 billion a day, including swaps. Standard trading lots are between U.S.$ 1-3 million but the liquidity and spreads vary greatly depending on the volatility. Typical U.S. dollar/rupee market makers quote a Rs.0.03 spread (0.01 percent) on spot although this can increase greatly with volatility in rates. Interbank dealing is dominated by a few large Indian banks and some active foreign banks. Bombay is the main trading hub. Deals are executed through the Reuters dealing system, telephones and through brokers. Indian foreign exchange brokers are active in all the major centers countrywide and provide services in the U.S. dollar/rupee as well as major international currency pairs although they link only onshore banks, foreign and Indian. Most major international banking networks are represented by full-fledged branches in India and are active in promoting foreign foreign exchange trading, both interbank and corporate. There has been a perceptible increase in these banks’ commitment to India with the widespread acknowledgement of the country’s potential over the last few years of economic liberalization. A number of new foreign banks and
Indian-owned private banks have also been granted licences in India over the last few years.

Banks in India are only permitted to sell rupees to overseas counter parties they cannot buy rupees. There exists, however an offshore market with limited two-way quoting. The number of banks dealing in the rupee is small.

Prasanna Chandra (2000) presents the major sources of foreign currency finance for Indian firms as: foreign currency term loans from financial institutions, export credit schemes, External Commercial Borrowings, Euro Issues, Foreign Domestic Issues\textsuperscript{103}. Subject to certain terms and conditions, the Government of India permits Indian firms to resort to External Commercial Borrowings. Many Indian companies are raising funds by way of Euro issues. The two principal mechanisms used by Indian companies are Depository mechanism and Euro convertible issues. The former represents indirect equity investment while the later is debt with an option to convert it into equity.

The two most commonly used devices for managing foreign exchange exposures in India are forward market contracts and financial swaps (interest rate swaps and currency swaps).\textsuperscript{104}

\textbf{2.4.3. International Foreign Exchange Models and Their Applicability to India.}

With the integration of financial markets globally, massive volumes of turnover has endowed markets with such might that national authorities seem diminutive in comparison and cannot realistically hope to impose their will on the market. Yet central banks repeatedly intervene in foreign exchange markets, usually, contesting the market view, hoping to nudge the markets in the desired direction. In fact, since 1993, the market based exchange rates have subjected the rupee to closer scrutiny by the RBI, to "lean against the wind" against
speculative attacks and "lean in favour of the wind" in order to ensure soft landing of the exchange rate in the foreign exchange market.

There is no universally accepted definition of foreign exchange intervention as definitions vary depending on the circumstances. Even the absence of the Central Bank form the market against expectations of its presence can be considered intervention if its objective is to influence the exchange rate of one currency against another. According to Kathryn M. Dominguez (1992), "Foreign exchange market intervention has been defined as any transaction or announcement by an official agent of the government that is intended to influence the value of an exchange rate 105." According to Michael Dooley (1983), "Exchange market intervention include any government transaction or set of transactions, that changes the relative supplies of official non-monetary debt denominated in different currencies held by the private sector 106." Central Banks, in managed floating regimes like that of India intervene mainly to reduce volatility and meet the temporary demand and supply mismatches, either by direct participation or by providing signals to the market about the future monetary policy.

Before the outbreak of a crisis, when speculation is feeding upon speculation, Central Bank policies can help protect the economy by measures that bring about a positive change in the sentiments. According to Krugman (1989) ".... Financial markets are not to be trusted – they can drive the exchange rates far from a sensible value, doing real harm in the process 107." The recent East Asian crisis has again demonstrated that markets can be very erratic and can undermine the fundamentals of the country. RBI's role in this regard has been highly commended by no less than IMF. It is understandable from the
above discussion that the role of Central Banks in the process of smoothing volatility and avoiding currency crisis is vital.

It is also felt that since the NEER is more responsive to exports and imports in the country, the RBI should target the NEER instead of the REER, as pointed out by Dr. Bimal Jalan, in his speech at 21st Asia Pacific Congress on December 1, 2000. The RBI intervention is a huge factor in the forming of customer expectations and even the capital inflows react to the intervention of the RBI through its effect on the exchange rates.

Dominguez (1998) has presented studies using data from the 1970s which suggest that intervention operations that do not affect the monetary base have at the most a short-lived influence on the exchange rates. They cannot really support an exchange rate divergent from fundamentals for long or move the rate in the direction that the market thinks is not correct, as the volume of Central bank reserves are very small relative to the foreign exchange market turnover.

It is agreed that for the RBI to be able to intervene, it should have adequate reserves to back-up. However, earlier the reserves were sufficient to back-up seven months imports. At the end of March 1997, the ratio of reserves to short term debt amounted to 25 percent compared to 100 percent for Indonesia and 50 percent for Argentina.

Dr. Bimal Jalan (2000) has pointed out that the concern of countries with flexible exchange rates according to various studies, was psychological- the psychological effect of “all time low,” “weak” etc. has on the common man. Thus by giving the market with new information the Central Bank can signal future monetary policy and hence future exchange rate. As a result, the current exchange rate also changes. This is referred to as the signaling channel.
intervention. It can be effective if the signals have actually lead to indicated action in the past, that is, if the market gives credibility to these indications as also the strength of the Central Bank.

The chapter presented a review of selected literature that addressed the analysis of the foreign exchange risk management issues that have been theoretically and empirically studied. Section one of the chapter dealt with the concepts relating to exchange rate regimes, foreign exchange exposure and foreign exchange risk management and the approaches to foreign exchange risk and the possibilities of analyzing and controlling foreign exchange exposure and risk. Empirical studies on foreign exchange risk management practices were reviewed under section two. The final section elucidated India's foreign exchange market structure, participants and the present scenario of India's foreign exchange system. The study on foreign exchange exposure and risk management in Indian hotel industry becomes meaningful only on a clear understanding of the concept and the industry. While the concept was dealt thoroughly under the chapter, the industry has been presented in the following chapter.

References:


13. Ibid.


17. Ibid.


19. Ibid. p.304.


24. Ibid. p.55

25. Ibid. p.52.


30. Ibid. p.148

31. Ibid. p.174


35. Vinh Quang Tran (1980) "Foreign Exchange Management in Multinational Firms." University of Michigan.


45. Ibid. pp.101-12.

46. Ibid pp.101-12.

47. Ibid pp.101-12.


90. Bank of America, *Corporate America’s Foreign Exchange Risk Management.*


93. John H. Makin and et al. (2001) op.cit


