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FOREIGN EXCHANGE EXPOSURE AND HEDGING PRACTICES IN INDIAN SOFTWARE COMPANIES

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Abstract: The present study explores the strategies employed by Indian software companies to manage foreign exchange (Forex) risk through financial derivatives. Given the global nature of the software industry, Indian firms primarily depend on exports, making them highly susceptible to fluctuations in exchange rates. While Forex risk cannot be completely eliminated, it can be effectively managed using derivative instruments such as forward contracts, options, and swaps. The extent to which a company engages in risk management depends on the size of its foreign currency exposure and the volatility of exchange rates. Effective Forex risk management is crucial for maintaining financial stability, sustaining profitability, and ensuring long-term business growth. This paper aims to bridge the existing research gap by examining how Indian software firms assess and mitigate their Forex exposure through derivative instruments. By documenting industry practices, the study provides valuable insights into the role of financial derivatives in managing currency risk, thereby contributing to the broader discourse on risk management in export-driven industries

Keywords: Forex, risk, derivatives, hedging, exposure, NASSCOM, Exchange rate volatility

I. INTRODUCTION

Success of a business firm having currency exposure largely depends on how effectively it manages foreign exchange risk. Foreign exchange exposure

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management is a multi-staged process that begins with the identification of the exposure foreign exchange exposure. It is then monitored, quantified and corrected on a daily or weekly basis to ensure that the risk profile of the firm remains aligned with the objectives of foreign exchange exposure management. They must regularly enter into hedging strategies that minimize the impact of exchange rate fluctuations on their operating costs.

Foreign exchange risk is commonly defined as the additional variability experienced by a multinational corporation in its worldwide consolidated earnings that results from unexpected currency fluctuations. It is generally understood that this considerable earnings variability can be eliminated – partially or fully– at a cost, the cost of foreign exchange risk management (Jacques, 1981). After the breakdown of the Bretton Woods System of fixed exchange rates in 1973, exchange rate volatility has increased dramatically and unpredictably. The end of the fixed exchange rates and the adoption of floating exchange rates resulted in sharp increases in exchange rate volatility. Exchange rates are typically four times as volatile as interest rates and ten times as volatile as inflation rates (Jorion, P. 1990).

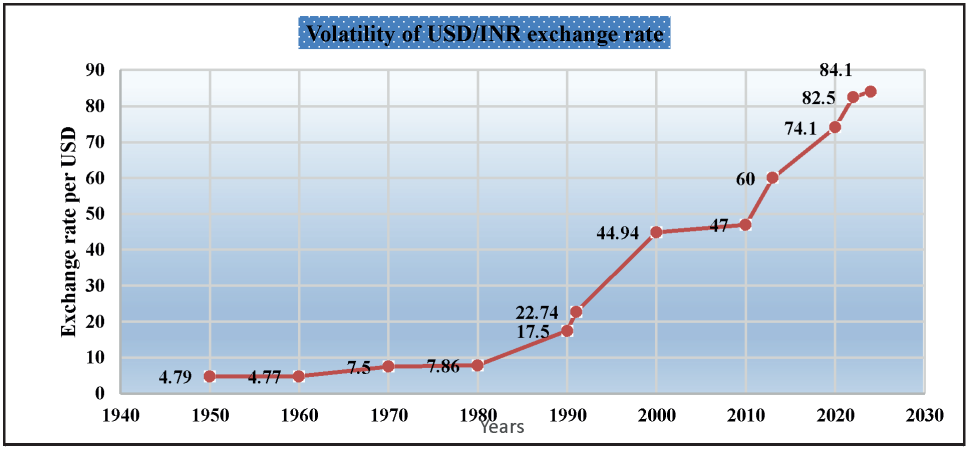

Figure 1: USD/INR Exchange Rate Fluctuation from 1950 to 2024

Source: RBI reference rate

The figure 1 shows the USD/INR exchange rate movement from 1950 to 2014. From the figure it is observed that the currency has witnessed huge volatility in the past. After India's independence, during 1950, one US Dollar

was exchanged for only 4.79 rupees. To finance welfare and development activities, especially with the introduction of the Five-Year Plan in 1951, the government resorted external borrowings. After independence, India had chosen to adopt a fixed rate currency regime. The rupee was pegged at 4.79 against a dollar between 1948 and 1966. Two consecutive wars, one with China in 1962 and another one with Pakistan in 1965, resulted in a huge deficit on India's budget, forcing the government to devalue the currency to 7.57 against the dollar. The Rupee's link with the British currency was broken in 1971 and it was linked directly to the US dollar. In 1975, value of the Indian rupee was pegged at 8.39 against a dollar. In 1985, it was further devalued to INR 12 against a dollar. In 1991, India faced a serious balance of payment crisis and was forced to sharply devalue its currency.

Transactions of business firms with foreign entities could be in the form of exports, imports, borrowing, lending, portfolio investment and direct investment etc. So a firm with any one or more types of transactions is subject to exchange rate exposure. Such massive exchange rate movements affect the value of a firm seriously. The uncertainty of foreign exchange rates in future gives rise to uncertainty about cash flows of a business firm. Indian firms engaged in foreign trade, especially software firms, are prone to exchange rate exposure causing significant damage to their financials because major portion of their earnings (Revenue) is from the export. India‘s software sector is dependent on foreign clients, especially the United States, for more than 70 percent of its revenue. When a software company gets a project from a client, it pre-decides on the length of the contract and the cost of the project. The contracts with U.S. clients are usually quoted in U.S. dollar terms. So, the fluctuation in the exchange rate can bring about a considerable difference in the performance of a company. The excessive usage of USD (which by itself is faced with high degree of volatility in the international currency market) for overseas operations by Indian software enterprises and the excessive volatility of Indian rupee against USD has been resulting in a high degree of currency exposure for Indian software firms.

The uncertainty is nothing but foreign exchange rate exposure or risk. Consequently, firms try to minimize the uncertainty. The process to minimize or eliminate uncertainty is variously referred to as managing or covering or hedging the risk. In order to minimize, if not prevent, these risks, companies

often use financial derivatives. The foreign currency derivatives are one of the sophisticated and efficient tools for management of risks in foreign exchange rate fluctuations. Company may wish to hedge adverse movements of foreign currencies and in doing so use derivatives instruments.

Financial Derivatives means the financial instruments whose value depends on (or derives from) the values of other, more basic underlying variables‖ (Hull, 2006). The underlying variables are financial instruments such as stock, bond, currency, commodity, index or interest rate. For example, in the case of foreign exchange options, the variable is the exchange rate on which the derivative value is based upon. —Many derivatives are designed to be used conservatively, as insurance policies to hedge against possibility of loss in risky business environments (Anon., 2003).

II. REVIEW OF LITERATURE

Jesswein et al, (1993) in their study on use of derivatives by U.S. corporations, categorizes foreign exchange risk management products. They conducted a survey of 1994's Fortune 500 firms and used frequency distribution method. It was found that the use of these risk management products was generally not significantly related to the size of the company, but was significantly related to the company's degree of international involvement.

Anurag Pahuja et al (2012) in their research paper through questionnaire focused on various alternatives available to the Indian corporate for hedging financial risks. 100 individual individuals operating in the state of Punjab were retained for the purpose of analysis. This study identified that a perception with majority of investors is that currency derivatives trading can be used for hedging. The nature of the derivatives instruments are to reduce the risk involved in trading. This study suggested that the investors should be made aware of the various hedging and speculation strategies, which can be used for reducing their risk. Specifically, currency derivatives can help investors to reduce risk and increase profits.

Martin Glaum (1999) reported the findings on questionnaire based empirical study on the exchange risk management practices of large German non-financial corporations, conducted in late 1998 and early 1999 of the 154 companies. The survey results found the majority of the firms are concerned about managing their transaction exposure. Most of the firms adopted a

selective hedging strategy based on exchange rate forecasts. Only few firms do not hedge foreign exchange risk at all, and only few firms hedge their transaction exposure completely.

Manoj and Kaushik (2008) examined role of motivation by the management in foreign currency derivatives usage in corporate India on a nationwide questionnaire-based survey. The study found that most of the respondent firms have documented foreign exchange risk management plans, policies or programmes and transaction exposure as a foreign currency risk was most critical for the firms, followed by translation exposure and economic exposure.

Above studies about forex exposure management concentrate on the foreign corporate firms in developed countries, and not many studies have been attempted on the currency hedging practices on software companies and Studies about the managing forex risk in Indian software IT sectors are almost nil. Therefore, this study is focused on documenting the Managing Forex Risk by using financial derivatives.

III. OBJECTIVES OF THE STUDY

The primary objective of the study is to understand the basics of managing forex risk by using financial derivatives by Indian *Software* firms, specifically with these questions

1. Do the Indian *Software* companies use derivatives to hedge the risks?
2. What are the types of derivative instruments that the companies are using?
3. What are the objectives of using such kinds of derivatives?

IV. SAMPLE AND METHODOLOGY

The present survey was conducted through the use of a questionnaire, which has been collected by the firm's chief finance officer or the finance department of Indian *Software* firms, Sample size of the present study is one hundred and three *Software* firms registered with NASSCOM in the four major *Software* hubs of India. Out of hundred respondents who took part in the survey, fifty three respondent firms are from Bangalore, Twenty eight from Chennai, fifteen from Hyderabad/Secunderabad and remaining four from Pondicherry region. Questions concerning the motives of derivatives use, the risk management

approaches across risk classes, major concerns of derivative users, information on income and level involvement in foreign currencies by Indian *Software* firms.

This study was tested through the use of few basic statistical tools such as percentages, frequencies, and ANOVA method.

V. RESULTS AND DISCUSSION

1. Degree of Indian software firms' managing foreign exchange risk through derivatives

As most of the currencies in which Indian *Software* exports are invoiced (usually US$ and EURO) are highly volatile, exporters face the risk of losing part of their export income due to unexpected and sudden changes in currency values. Usually, if Indian Rupee appreciates, it will be disastrous for the exporters. In the same way, Indian *Software* firms which import software and equipments need to pay more for their imports in foreign currency if Indian Rupee depreciates. This situation is a major threat to Indian exporters as INR is set to float and several exporters quit the business for not knowing how to hedge against this currency risk. Hence, it is very important to understand the firms' level of involvement in managing forex derivatives. The level of involvement in managing forex derivatives determines how seriously the exposure is going to be managed in software firms. Firms enter into different foreign exchange derivative contracts to hedge risks associated with foreign currency fluctuations.

Table 1: Level of involvement in managing forex through derivatives

Level of involvement in managing forex through derivatives	*Frequency*	*Percentage (%)*
Highly involved	21	20
Moderately Involved	55	54
Never Involved	27	26
Total	103	100
Source: Primary Data collected through survey		

Indian *Software* firms' level of involvement in foreign exchange exposure management, it is observed that out of one hundred and three firms, 21 firms expressed that they are 'Highly Involved' in exposure management. 'Highly involved' category of firm use many foreign exchange derivative contracts

(Forward, Future, Option and Swaps) to hedge their exposures on unanticipated movement in foreign exchange rates and they also cover adequate proportion of their forex revenue through exposure management. About 55 firms revealed that they are 'Moderately Involved' in exposure management, meaning that they use any one foreign exchange derivative contract (normally Forward Contract alone) to hedge their exposure on movements of foreign exchange rates. Incidentally, the amount of foreign exchange exposed to risk is also limited. Under the third category on level of involvement in exposure management, 27 respondent firms stated that they are 'Not involved', which means that such firms never attempted to hedge their currency exposure in spite of availability of strong currency derivative market in India. Thus, it can be concluded that majority of the firms (74%) are involved in exposure management and remaining firms (26%) are not involved in exposure management through derivatives for covering their forex risk exposure.

2. Reasons for not involved in foreign exchange exposure management

Software firms expressed that they are not involved in managing forex risk through derivatives. Given the relevance of currency hedging practices in the volatile forex market, it is important to understand why 26% of firms are not involved in foreign exchange exposure management.

Table 2: Reasons for not involved in foreign exchange exposure management

Si no	*Major reasons*	*Frequency*	*Percentage*
1	Currency fluctuation has no significant impact on the firm's cash flows	11	41
2	Risk exposure better managed by operational means such as choice of source of production or location, price strategy etc.,	6	22
3	The cost of hedging is too high	0	0
4	Lack of knowledge and expertise of practicing	10	37
5	Proper currency hedging instruments are not available in the market	0	0
	Total	27	100

Source: Primary Data collected through survey

Out of 27 firms which expressed that they do not engage in any sort of foreign exchange exposure management, from the Table 2, it is observed

that the most important reason (41%) for deciding not to involve in forex management, is that these firms feel that currency fluctuation has no significant impact on their cash flows. The 2nd most important reason (37%) is being that these firms lack knowledge and expertise in handling forex hedging tools and the 3rd most important reason (22%) is that these firms' risk exposure is better managed by operational means like choice of source of production or location, price strategy etc., Out of 27 firms, none of the firms opined that the cost of hedging is too high and none expressed that proper currency hedging instruments are not available in the market as reasons for not involving in currency hedging activity.

3. Currency which significantly exposed to forex risk among Indian Software firms

It is very important to know the number of currencies significantly exposed to the risk among IT firms' before proceeding to study their hedging activity. Identification of number of currencies exposed to risk by Software firms' will helps them to hedge their exposure against movements in foreign exchange rates.

Table 3: Number of currencies significantly exposed to forex risk

Number of currencies significantly exposed to forex risk	*Frequency*	*Percentage (%)*
1-2 currency	16	16
3-4 currency	57	55
Above 5 currency	30	29
Total	103	100
Source: Primary Data collected through survey		

The number of currencies significantly exposed to forex risk in Indian Software firms. Out of one hundred and three respondents, majority of the firms i.e., fifty seven firms (55%) have 3-4 currencies exposed to forex risk and thirty companies (29 %) exposed to more than 5 currencies. Only sixteen firms (16 %) have 1-2 currencies exposed in their overseas operation. Most of the respondent firms expressed that they are exposed to more than three currencies this is because their revenue is dominated by overseas operation involving different currencies across the globe, prominent among those currencies are USD, Euro and GBP.

4. Analysis on preference towards foreign exchange derivative contracts to manage the impact of exchange rate fluctuations among Indian Software firms

In order to hedge the impact of exchange rate fluctuations on firms operating cash flows, firms' use to enter into different currency derivative contracts. To understand the importance firms attach have particular type of derivative contract, firms are asked to rate the contract they use for forex hedging purposes viz., forward, futures, options and swap contracts.

Table 4: Preference towards foreign exchange derivative contracts to manage the impact of exchange rate

Factors	*Forward contract*		*Options contract*		*Future contract*		*Swaps contract*	
	Frequency	*Percentage (%)*	*Frequency*	*Percentage (%)*	*Frequency*	*Percentage (%)*	*Frequency*	*Percentage (%)*
Very Important	65	63	14	14	8	8	4	4
Important	20	19	21	21	8	8	16	15
Somewhat Important	3	3	28	27	12	11	4	4
Not Important	15	15	40	38	75	73	79	77
Total	**103**	**100**	**103**	**100**	**103**	**100**	**103**	**100**

Source: Primary Data collected through survey

The preference of respondent firm towards the usage of foreign exchange derivative contracts to manage the impact of exchange rate fluctuations in their firms. In line with the International practice, 63 % of Indian Software firms considered forward contract as 'very important' for hedging foreign exchange risk. Option contracts are considered as 'very important' by 14% of respondent firms followed by futures and swap contracts 8% and 4% respectively. Similarly, option contracts were considered as 'important' by 21% respondent for hedging followed by, futures and swaps contract at 8% and 15% respondent firms respectively. An important finding from the analysis is that futures and swaps are considered as 'Not important' by 73% and 77% respondents respectively. The preference of forward over futures and options over swaps is quite usual because it is obvious that firms show greater preference to simple contracts rather than complicated derivative instruments. Similarly firms prefer OTC contracts when compared to exchange traded ones. This fact can be attributed

either to the limited availability of currency derivatives in Indian derivative exchange market or to the firms' desire to select derivatives that are adjusted to their needs. A counter argument to the preference towards forward contract is that these derivative contracts do not affect the balance sheet and thus are less visible to higher management or to the internal control mechanism of the firms' (Bodnar / Gebhardt 1998).

In order to investigate whether there is any significant differences with respect to importance of forward contracts among 'Not involved', 'Moderately involved' and 'Highly involved' categories of IT firms.

H0: There is NO SIGNIFICANT DIFFERENCE between Indian Software firms' level of involvement in forex hedging activity and the importance given to the forward contract.

To test the above hypothesis, one-way ANOVA is applied

Table 5: F-Test: Importance of Forward Hedging contract among Indian software companies

Hedging contracts		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig. (P-value)*
Forward contract	Between Groups Within Groups Total	5.864 112.195 118.058	2 100 102	2.932 1.122	2.613	0.078

The Anova test result indicates that there is **no significant difference** among 'Highly involved', 'Moderately involved' and 'Not involved' categories of firms with respect to Forward contract as 'very important' forex hedging contract with F-stat is 2.613, df 2,100, and its P-value is 0.078. As the p-value is above 0.05 level of significance, **null hypothesis is accepted**. Hence, there is NO SIGNIFICANCE DIFFERENCE between Indian software firms' level of involvement in forex hedging activity and the importance given to the forward contract.

VI. CONCLUSION

In this study, we asked many relevant questions relating to managing forex exposure management of software firms in India. This research has revealed some interesting patterns that can influence the company financial stability through forex risk management. It is found that majority of the firms (74%) are involved in hedging activity and remaining firms are not involved in forex exposure

management. it is observed that the most important reason for deciding not to involve in forex management, is that these firms feel that currency fluctuation has no significant impact on their cash flows. Further, it is found that majority of the firms i.e., fifty seven firms have 3-4 currencies exposed to forex risk. Regarding preference towards the usage of forex derivative to manage, 63% of Indian IT firms considered forward contract as 'very important' for hedging foreign exchange risk. About 54% of firms surveyed agreed that their objective towards forex exposure management is 'totally risk averse'. In the future, more research should be carried to assess the trend by using different statistics models such as time-series data with different sectors using derivatives.

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