

FOREIGN EXCHANGE RISK MANAGEMENT PRACTICES - A STUDY IN INDIAN SCENARIO

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ABSTRACT

Indian economy in the post-liberalisation era has witnessed increasing awareness of the need for introduction of various risk management products to enable hedging against market risk in a cost effective way. This industry-wide, cross-sectional study concentrates on recent foreign exchange risk management practices and derivatives product usage by large non-banking Indian-based firms. The study is exploratory in nature and aims at an understanding the risk appetite and FERM (Foreign Exchange Risk Management) practices of Indian corporate enterprises. This study focusses on the activity of end-users of financial derivatives and is confined to 501 non-banking corporate enterprises. A combination of simple random and judgement sampling was used for selecting the corporate enterprises and the major statistical tools used were Correlation and Factor analysis. The study finds wide usage of derivative products for risk management and the prime reason of hedging is reduction in volatility of cash flows. VAR (Value-at-Risk) technique was found to be the preferred method of risk evaluation by maximum number of Indian corporate. Further, in terms of the external techniques for risk hedging, the preference is mostly in favour of forward contracts, followed by swaps and cross-currency options. This article throws light on various concerns of Indian firms regarding derivative usage and reasons for non-usage, apart from techniques of risk hedging, risk evaluation methods adopted, risk management policy and types of derivatives used.

Key Words: Foreign Exchange, Financial Derivatives, Hedging, Risk.

I. INTRODUCTION

The Indian economy saw a sea change in the year 1999 whereby it ceased to be a closed and protected economy, and adopted the globalisation route, to become a part of the world economy. In the pre-liberalisation era, marked by State-dominated, tightly regulated foreign exchange regime, the only risk management tool available for corporate enterprises was, 'lobbying for government intervention'. With the advent of LERMS (Liberalised Exchange Rate Mechanism System) in India, in 1992, the market forces started to present a regime with steady price volatility as against the earlier trend of long periods of constant prices followed by sudden, large price movements. The unified exchange rate phase has witnessed improvement in informational and operational efficiency of the foreign exchange market, though at a halting pace.

In the corporate finance literature, research on risk management has focused on the question of why

firms should hedge a given risk. The literature makes the important point that measuring risk exposures is an essential component of a firm's risk management strategy. Without knowledge of the primitive risk exposures of a firm, it is not possible to test whether firms are altering their exposures in a manner consistent with theory. Recent product innovations in the financial markets and the use of these products by the corporate sector are also examined. In addition to the traditional "physical" products, such as spot and forward exchange rates, the new "synthetic" or derivative products, including options, futures and swaps, and their use by the corporate sector are considered. These synthetic products have their market value determined by the value of a specific, underlying, physical product.

The spurts in foreign investments in India have led to substantial increase in the quantum of inflows and outflows in different currencies, with varying maturities. Corporate enterprises have had to face the challenges of the shift from low risk to high-risk operations involving foreign exchange. There

was increasing awareness of the need for introduction of financial derivatives in order to enable hedging against market risk in a cost effective way. Earlier, the Indian companies had been entering into forward contracts with banks, which were the Authorised Dealers (AD) in foreign exchange. But many firms preferred to keep their risk exposures un-hedged as they found the forward contracts to be very costly. In the current formative phase of the development of the foreign exchange market, it will be worthwhile to take stock of the initiatives taken by corporate enterprises in identifying and managing foreign exchange risk.

II. SIGNIFICANCE OF THE STUDY

India had earlier followed a tightly regulated foreign exchange regime. The liberalisation of the Indian economy started in 1991. The 1992-93 Budget provided for partial convertibility of Indian Rupee in current accounts and, in March 1993, the Rupee was made fully convertible in current account. Demand and supply conditions now govern the exchange rates in our foreign exchange market. A fast developing economy has to cope with a multitude of changes, ranging from individual and institutional preferences to changes in technology, in economic policies, in regulations etc. Besides, there are changes arising from external trade and capital account interactions. These generate a variety of risks, which have to be managed.

There has been a sharp increase in foreign investment in India. Multi-national and trans-national corporations are playing increasingly important roles in Indian business. Indian corporate units are also engaging in a much wider range of cross border transactions with different countries and products. Indian firms have also been more active in raising financial resources abroad. All these developments combine to give a boost to cross-currency cash flows, involving different currencies and different countries.

The corporate enterprises in India are increasingly alive to the need for organised fund management and for the application of innovative hedging techniques for protecting themselves against attendant risks. Derivatives are the tools that facilitate trading in risk.

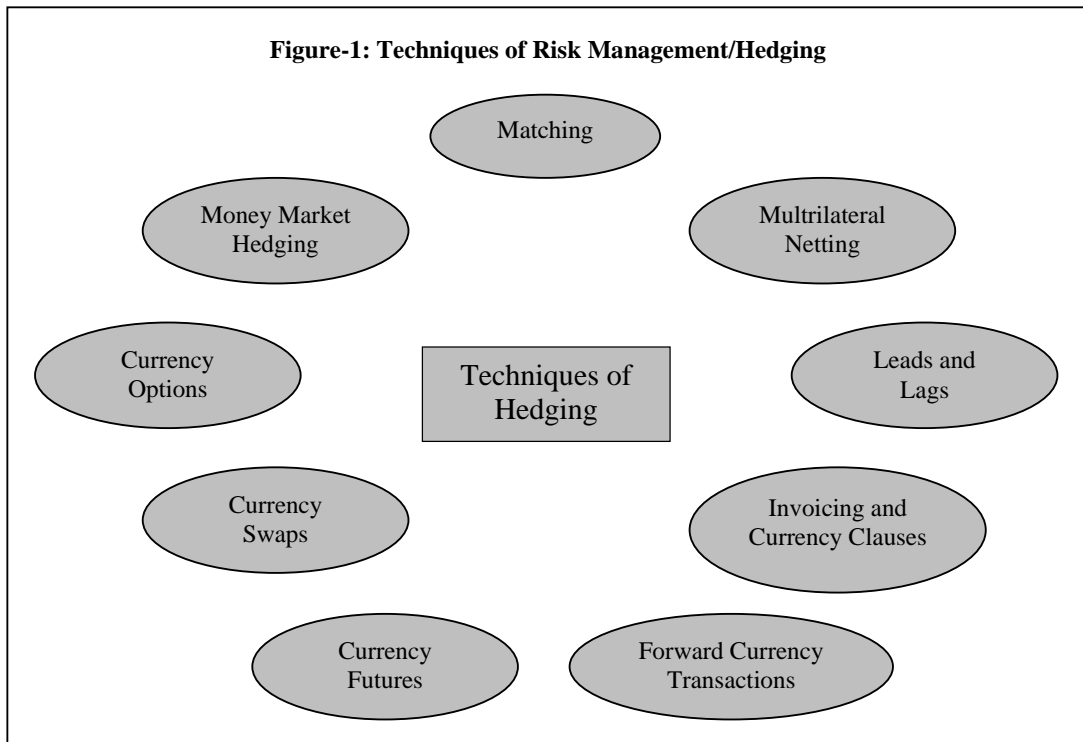
The foreign exchange market is still evolving and corporate enterprises are going through the movements in transition from a *passive* to an *active* role in risk management. There is no organised information available on how the corporate enterprises in India are facing this challenge. It is in this context that a review of the perceptions and concerns of the corporates, in relation to derivatives and of their initiatives in tuning the organisational set up to acquire and adopt the requisite skills in risk management, assumes significance. Appropriate policy and other measures can then be taken to accelerate the process of further development of foreign exchange market and also upgrade foreign exchange risk management (FERM) with higher professionalism and increased effectiveness.

III. OBJECTIVES OF THE STUDY

- a) To ascertain the FERM practices, and product usage, of Indian non-financial corporate enterprises.
- b) To know the attitudes, perceptions and concerns of Indian firms towards FERM.
- c) To understand the level of awareness of derivatives and their uses, among the firms.
- d) To ascertain the organisation structure, policy-making and control process adopted by the firms, which use derivatives, in managing foreign exchange exposure.

IV. CURRENCY RISK MANAGEMENT TECHNIQUES

A firm may choose any one or any set of combinations of the following techniques (Figure-1) to manage foreign exchange rate risks.



i) **Matching**:-Cash inflows in one of the pairing currencies can be offset against cash flows in the others. A firm can balance its receivables and payables in the same currency. Firms may also deliberately influence the balance by arranging short or long term loans or deposits.

ii) **Multi-lateral Netting**:- The netting can be done between inflows and outflows of different currencies arising from cross-border transactions of the different entities in the group. This, of course, requires a comprehensive information system concerning foreign exchange dealings of the group companies.

iii) **Leads and Lags**:- Within the boundaries of the terms of the trading contracts or in keeping with prevailing commercial practices and within the existing regulations, payments to trading partners or foreign subsidiaries, in currencies whose values are expected to appreciate or depreciate, can be accelerated or delayed.

iv) **Invoicing and Currency Clauses**:- Trading companies may, sometimes, have options to invoice their cross-border sales or purchases, in domestic currency, so that the other party absorbs

exchange rate risk. Similar choices of invoicing in third country currencies may also be negotiated with trading partners. There are instances of invoicing in terms of *currency baskets*, comprising a composite index of different national currencies that have been allotted predetermined weights. Judiciously employed, this can help in reducing the impact of volatility of exchange rates.

v) **Forward Currency Transactions**:- This involves an agreement between two parties, a buyer and a seller, to buy/sell a currency at a later date at a fixed price. Forward currency contracts can be easily arranged with banks, which are ADs in foreign exchange. A forward contract has the advantage of locking in the exchange rate at an agreed level, protecting from adverse movement in exchange rates.

vi) **Currency Futures**:- This involves an agreement between two parties, a buyer and a seller, to purchase/sell a currency at a later date at a fixed price, and that it trades on the futures exchange and is subject to a daily settlement procedure to guarantee each party that claims against the other party will be paid. In India, we are yet to have a

futures exchange and clearing house for financial futures.

vii) Currency Options:- Currency options offer the holder the *right*, but not the *obligation*, to buy or sell foreign currency at an agreed price, within a specified period of time. Generally, on most exchanges, options are not constructed on the underlying market, but rather convey the right to buy or sell the futures contract. There can be exchange-traded options as also OTC options.

viii) Currency Swaps:- A financial swap is a transaction in which two parties agree to an exchange of payments over a specified time period. It is ordinarily marked by an exchange of principals, which may be actual or notional. In a cross currency swap, the counter-parties exchange principals in different currencies at an exchange rate that is usually the current spot rate and reverse the exchange at a later date, usually at the same exchange rate.

ix) Money Market Hedging:- Companies that have need to raise medium term foreign currency loans should explore the possibility of reducing currency risk by raising them in currencies in which they have medium term exposure in terms of receivables and assets in these currencies.

V. REVIEW OF LITERATURE

Collier and Davis (1985) in their study about the organisation and practice of currency risk management by U.K. multi-national companies. The findings revealed that there is a degree of centralised control of group currency risk management and that formal exposure management policies existed. There was active management of currency transactions risk. The preference was for risk-averse policies, in that automatic policies of closeout were applied.

Batten, Metlor and Wan (1992) focussed on foreign exchange risk management practice and product usage of large Australia-based firms. The results indicated that, of the 72 firms covered by the Study, 70% of the firms traded their foreign exchange exposures, acting as foreign exchange risk bearers, in an attempt to optimise company returns. Transaction exposure emerged as the most relevant exposure.

Jesswein et al, (1993) in their study on use of derivatives by U.S. corporations, categorises foreign exchange risk management products under three generations: Forward contracts belonging to the *First Generation*; Futures, Options, Futures-Options, Warranties and Swaps belonging to the *Second Generation*; and Range, Compound Options, Synthetic Products and Foreign Exchange Agreements belonging to the *Third Generation*. The findings of the Study showed that the use of the third generation products was generally less than that of the second-generation products, which was, in turn, less than the use of the first generation products. 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.

Phillips (1995) in his study focused on derivative securities and derivative contracts found that organisations of all sizes faced financial risk exposures, indicating a valuable opportunity for using risk management tools. The treasury professionals exhibited selectivity in their use of derivatives for risk management.

Howton and Perfect (1998) in their study examines the pattern of use of derivatives by a large number of U.S. firms and indicated that 60% of firms used some type of derivatives contract and only 36% of the randomly selected firms used derivatives. In both samples, over 90% of the interest rate contracts were swaps, while futures and forward contracts comprised over 80% of currency contracts. Hentschel and Kothari (2000) identify firms that use derivatives. They compare the risk exposure of derivative users to that of nonusers. They find economically small differences in equity return volatility between derivative users and nonusers. They also find that currency hedging has little effect on the currency exposure of firms' equity, even though derivatives use ranges from 0.6% to 64.2% of the firm's assets. Our findings are very important since no previous work has examined the FERM practice in Indian context. This study will be a pioneering attempt in Indian scenario and first of its kind to survey the Indian companies and their risk management practices.

VI. METHODOLOGY OF THE STUDY

An exploratory survey, by way of extensive literature review of books, journals and other

published data related to the focus of the study, as also concerned websites, was carried out to gather background information about the general nature of the research problem.

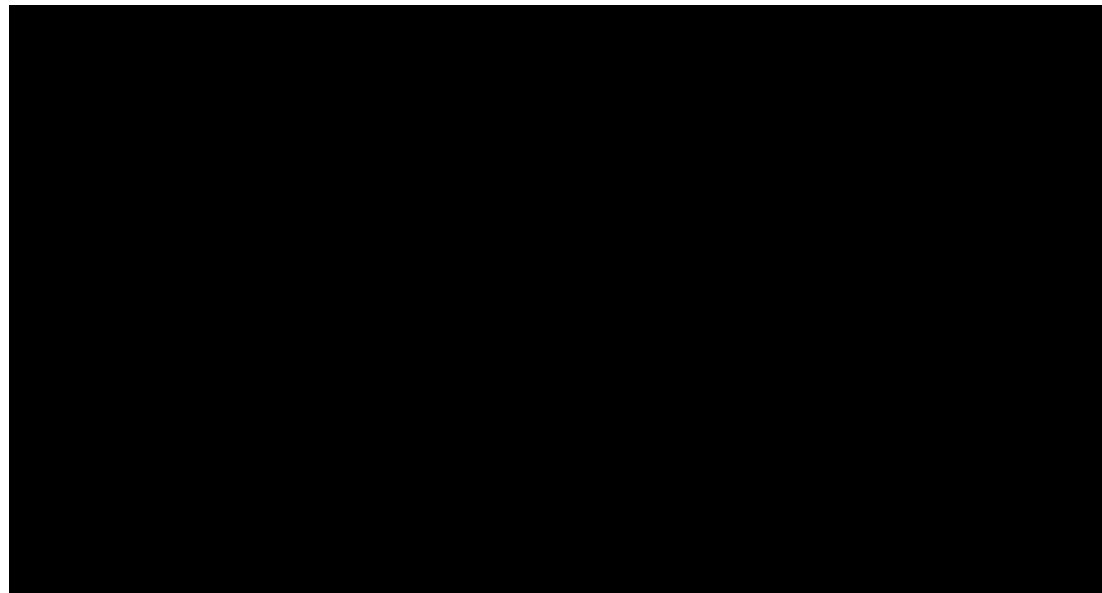
A. Sources of Data

The main part of the Study deals with Indian corporate enterprises' awareness of and attitudes to foreign exchange risk exposure. The required data was collected through the pre-tested questionnaire administered on a judgement sample of 501 corporate enterprises, located in different parts of the country. The administration of the questionnaire was done through multiple channels, which included surface mail, e-mail and personal involvement. Information relating to contemporary practices abroad was obtained from published sources such as journals, reports, and from related websites.

B. Sample for the Study

The survey was accomplished with the pre-tested questionnaire administered on 501 corporate enterprises in India (banks and subsidiaries of foreign multi-nationals not included), having foreign exchange exposure. A combination of simple random and judgement sampling was used for selecting the corporate enterprises for the exploratory Study. As against the 850 questionnaires circulated, 588 responses were received. Of these, 37 had to be eliminated, as they

were incomplete in many respects. The respondents are spread over 18 different major industry classifications. The sample covers both old economy corporates like Manufacturing, Minerals, Trade, Oil etc., and new economy corporates including Information Technology (IT), Information Technology Enabled Services (ITES), Business Process Outsourcing (BPO) etc., and they vary notably in size. The respondents to the questionnaire are financial executives with responsibility for FERM and for hedging foreign exchange risk exposure by use of derivatives. The Study is exploratory in nature and aims at an understanding of the risk appetite and FERM practices of Indian corporate enterprises. It also embraces an understanding of the policy or other constraints or impediments faced by the enterprises in managing foreign exchange exposure. The Study has its focus on the activity of end-users of derivatives and, hence, is confined to non-banking corporate enterprises. Since banks both use and sell derivatives, they have not been included in the scope of the Study. Risk management practices of Indian subsidiaries of MNCs are determined by their parent companies and, hence, they do not form part of this Study. In analysing the responses, the Microsoft Excel Spreadsheet and the Statistical Package for Social Sciences (SPSS) have been used. Factor Analysis, using Principal Component Method, was done wherever there was need to reduce variables into factors. Correlation analysis was also done, as needed.



VII. RESULTS AND FINDINGS OF THE STUDY

A. Profiles of Respondents

The enterprises covered in the sample are from 18 categories of industries (Figure-2). Four sectors including Paints, Print Media, Gems and Jewellery, and Textiles did not respond. Thus, the Study covers responses from 501 enterprises. The sizes of the enterprises, in terms of turnover as well as international involvement (expressed as the sum of values of imports and exports and external commercial borrowings) varied considerably. Maximum number of responses came from the IT

category, reflecting the dominance of international transactions in that sector. The foreign transactions were mostly denominated in US dollars, with Euro, Pound Sterling, Japanese Yen, Swiss Franc and Deutsche Mark following in that order.

B. Use of Derivatives

Among the 501 respondents (Figure-3), 266 companies (53%) reported using derivatives and the others are not using derivatives. Quite a few returned the questionnaire blank, with the apology that they are not using derivatives. It seems many enterprises are yet to tune in to the need for planned management of exchange risk exposure.

Factor Analysis reveals that the main factor responsible for non-use of derivatives is *confused perceptions of derivatives use*, with its components, concerns about the appropriateness of derivatives in specific situations, risk of the products and general reluctance and fear. Then comes the *technical and administrative* factor comprising difficulty in pricing and policy constraints, followed by the *cost effectiveness* factor which questions the utility of derivatives, given the high costs involved.

As to the nature of the transactions that are considered for hedging, the responses indicate that hedging is resorted to mostly in respect of transactions involving contractual commitments, rather than foreign repatriations. There also seems to be a preference to restrict the hedging horizon to less than a year.

Even among the users of derivatives (Figure-4), the concerns or anxieties about their use arise on

several counts. Factor analysis of these, reduced them to four factors:

- (i) **Confused perception**, including lack of clarity about investor expectations, difficulties in pricing and valuing, difficulties in evaluating the risk and lack of understanding as to how to monitor and evaluate hedging outcome.
- (ii) **Policy and legal issues**, covering assessment of credit risk, inadequate support from the Board, tax and legal considerations and disclosure requirements.
- (iii) **Monetary considerations**, concerned with transaction costs and liquidity problems.

(iv) **Lack of adequate knowledge** about the use of derivatives.

65% of the respondents were of the view that enough range of derivative instruments are not available yet. This has the effect of restricting arbitrage opportunities. A good majority felt the need for Rupee-Dollar Options (not in vogue at the time they responded to the questionnaire, but subsequently introduced in July 2003), while others wished that Exchange-Traded Futures were available.

From the above, it can be seen that the Indian corporate enterprises are somewhat halting in their approach to the use of derivatives.

C. Why do Companies Hedge?

Responding to the question as to why companies' hedge, the most important reason adduced is '**to reduce the volatility of the cash flows**'. Next in importance comes, '**maximising share holder value**' and then, '**reducing volatility of reported accounting earnings**'.

D. What Risks are Hedged?

Predominantly derivatives are used to hedge currency risk. Next in importance comes interest rate risk and to a small extent equity risk.

E. Types of Derivatives Used

The First generation derivatives instruments are the most popular, the greatest preference being for simple Forward contracts. This is followed by Second-generation instruments, namely Swaps and Futures. Some corporates also used structured derivatives, which come in the Third Generation category. The Rupee-Dollar Options would have been largely preferred, but they were not available at the time of response to the questionnaire.

F. Techniques of Hedging

Among the internal techniques, the *natural hedge* is the most chosen option indicating the desire of the corporates, to match to the extent possible, their foreign currency outflows and inflows. To a lesser extent, internal techniques of leads and lags are also used.

As for the external techniques, the preference is mostly in favour of *forward contracts*, followed by swaps and cross-currency options. (It may be noted that at the time the questionnaire was administered, Rupee-Dollar Options was not in existence).

G. Risk Management Policy and Guidelines

On the question of the choice between 'hedging partially', 'hedging fully', or 'not hedging at all', the majority of the corporates (71%), are in favour of an open-ended hedging policy (hedge partially) preferring to watch and take action. 20% of the respondents say they hedge fully and 9% of them choose not to hedge at all.

Regarding risk management policy and guidelines, 50% of the responses confirm that they have a written policy. Among the others, many state that they are in the process of framing a written policy and relevant guidelines.

In most cases, the policies are evolved and approved by the Board of Directors (BOD), or by a specially appointed Executive Committee (EC). In a large number of instances (42%), the risk management decisions are taken at the level of the EC and, in most other instances (35%), these decisions are taken by the Treasurer. Only in a limited number of instances (19%), does the BOD get involved in the day-to-day decisions on risk management. 70% of the respondents say that their risk management policies are structured in a strategic framework and almost the same percentage of respondents confirm that the risk management policy is framed independently, without reference to the hedging policy of the competitors. However, 30% of the respondents do take note of the policies of the competitors, while framing their own risk management policies.

50% of the respondents have a flexible posture on the role of the top management in analysing the foreign exchange exposure. They react to emergencies as and when needed. 40% of the respondents meet formally every quarter to analyse and take note of their underlying exposures. 46%

of the respondents prefer to review their risk management policy on an ad-hoc basis, as and when needed. 24% of them have a quarterly review and 20%, a monthly review. 60% of the respondents prescribe an upper limit up to which a treasurer can trade in derivatives. A majority of the respondents make changes in their hedging strategies, in response to fluctuations in the exchange rates.

H. Role of the Treasury Department

The Treasury Department plays a significant role in overseeing and/or executing the risk management function. 40% of the respondents consider their treasury department to be 'service centres'. 28% of them view the treasury department as a 'cost centre'. Only 20% of the respondents consider their treasury departments to be profit centres. Those who regard their treasury department as profit centres, trade almost all in forward contracts, preferring to book the contracts, wait and watch the movements of the exchange rates, cancel the bookings and then rebook again. This may undergo a change, with the current availability of rupee-dollar options. Cross-currency options and swaps are also often utilised for speculation.

Only 20% of the respondents, who define their treasury department as profit centres, engage in pure speculation involving positions unrelated to their underlying exposures. The others maintain their positions related to their underlying exposures, watch the exchange rate movements and hedge with an eye on profits. The experiences on Treasury Department's functioning as a profit centre present a mixed picture. Many firms have reported moderate to substantial gains due to treasury department's actions and decisions with an eye on income / wealth generation. Some have also conceded that their positioning proved wrong occasionally, but they were successful in timing the market on several occasions, resulting in handsome profits. Over 90% of the respondents have less than 5 people in charge of risk management in their treasury department.

I. Dependence on External Services

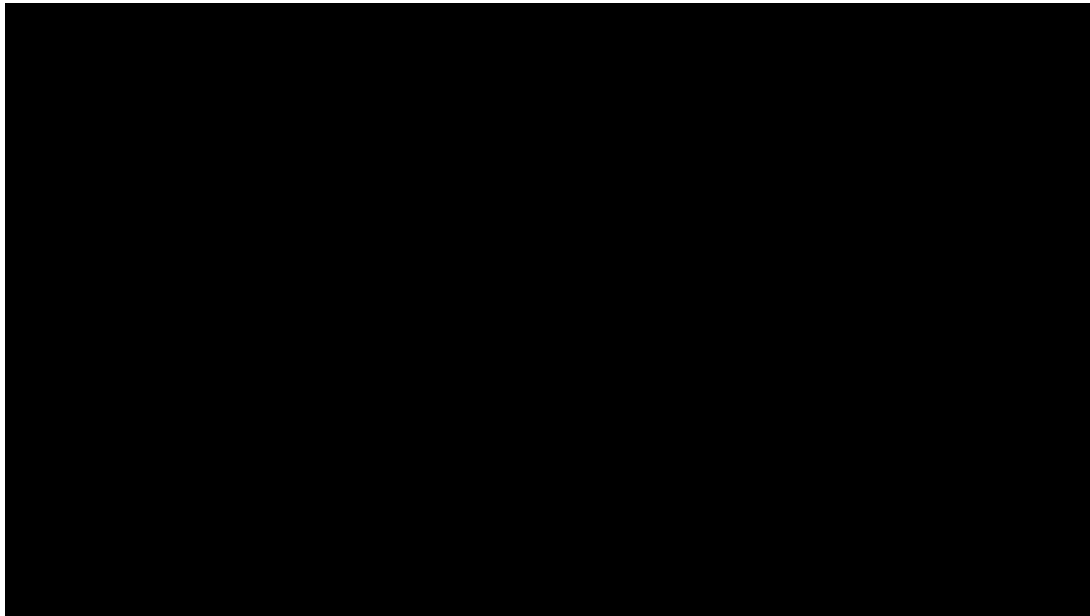
Market quote services appear to be the major reference point for exchange risk management decisions. There is also notable dependence on the dealers from whom the derivatives were bought, for guidance in risk management. Accounting firms

seem to be the least preferred. 90% of the respondents are happy with the expertise that is outsourced. This may be an indication of the inadequacy of in-house talent, in managing exchange rate exposure. Or, it may be that outsourcing advice is found to be less expensive and more effective. Factor analysis has short-listed three factors as the sources of guidance in exchange risk management. They are, in the order of priority, '**derivatives dealers**', '**consultancies**' and then, '**in-house expertise**'. Banks, by virtue of their active involvement in selling derivative products, have an edge over other agencies, in being able to provide specialised information, relevant to foreign exchange risk management.

J. Review and Performance Measurement

As shown in Figure- 6, about 60% of the

respondents have a working system of review of the performance of the treasury department. Value-at-Risk (VAR), Stress or Scenario Test and Price Value of a Basis Point are among the tools widely used for evaluating the risk associated with usage of specific derivatives. 34% of the respondents that use derivatives do not have a system of evaluating risks. VAR technique was the preferred method of risk evaluation by maximum number of Indian corporate. Providing information on the use of derivatives, in the published financial statements, is not yet mandatory in India. 51% of the respondents do not make any mention about the use of derivatives, in their annual reports. 22% of them provide a brief summary, 19% of them make a mere mention and 8% of the respondents report in detail. Further, 93% of the respondents feel happy with their respective risk management practices.



VIII. CONCLUSIONS

The advent of Globalisation has witnessed a rapid rise in the quantum of cross border flows involving different currencies, posing challenges of shift from low-risk to high-risk operations in foreign exchange transactions. The Study covers a sample of 501 corporate falling in 18 different categories. 53% of the respondents are using derivatives. The non-users of derivatives have cited *Confused Perceptions* of derivatives use, *Technical and Administrative Constraints*, and *Fear of High Costs*

of derivatives as reasons for not using derivatives. Even the users of derivatives have concerns arising from *Confused Perceptions regarding investor expectations, Pricing and Hedging*; they have *Policy and Legal* issues to be sorted out; *Monetary considerations* involving transaction costs and liquidity problems also pose some anxiety. Quite a few do not have adequate knowledge of the use of derivatives.

Reduction in the volatility of cash flows is the main reason for hedging. Hedging is mostly with

reference to Currency risk, next in importance being Interest Rate risk and, marginally, Equity risk. The greatest preference is for simple Forward Contracts. Swaps, and Cross Currency Options are moderately used. 40% of respondents consider the treasury department as a 'Service Centre', 28% as a 'Cost Centre', and 20% as a 'Profit Centre'. There is a noticeable preference for outsourcing advice for managing currency risk exposure. In most cases, Banks provide the necessary expertise and advice. A majority of the respondents have in use, a working system of performance review. They employ tools such as Value-at-Risk, Stress or Scenario Test, etc., for evaluating risk associated with usage of specific derivatives. The Currency Risk Management practices in India are evolving at a slow pace. At the Policy, Reporting, and Operational levels, there is need for a greater sense of urgency in developing foreign exchange market fully and using the hedging instruments effectively.

The framework developed in this research is based on a mental model of a medium-to-large manufacturing company producing industrial components, as perceived by the researcher. The complex nature of the relationship between the 'risk elements' and 'decision variables' may often be beyond human comprehension without the aid of special diagnostic and analytical tools. Decisions and actions in the area of FERM may have impact on other segments and activities in the enterprise. A larger interactive model capable of embracing all facets of enterprise-wide risk management needs to be developed. This is an area of further enquiry.

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