

A STUDY ON CURRENCY DERIVATIVES IN INDIA - AN EVIDENCE FROM FMCG SECTOR

Prakash Basanna*, K. R. Pundareeka Vittala**

Abstract *Foreign Exchange Risk management (FERM) involves using both internal and external techniques such as forwards, futures, options and swaps which are called as currency derivatives. The firms with greater growth opportunities and tighter financial constraints are more inclined to use currency derivatives. Forex market provides various derivative instruments to hedge against currency exposures such as currency forwards, options, futures and swaps. The current paper aims at studying various FERM Techniques used in the Indian FMCG sector and its impact on exchange gain/losses. For this purpose, foreign exchange cash flows arising out of imports and exports and exchange gain/losses of the companies during 2010-2017 of seven sample companies chosen from the FMCG sector is used. It is observed from the study that only two currencies-USD and EUR hold command in the Forex market and other currencies are being used minimally. It is also noted that there are several currency derivatives available to the business firms such as forwards, futures, options, swaps etc. for hedging currency exposure. However, among all these techniques forward contract is considered to be an effective hedging tool and easier to understand.*

Keywords: *Exchange Inflows and Outflows, Forex, Forwards, Futures, FMCG Sector*

INTRODUCTION

There has been a tremendous growth in International trade after World War-II. During this period, efforts were made to facilitate free flow of goods and services across the world. As a result, world trade grew at a faster rate. When a company has multinational operations its receivables and payables are denominated in a foreign currency which is subject to currency exposure. It is Foreign Exchange Risk management (FERM) which helps to hedge foreign currency receivables and payables. FERM involves using both internal techniques such as selection of the right currency for invoicing, prepayment and delayed payments of payables, post payment of receivables, judicious matching of imports and exports and external techniques such as forwards, futures, options and swaps which are called as currency derivatives. The firms with greater growth opportunities and tighter financial constraints are more inclined to use currency derivatives. German and US firms prefer OTC instruments like swaps, options and forwards. Between options and forwards, the latter is used more unless the exposure is for a longer period.

The Indian pharmaceutical industry is the third major in terms of size and thirteenth prime in terms of worth, as per a report by Equity Master. India is the major supplier of generic drugs which represents 20 per cent of global

exports in terms of volume. Currently over 80 per cent of the antiretroviral drugs used universally to encounter AIDS are delivered by Indian medicinal firms. India continued its top position over China in pharmaceutical exports with a year-on-year growth of 11.44% to US\$ 12.91 billion in FY 2015-16. The Indian pharma industry is likely to grow to US\$ 55 billion by 2020 thereby evolving as the sixth pharmaceutical market globally.

REVIEW OF LITERATURE

The researcher has conducted host of literature survey on the current topic of the study a sample of which is presented below.

Belk, P. A and Glaum, M. (1990) concludes with hesitations due to the limited nature of the study, that accounting exposure was managed actively by the mainstream of respondents, that transaction exposure management was perceived as the centrepiece of their foreign exchange risk management and that the management of economic exposure was subject to very varied practices. Further, the surveyed MNCs showed a lower degree of concentration than could have been anticipated on the basis of the relevant literature, and the majority of respondents described their companies as 'totally risk averse'. Makar and Huffman (1997) examined use of

* Professor & Head, Department of Management Studies & Research, Nagarjuna College of Engineering & Technology, Bengaluru, Karanataka, India. Email: yaragolpb@gmail.com

** Professor & Head, P.G. Department of Commerce, Presidency College, Bengaluru, Karnataka, India. Email: vitalramu@gmail.com

currency derivatives by US multinationals facing potentially significant economic and transaction exposure. The results indicated that currency derivatives use was positively associated with foreign currency exposure. Moreover, there was evidence that these results were not sensitive to industry membership or other differences across firms and reporting years. Evidence of the use of multiple hedging techniques was also provided. Lacina (2000) observed that the currency risk is identified with statistical quantities which summarize the probability that the actual domestic purchasing power of home or foreign currency on a given future date will differ from its originally anticipated value. Exposure in contrast should be defined in terms of what one has at risk. The proper understanding of both terms is crucial for effective foreign exchange management. Davies, Eckberg and Marshall (2006) examined *foreign exchange* hedging strategies used by Norwegian exporting firms to provide empirical evidence on the determinants of the hedging decision. It is argued in the study that empirical evidence on the theoretical determinants cannot be generalized to cover the full range of foreign exchange hedging strategies. The evidence also suggests that country-specific factors may play a role in determining the use of foreign exchange hedging. Anand and Kaushik (2008) examined reasons for using foreign currency derivatives in corporate India and found that reducing fluctuations in profit after tax, cash flows and the cost of capital and thus increasing value of the firm are the major reasons motivating the firms to use foreign currency derivatives. It was also observed that the firms with a high degree of debt-equity ratio are more likely to use foreign currency derivatives. It was further observed that transaction exposure is more critical to the firms followed by translation exposure manifested by a moderate degree of risk and economic exposure manifested by a low degree of risk. Sivakumar and Sarkar (2008) evaluated various alternatives available to the Indian corporates for hedging financial risks and found that most Indian firms use forwards and options to hedge their foreign currency exposure. This is due to the fact that their cost being denominated in Indian Rupees and absence of Rupee futures exchange in India and curbs on foreign debt. It also follows that most of these firms exporters are being adversely affected by the appreciation of local currency. Dash, Mihir and Madhava, Akshay (2008) observed impact of INR/USD exchange rate variability on the Indian IT sector as a total and reviewed the diverse types of strategies implemented by IT companies to alleviate this impact. The outcome of the study showed that FOREX exposure was exclusively shocking for a small fraction of small-cap IT companies. The mid-cap and large-cap IT companies had moderately low to moderate exposure levels.

After going through an exhaustive review of literature it is found that there is a little research on finding whether or

not currency derivatives are being used and which currency derivatives are being used by Indian businesses firms. In the light of this gap the researcher felt the need of research to be undertaken and chosen the topic entitled 'A Study on Currency Derivatives in India - An Evidence from FMCG Sector' for the current study.

OBJECTIVES OF THE STUDY

The researcher has set the following objectives to fill the existing research gap.

- To examine whether foreign exchange exposure among the companies remains uniform or not irrespective of size of the firm.
- To examine whether foreign exchange exposure, exchange inflow and out flow wholly has an impact on exchange gain/losses.
- To examine whether choice of currency derivatives is independent of factors like exchange gain/losses, exchange inflow and outflow, net exposure, revenue, net profit and number of currency exposed to.
- To examine whether foreign exchange losses can be substantially minimised through currency derivatives and multiple currency invoicing.

RESEARCH METHODOLOGY

The current study follows analytical research as it analyses the causes of foreign exchange losses encountered in FMCG sector and use of currency derivatives to minimize the exchange losses. The current study is based on secondary data collected from the annual reports and official websites of the companies chosen for the study. The data consists of foreign exchange cash flows arising out of imports and exports and profitability of the companies during 2010-11 to 2016-17. To have equal representation seven companies are chosen on the basis of market capitalization ranging from large cap to small cap. These are: i) Bajaj Corpn. Ltd. 2) Colgate Palmolive India Ltd, 3) Dabur India Ltd, 4) Emami Ltd., 5) Godrej India Ltd, 6) Hindustan Unilever Ltd. and 7) Marico India Ltd.

Statistical Tools Used

The researcher has used various statistical techniques such as ANOVA, Multiple Regression based predictive analysis model F test Descriptive statistics tools etc. ANOVA is used to verify whether the exchange exposure remained uniform or different across the companies chosen for the study. Multiple regression analysis is used to examine whether the choice of derivative instrument is the function of exchange

losses, currency denominated, exchange exposure etc. to examine whether the derivative usage and multiple currency invoicing has reduced the exchange.

Hypotheses

The researcher has set four hypotheses, as given below, in line with the objectives designed for the current study.

H_{a1}: Foreign exchange exposure among the companies in FMCG sector remains uniform irrespective of size of the firm.

H_{a2}: Foreign exchange exposure has bearing on exchange gain/losses of the companies to the greater extent.

H_{a3}: Choice of currency derivatives is independent of factors like exchange losses, exchange inflow, exchange outflow, net exposure, revenue, net profit and number of currency exposed to.

H_{a4}: Foreign exchange losses can be substantially minimised through currency derivatives and multiple currency invoicing.

LIMITATIONS OF THE STUDY

The current study is subjected to the following limitations.

- The current study is confined to secondary data obtained from annual reports of respective company.
- Only the companies listed in BSE and NSE have been considered for the current study.
- The current study pertains to the period of seven years commencing from FY2010 to FY 2017.
- Only external techniques of currency derivatives used by the companies are considered for the analysis.

RESULTS AND DISCUSSION

In this section, the revenues, foreign exchange inflows and outflows, net exposure and its impact on exchange gain/losses and profitability of the companies chosen for the current study is analyzed. Net Exposure is the difference between exchange inflow and exchange outflows and Exchange Gain/loss is the sum of international transaction gain/loss after converting into domestic currency and recorded in the financial statements as per IndAS-21(Old AS-11) under the title 'The Effects of changes in the Foreign Exchange Rates'.

Table 1: Table showing Statistical Results of Foreign Exchange Operations of Bajaj Corporation Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	4307.6	56.73	5.05	51.68	0.26	972.2	0.15
Mean	615.38	8.1	0.72	7.38	0.04	138.9	0.02
SD	231.06	8.01	0.61	8.19	0.1	44.09	0.06
Range	605.3	20.64	1.7	22.08	0.34	112.4	0.2
Min	299.71	1.55	0.3	-0.25	-0.09	83.91	-0.06
Max	905.01	22.19	2	21.83	0.25	196.4	0.14
Derivatives Used				Un-Hedged			
Currencies of Operations				USD and EUR			

Source : Compiled from annual reports of Bajaj Corporation Ltd.

Bajaj Corporation Ltd. is engaged in the business of hair oil and cosmetic products, having operations in international and domestic markets. It has international operations denominated only in USD and EUR and did not use any hedging technique (i.e. un-covered). Table 1 exhibits statistical results of foreign exchange operations of Bajaj Corporation Ltd. during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹56.73 Cr and ₹5.05 Cr respectively and total

revenue was ₹4307.6 Cr. This resulted in a favourable net exposure of ₹51.68 Cr which is just 1.20% of total revenue earned by the company. The total exchange gain was reported just ₹0.26 Cr. and the average net exchange gain was ₹0.04 Cr which is 0.029% of net profit. Favorable exchange exposure and very small exchange difference on net profit resulted in keeping their exchange receivable and payables un-covered.

Table 2: Table Showing Statistical Results of Foreign Exchange Operations of Colgate Palmolive Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	22193	617.4	4179.3	-3561.85	-3.94	3444	-0.64
Mean	3170.4	88.2	597.04	-508.84	-0.56	492.1	-0.09
SD	827.9	18.79	186.98	179.02	1.97	69.21	0.44
Range	2141	49.62	468.59	432.45	6	173.9	1.38
Min	2060.9	63.84	375.43	-736.54	-2.98	402.6	-0.67
Max	4201.9	113.5	844.02	-304.09	3.02	576.5	0.71
Derivatives Used	Forward contract						
Currencies of Operations	USD, EUR, GBP, CHF and SEK						

Source: Compiled from annual reports of Colgate Palmolive Ltd.

Colgate Palmolive Ltd. is in the business of making tooth paste, powder and tooth brush, having operations in international and domestic markets. It has international operations denominated in USD, EUR, GBP, CHF and SEK and used only forward contract to hedge the currency exposure. Table 2 exhibits statistical results of foreign exchange operations of Colgate Palmolive Ltd. during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹617.4 Cr and

₹4179.3 Cr respectively and total revenue was ₹22193 Cr. This resulted in a net exposure of ₹3561.85 Cr. (i.e. adverse) which is 16.05% of total revenue earned by the company. The total exchange loss was reported 3.94 Cr. and the average net exchange loss was 0.56 Cr, which is just 0.09% of net profit. Adverse exchange exposure and very small exchange difference on net profit has resulted in using only forward contract.

Table 3: Table Showing Statistical Results of Foreign Exchange Operations of Dabur India Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	43101	1291	405.36	885.43	-27.47	5711	-3
Mean	6157.2	184.4	57.91	126.49	-3.92	815.8	-0.43
SD	1955	47.26	45.16	60.05	10.6	275.4	1.17
Range	5234.6	134.1	128.28	185.26	31.73	751.4	3.84
Min	3438.7	123.7	24.74	35.18	-17.18	501.3	-2.25
Max	8673.3	257.9	153.02	220.44	14.55	1253	1.59
Derivatives Used	Forward contract						
Currencies of Operations	USD, EUR, GBP and AUD						

Source: Compiled from annual reports of Dabur India Ltd.

Dabur Ltd. a world largest Ayurveda product company is engaged in the business of hair oil and cosmetic products. It has international operations denominated in USD, EUR, GBP and AUD and used only forward contract to hedge from currency exposure. Table 3 exhibits statistical results of foreign exchange operations of Dabur Ltd. during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹1291 Cr and ₹405.36

Cr respectively and total revenue was ₹43101. This resulted in a favourable net exposure of ₹885.43 Cr which is 2.05% of total revenue of the company. The total exchange loss was reported 27.47 Cr. and the average net exchange loss was 3.92 Cr which is just 0.48% of net profit. Favourable exchange exposure and meagre amount of exchange difference on net profit has resulted in using only forward contract to hedge currency exposure of the company.

Table 4: Table Showing Statistical Results of Foreign Exchange Operations of Emami Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	12443	643.6	257.99	385.59	-20.27	2219	-4.72
Mean	1777.6	91.94	36.86	55.08	-2.9	317	-0.67
SD	566.94	11.74	23.68	20.18	11.32	108.3	3.85
Range	1611.3	30.8	67.73	60.35	29.91	315.9	12.09
Min	1046.3	71.16	20.67	13.56	-18.1	169.7	-6.93
Max	2657.6	102	88.4	73.91	11.81	485.6	5.16
Derivatives Used	Forward contract						
Currencies of Operations	USD & EUR						

Source: Compiled from annual reports of Emami Ltd.

Emami Ltd. producer of well-known brands like Navarathna oil, Zandu Balm, Mentho Plus and Fair and Handsome has international operations denominated in USD and EUR and used forward contract only to hedge from currency exposure. Table 4 exhibits statistical results of foreign exchange operations of Emami during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹643.6 Cr and ₹257.99 Cr respectively and total revenue was ₹12443 Cr. The net exposure remained

favourable throughout the period which was ₹385.59 Cr. During the period its revenue was enhanced from minimum of ₹1046.30Cr to maximum of ₹2657.60 Cr, with CAGR 14.24%. The total exchange loss was reported ₹20.27 Cr. and the average net exchange loss was ₹2.90 Cr which is just 0.67% of net profit. Favorable exchange exposure and meagre amount of exchange difference on net profit made the company to use only forward contract to hedge currency exposure.

Table 5: Table Showing Statistical Results of Foreign Exchange Operations of Godrej Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	42219	1323	1550.1	-227.5	-52.7	5163	-5.43
Mean	6031.3	188.9	221.44	-32.5	-7.53	737.6	-0.78
SD	2572	99.26	52.01	75.26	19.09	253.8	2.75
Range	6961.8	340.1	131.43	214.77	47.86	779.5	7.14
Min	2088	32.04	159.11	-127.07	-32.78	339.6	-4.12
Max	9049.8	372.2	290.54	87.7	15.08	1119	3.02
Derivatives Used	Forward contract						
Currencies of Operations	USD, EUR, SGD, GBP, ZAR, JPY, CNY, HKD, VND						

Source: Compiled from annual reports of Godrej Ltd.

Godrej Ltd. a maker of household and personal care products has international operations denominated in USD, EUR, SGD, GBP, ZAR, JPY, CNY, HKD and VND and used only forward contract to hedge from currency exposure. Table-5 exhibits statistical results of foreign exchange operations of Godrej Ltd. during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹1323 Cr and ₹1550.1 Cr respectively and total revenue was ₹42219 Cr. This resulted in a net exposure of -₹227.5 Cr

(i.e. adverse) which is just 0.54% of total revenue earned by the company. During the period it posted average revenue of ₹6031.3 Cr, mean exchange inflow of ₹188.9 Cr. During the period the total exchange loss was reported ₹52.7 Cr. and the average exchange loss was ₹7.53 Cr which is 0.78% of net profit. Lower margin of exposure accompanied with meagre exchange losses made the company to use only forward contracts to mitigate foreign exchange risk.

Table 6: Table Showing Statistical Results of Foreign Exchange Operations of Hindustan Unilever Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	185552	5559	21556.9	-15997.93	-136.53	23491	-5.3
Mean	26507.5	794.14	3079.56	-2285.42	-19.5	3355.9	-0.76
SD	5996.41	394.02	820.9	1080	19.8	907.63	0.89
Range	15482.7	932.49	2186.53	2928.21	59.06	2198.5	2.54
Min	18108.3	495.75	2101.13	-3729.08	-50.29	2164.6	-2.32
Max	33591	1428.2	4287.66	-800.87	8.77	4363.1	0.21
Derivatives Used	Forwards and Futures contracts						
Currencies of Operations	USD, EUR, GBP, SEK, CAD, NZD, CHF, SGD, THB, AUD						

Source: Compiled from annual reports of Hindustan Unilever Ltd.

Hindustan Unilever Ltd. is largest FMCG in India having 35 brands spanning 20 distinct categories has international operations denominated in USD, EUR, GBP, SEK, CAD, NZD, CHF, SGD, THB, AUD and used forwards and futures contracts to hedge from currency exposure. Table-6 exhibits statistical results of foreign exchange operations of Hindustan Unilever Ltd during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹5559 Cr and ₹21556.9 Cr respectively

and total revenue was ₹185552 Cr. This resulted in a net exposure of ₹15997.93 Cr (i.e. adverse) which is 8.62% of total revenue earned by the company. The total exchange loss was reported ₹136.53 Cr. and the average net exchange loss was ₹19.5 Cr which is 0.58% of net profit. Adverse exchange exposure accompanied with exchange losses and low margin on net profit resulted in to using both forwards and futures contracts to mitigate foreign exchange risk.

Table 7: Table Showing Statistical Results of Foreign Exchange Operations of Marico India Ltd.

(₹.in Cr.)

	Total Revenue	Exchange Inflows	Exchange outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange difference on Net Profit
Sum Total	31271.5	1599	1160.45	438.52	-117.19	3014.7	-21.8
Mean	4467.36	228.42	165.78	62.65	-16.74	430.67	-3.11
SD	1294.13	95.1	67.62	89.32	22.08	175.3	2.81
Range	3546.39	228.46	193.29	277.84	63.54	493.11	8.4
Min	2679.02	146.3	53.02	-73.8	-65.3	231.67	-9.01
Max	6225.41	374.76	246.31	204.04	-1.76	724.78	-0.61
Derivatives Used	Forwards, Futures, Options and Currency swaps						
Currencies of Operations	USD, AUD, ZAR, and EUR						

Source: Compiled from annual reports of Marico India Ltd.

Marico India Ltd. a maker of well-known brands like Parachute coconut oil, Safola, parachute body lotion, Nihar Shanti Amla Oil, etc. has operations in USD, EUR, GBP, JPY and CHF and used forward, futures, options and currency swaps to hedge from currency exposure. Table 7 exhibits statistical results of foreign exchange operations of Marico India Ltd during the study period 2010-17. Total exchange inflow and outflow of the company for the selected period was ₹1599 Cr and ₹1160.45 Cr respectively and total revenue was ₹31271.5 Cr. This resulted in a favourable net exposure of ₹438.52 Cr which is 1.40% of total revenue earned by the

company. The total exchange loss was reported ₹117.19 Cr. and the average net exchange loss was ₹16.74 Cr which is 3.11% of net profit. Lower amount of net exposure coupled with reasonable exchange loss made the company to use all four derivatives such as Forwards, Futures, Options and Swaps to hedge foreign exchange risk.

HYPOTHESES TESTING

In this section, four hypotheses are tested using various statistical techniques such as ANOVA, Multiple Regression

based predictive analysis model F test Descriptive statistics tools etc.

H_{a1}: Foreign exchange exposure among the selected companies remains uniform irrespective of size of the firm.

Table 8: Table Showing ANOVA Results of Selected Companies in FMCG Sector

ANOVA						
Source of Variation	Sum of Squares	df	MS	'F' Value	'P' Value	'F' critical Value
Between Groups	31911441	6	5318574	30.61236	7.91E-14	2.3239938
Within Group	7297055	42	173739.4	-	-	-
Total	39208496	48	-	-	-	-

Table 8 represents summary results of ANOVA for testing hypothesis H_{a1}. It is observed from the table that 'P' value is obtained 7.91E-14 which is less than 0.05 and hence the null hypothesis is rejected and alternative hypothesis is accepted. It is therefore inferred from the results that foreign exchange exposure among the selected companies remains uniform irrespective of size of the firm.

H_{a2}: Foreign exchange exposure has a bearing on exchange gain/losses of the companies to the greater extent.

To test the hypothesis H_{a2} the impact of net exposure (i.e. exchange inflows – exchange outflows) on exchange gain/losses of the sample companies is considered and tested through multiple regression test and presented the results in Table 12.

Table 9: Table Showing Summary Results of Multiple Regression Test

Summary Results of Regression					
'R' Value	0.61620222				
'R' Square Value	0.37970518				
Adjusted 'R' Square Value	0.31612997				
Standard Error Value	12.5952707				
Summary Results of ANOVA ('F' Test)					
	Df	Sum of Squares	MS	'F' Value	Significance 'F' Value
Regression	4	4369.944	1092.486	9.182049	1.75048E-05
Residual	45	7138.838	158.6408	-	-
Total	49	11508.78	-	-	-
Summary Results of Co-efficient and 'P' Values of Regression Test					
	Coefficients	Standard Error	't' Value	'P' Value	
Intercept	0.902836626	2.733476726	0.330289	0.742715	
Total Revenue (in Cr. ₹)	-0.000641705	0.000700901	-0.91554	0.364787	
Foreign Exchange Inflow (in Cr. ₹)	-0.032006135	0.010315481	-3.10273	0.003308	
Foreign Exchange Outflow (in Cr. ₹)	0	0	65535	0	
Net Exposure (in Cr. ₹)	-0.009525467	0.005465555	-1.74282	0	

It is observed from the table that 'R' value is obtained 0.61620222 which indicates high degree (i.e. 62%) of correlation between exchange exposure and exchange gain/losses and 'R' square value is obtained 0.37970518 which implies that the probable exchange gain/losses can be estimated to the extent of 38% of foreign exchange exposure of the FMCG sector. It is further observed that 'P' value of intercept is obtained as 0.742715 and 0.003308 for exchange inflows and zero for both exchange outflows

and for net exposure. Since 'P' value is more than 0.05 for intercept it implies that the test is significant in the context of exchange exposure having impact on exchange gain/losses of the companies. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It is therefore inferred that foreign exchange exposure does not have substantial bearing on profitability of the companies. From the values obtained in the analysis the following equation can be derived.

$$Y = a + b_1X_1 + b_2X_2 + \dots$$

$$\text{Exchange Losses} = 0.902836626 + \text{Exchange Exposure} \times -0.009525467 \\ + \text{Foreign Exchange outflow} \times 0 + \text{Foreign exchange inflow} \times -0.032006135$$

H_{a3}: Choice of currency derivative is independent of the exchange inflow and outflow, net exposure and number of currency exposed to.

Table 10: Table Showing Summary Results of Regression Test

Summary Results of Regression Test					
'R' value	0.43671271				
'R' Square value	0.19071799				
Adjusted 'R' Square value	0.07335962				
Standard Error	1.13128016				
Summary Results of ANOVA ('F' Test)					
	Df	SS	MS	'F' Value	Significance 'F' Value
Regression	6	12.96882	2.161471	2.026704	0.083270612
Residual	43	55.03118	1.279795	-	-
Total	49	68	-	-	-
Summary Results of Co-efficient and P-Values of Regression Test					
	Coefficients	Standard Error	't' Value	'P' Value	
Intercept	1.11273143	0.358190027	3.106539	0.003348	
Total Revenue (in Cr. ₹)	7.39089E-05	6.77449E-05	1.090989	0.281354	
Foreign Exchange Inflow (in Cr. ₹)	0.000266442	0.001034185	0.257635	0.797918	
Foreign Exchange Outflow In (in Cr. ₹)	0	0	65535	0	
Net Exposure (in Cr. ₹)	0.000445561	0.000510381	0.872996	0	
Exchange Gain/Loss (in Cr. ₹)	-0.019615289	0.013394752	-1.4644	0.150358	
No. of Currencies	-0.046330686	0.085150069	-0.54411	0.0589179	

To test the hypothesis H_{a3} multiple regression test is used and presented the results in Table 10. It is observed from the table that 'R' value is obtained 0.43671271 which indicates 44% degree of correlation between net exposure and exchange gain/losses and 'R' square value is obtained 0.19071799 which implies that the probable exchange gain/losses can be estimated to the extent of 19% of net exposure of the FMCG sector. It is also observed from the table that 'P' value is obtained 0.003348 for Intercept and zero for net exposure which are less than 0.05 and it is 0.150358 for exchange

gain/loss and 0.0589179 for number of currencies which are more than 0.05. Since 'P' value is less than 0.05 for intercept the null hypothesis is rejected and alternative hypothesis is accepted. Hence it is inferred from the results that the net exposure, exchange gain/losses and number of currencies involved in international operation are independent on the choice of currency derivative. Based on the analysis a model of predictive analysis can be developed as follows.

$$Y = a + b_1X_1 + b_2X_2 + \dots$$

$$\text{Choice of Derivative} = 1.11273143 + \text{Net Exposure} (0.000445561) + \text{Exchange Gain/Loss} (-0.019615289) \\ + \text{Number of Currencies} (-0.046330686)$$

H_{a4}: Foreign exchange losses can be substantially minimised through currency derivatives and multiple currency invoicing.

Table 11: Table Showing Summary Results of Regression Test

Summary Results of Regression				
'R' value	0.43829733			
R Square value	0.19210455			
Adjusted R Square value	0.15697866			
Standard Error	14.2171764			
Summary Results of Co-efficient and 'P' Values of Regression Test				
	Coefficients	Standard Error	't' Value	'P' Value
Intercept	4.95620633	4.474578	1.107637	0.273777
No. of Currencies	-1.1679873	0.701332	-1.66538	0.102633
No. of Derivatives	-4.3767072	1.755391	-2.49329	0.016316

To test the hypothesis H_{a4} multiple regression test is used and presented the results in Table 11. It is observed from the table that 'R' value is obtained as 0.43829733 which implies that 44% degree of correlation exists between number of currencies and number of derivatives. R square value is obtained 0.19210455 which implies that exchange losses can be minimized through currency derivatives and multiple currency usage to the extent of 19%. It is also observed from the table that 'P' value is obtained 0.273777 for Intercept and it is 0.102633 for number of currencies which are more than 0.05 and 0.016316 for number of derivatives which is less than 0.05. Since 'P' value is more than 0.05 for intercept the null hypothesis is accepted and alternative hypothesis is rejected. Hence it is inferred from the results that foreign exchange losses cannot be substantially minimised through currency derivatives and multiple currency invoicing. From the values obtained the following equation can be derived.

$$Y = a + b_1X_1 + b_2X_2 + \dots$$

Exchange Gain/Losses = 4.96 + No. of Derivatives used (-4.38) + No. of Currencies used (-1.17)

FINDINGS AND SUGGESTIONS

Based on the above analysis the following findings have been observed and made the suggestions accordingly.

- From the above analysis it is observed that totally 12 currencies are being denominated in by the ten sample companies. However all seven companies are having two common currencies viz. USD and EUR and four companies used GBP. Thus USD and EUR hold command in the Forex market and other currencies are being used minimally. Hence it is inferred that the companies operating at global level therefore have to be preparedness to handle any threat arising on account of fluctuations in the USD-INR parity.
- Out of seven companies chosen for the study in FMCG sector six companies used forward contract to mitigate

foreign exchange risk while only two companies used futures contract and options and currency swap are being used only by one company (i.e. Marico India Ltd.).

- It is observed in the study that foreign exchange exposure among the selected companies remains uniform irrespective of size of the firm.
- The foreign exchange exposure does not have substantial bearing on exchange gain/losses of the companies.
- The net exposure, exchange gain/losses and number of currencies involved in international operation are independent on the choice of currency derivative.
- It is also found that foreign exchange losses cannot be substantially minimised through currency derivatives and multiple currency invoicing.

CONCLUSION

As evidenced from the study there are several currency derivatives available to the business firms such as forwards, futures, options, swaps etc. for hedging currency exposure. However, among all these techniques forward contract is considered to be an effective hedging tool and widely used followed by futures contract, options and currency swap. Most of the commercial banks in the private sector provide only forward contract for hedging currency exposure but no other derivatives like option contract. The bankers are suggested to popularize the derivatives instruments particularly option contracts by educating and creating awareness. Though small business firms cannot afford, the large business firms are advised to have a dedicated in-house department to conduct research for handling currency exposures.

SCOPE FOR FURTHER RESEARCH

The current study was restricted to FMCG sector and that too seven selected companies. The researcher feels that the

study can be extended to other companies in the same sector and also to other than FMCG sector.

IMPLICATIONS OF RESEARCH

The current study benefits the companies having foreign operations in mitigating the currency exposures. It also benefits other participants in Forex market such as bankers to devise innovative currency derivative instruments and also helps the government and policy makers to find out loopholes in the current derivative instruments and modify accordingly.

REFERENCES

- Anand, M., & Kaushik, K. P. (2008). Management motivations for use of foreign currency derivatives in India. *IIMB Management Review*, 20(3), 324–339.
- Belk, P. A., & Glaum, M. (1990). The management of foreign exchange risk in UK multinationals: An empirical investigation. *Accounting and Business Research*, 21(81), 3–13.
- Dash, M., & Madhava, A. (2008). *A Study on the Impact of Currency Fluctuation on the Indian IT Sector*. Retrieved April 15, 2008 from SSRN: <http://ssrn.com/abstract=1326506>
- Davies, D., Eckberg, C., & Marshall, A. (2006). The determinants of norwegian exporters' foreign exchange risk management. *European Journal of Finance*, 12(3), 217–240.
- Lacina, L. (2000). *Foreign exchange rate risk management*. Doctoral thesis-Faculty of Business and Economics, Department of Finance, Mendel University of Agriculture and Forestry Brno.
- Makar, S. D., & Huffman, S. P. (1997). Foreign currency risk management practices in U.S. multinationals. *Journal of Applied Business Research*, 13(2), 65–73.
- Sivakumar, A., & Sarkar, R. (2008). *Corporate hedging for foreign exchange risk in India*. Retrieved from <http://www.iitk.ac.in>