Currency Risk Management Practices in India - An Evidence from the Textile Sector

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Abstract

Currency risk management involves using external techniques such as forwards, futures, options, and swaps, which are called as currency derivatives in addition to internal techniques. The firms with greater growth opportunities and tighter financial constraints are more inclined to use currency derivatives. The forex market provides various derivative instruments to hedge against currency exposures such as currency forwards, options, futures, and swaps. The current paper aimed at studying various external hedging techniques used in India for managing currency exposure. For this purpose, foreign exchange cash flows arising out of imports and exports and exchange gain/losses of nine sample companies chosen from the textile sector were used. It was observed from the study that only two currencies : USD and EUR held command in the forex market and other currencies were used minimally. It was also noted that there were 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 was considered to be an effective and widely used hedging tool, which was followed by currency swap, options, and futures.

Keywords **: currency derivatives, forex, forwards, futures, textile sector**

JEL Classification: G13, G15, G32, F23, F31, F37

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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 currency risk management, which helps to hedge foreign currency receivables and payables. Currency risk management 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 U.S. 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 textile sector is one of the prominent manufacturing sectors of the Indian economy dating back centuries. India's textile sector contributes nearly 11% to India's total exports, 5% to India's gross domestic product (GDP), and 14% to overall index of industrial production (IIP). The textile sector is the second major employer next to

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farming, contributing nearly 45 million people directly and 60 million people indirectly. The current Indian textile production is recorded at US$ 108 billion and is estimated to touch US$ 223 billion by 2021. The textile sector consists of disorganized segments comprising of handloom, handicrafts, and sericulture, which are worked on a minor scale and through old-fashioned tools and methods and structured segment comprising spinning, apparel, and garment sector, which apply contemporary machinery and work on large economies of scale.

Review of Literature

Makar and Huffman (1997) examined the use of currency derivatives by U.S. multinationals for hedging currency exposure. It was observed in the study that the firms had practice of using multiple hedging techniques. Abor (2005) found that the Ghanaian firms managed foreign exchange risk mainly by adjusting prices to reflect changes in import prices resulting from currency fluctuation and also by buying foreign currency in advance. The main problems the firms faced were the frequent appreciation of foreign currencies against the domestic currency and the difficulty in retaining domestic customers because of the high cost of imported inputs, which tend to affect the prices of the final products sold locally.

Yazid and Muda (2006) conducted a study on risk management practices followed by Malaysian multinationals and found that the Malaysian multinationals were involved in foreign exchange risk management primarily because they sought to minimize the losses on operational cash flows, which were affected by currency volatility. Anand and Kaushik (2008) examined the 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 were 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 were more likely to use foreign currency derivatives. It was further observed that transaction exposure was 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.

Al - Momani and Gharaibeh (2009) conducted a study on the foreign exchange risk management practices of Jordanian firms and observed the relationship between numerous aspects that were assumed to affect the implementation of foreign exchange risk management techniques, namely firm size, sector, international business involvement, and legal structure. The study also focused on transaction and economic exposures as the dimensions of foreign exchange risk management techniques. A connection between a firm's sector and international involvement with the management practices was found in the transaction exposure aspect and a relationship between all the features and the managerial techniques was found in the economic exposure dimension. Dash, Babu, Kodagi, and Vivekananda (2008) observed in their study that in the world of globalization and international business, firms are performing one or the other kind of international activity like selling their products abroad, sourcing raw materials from abroad, raising funds abroad, or investing in international markets and have to deal with many currencies for making or receiving payments. This exposes them to foreign exchange risk where an appreciation or depreciation in the currency they are dealing with may eat away their profits, thereby making it necessary to manage foreign exchange risk.

Jaiswal and Saha (2009) observed in their study that financial intermediaries abroad have created new varieties of instruments and transactions called derivatives and risk management tools such as options, futures, and swaps, which were used to transform one or more properties of an asset or liability. Financial liberalization brought inherent risk and as a result, corporate and institutional investors were looking towards derivatives for hedging the risk. Since the volume of international trade and capital flows are rising, more and more banks are exposed to various currencies and the emerging derivatives in foreign countries are increasingly used by banks to bring variations in the sensitivity of their funds and also the underlying portfolio.

Vasumathy (2015) analyzed the hedging techniques adopted, examined the attitude of the firms towards

derivatives usage, and so forth. The results indicated extensive usage of forward contracts, existence of risk management systems in some firms, comparatively less awareness about derivatives, and employing a formal risk management system to monitor exchange rates was neutral as they perceived that these were meant only for multinationals. The study recommended increasing the awareness of derivatives among the firms as the firms did not have the means to adopt alternate techniques like neutral and operational hedges. It also insisted that the firms should monitor exchange rates on a regular basis in the forthcoming years as the economic policies are edging towards stabilizing the economy.

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 business firms. In the light of this gap, we felt the need of research to be undertaken on this topic.

Objectives of the Study

We have set the following objectives to fill the existing research gap :

(i) To examine whether foreign exchange exposure among the companies remains uniform or not irrespective of size of the firm.

(ii) To examine whether foreign exchange exposure, exchange inflows and outflows wholly have an impact on exchange gain/losses.

(iii) To examine whether choice of currency derivatives is independent of factors like exchange gain/losses, exchange inflows and outflows, net exposure, revenue, net profit, and number of currencies exposed to.

(iv) To examine whether foreign exchange losses can be substantially minimized through currency derivatives and multiple currency invoicing.

Research Methodology

The current study follows analytical research as it analyzes the causes of foreign exchange losses encountered in textile 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, nine companies are chosen on the basis of market capitalization ranging from large cap to small cap. These are: (a) Arvind Ltd., (b) Bombay Dyeing & Mfg. Co. Ltd., (c) Century Textiles and Industries Ltd., (d) Himatsingka Seide Ltd., (e) Indo Count Industries Ltd., (f) Indo Rama Synthetics (India) Ltd., (g) Raymond Ltd., (h) Trident Ltd., (i) Welspun India Ltd.

(1) Statistical Tools Used : We used various statistical techniques such as ANOVA, multiple regression based predictive analysis model, '*F*' test, descriptive statistics tools, etc. ANOVA was used to verify whether the exchange exposure remained uniform or different across the companies chosen for the study. Multiple regression analysis was 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 have reduced the exchange.

(2) Hypotheses : We have 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 textile sector remains uniform irrespective of size of the firm.

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

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

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

Analysis and Results

In this section, 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.

Table 1. Statistical Results of Foreign Exchange Operations of Arvind Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	41261.7	11204	2936.27	8268.11	-71.22	2042.7	-16.27
Mean	5894.52	1600.6	419.47	1181.16	-10.17	291.82	-2.32
SD	1966.86	431.31	165.62	295.64	21.49	111.34	9.12
Range	5264.13	1084.5	468.45	662.62	56.34	300	27.85
Min	3282.69	1061.4	194.97	866.43	-40.83	135.87	-16.44
Max	8546.82	2145.9	663.42	1529.05	15.51	435.87	11.42
Derivatives Used	Forwards, Options, and Currency Swaps						
Currencies of Operations	USD, EUR, JPY, CHF, and HKD						

Source : Compiled from Annual Reports of Arvind Ltd.

Arvind Ltd. is a flagship company of Lalbhai Group formerly known as Arvind Mills headquartered in Ahmedabad, Gujarat. It is one of the largest manufacturers and exporters of denim. It also manufactures cotton shirting, knits, khaki fabrics, etc. and has international operations denominated in USD, EUR, JPY, CHF, and HKD. The Table 1 exhibits statistical results of foreign exchange operations of Arvind Ltd. during the study period from 2010 - 2017. The total exchange inflows and outflows of the company for the selected period were ₹ 11204 crores and ₹ 2936.27 crores, respectively and total revenue of the company was ₹ 41261.7 crores. This resulted in a favourable net exposure of ₹ 8268.11 crores, which was 20% of total revenue earned by the company. The total exchange loss was reported at ₹ 71.22 crores and average net exchange loss was ₹ 10.17 crores, which was just 3.49% of the net profit. Since the currency exposure was substantial, the company used forwards, options, and currency swaps to hedge the exposure.

Bombay Dyeing and Manufacturing Co. Ltd. is India's largest textile manufacturer belonging to Wadia Group. The company was ranked 68 in the Business India Super 100 list in 1997 and was ranked 300 in the ET 500 list in 2010. The company has international operations denominated in USD, EUR, and GBP. The Table 2 exhibits statistical results of foreign exchange operations of Bombay Dyeing during the study period from 2010 - 2017. The total exchange inflows and outflows of the company for the selected period were ₹ 1949.2 crores and

₹ 5635.67 crores, respectively and total revenue earned by the company was ₹ 15813 crores. This resulted in an adverse net exposure of ₹ 3686.45 crores, which was 23.31% of the total revenue. The total exchange loss was reported at ₹ 44.62 crores and the average net exchange loss was reported at only ₹ 6.37 crores during the period, which was 34.71% of net profit. The company used only forward contracts to hedge the currency exposure.

Century Textiles and Industries Ltd. is a Mumbai based IS/ISO 9001 : 2000 and ISO 14001 certified textile manufacturer. It manufactures yarn, denim, viscose filament rayon yarn, tire cords, etc. and exports to more than 45 countries across the globe. It was awarded 'Three Star Export House' status by the Government of India and has international operations denominated in USD, EUR, GBP, CAD, JPY, and CHF. The Table 3 exhibits statistical results of foreign exchange operations of Century Textiles and Industries Ltd. during the study period from 2010 - 2017. The total exchange inflows and outflows of the company for the selected period were ₹ 3141.6 crores and ₹ 3774.08 crores, respectively and total revenue was ₹ 42561.6 crores. This resulted in an adverse net exposure of ₹ 632.52 crores, which was just 1.49% of the total revenue earned by the company. The total exchange gain

Table 2. Statistical Results of Foreign Exchange Operations of Bombay Dyeing & Mfg. Co. Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	15813	1949.2	5635.67	-3686.45	-44.62	128.46	-225.34
Mean	2259	278.46	805.1	-526.64	-6.37	18.35	-32.19
SD	387.49	44.66	231.21	197.14	18.37	53.22	35.99
Range	1090.64	132.53	743.97	611.44	57.6	166.79	102.79
Min	1732.04	202.44	426.27	-835.27	-36.54	-91.09	-74.97
Max	2822.68	334.97	1170.24	-223.83	21.06	75.7	27.82
Derivatives Used					Forward Contracts		
Currencies of Operations					USD, EUR, and GBP		

Source : Compiled from Annual Reports of Bombay Dyeing & Mfg. Co. Ltd.

Table 3. Statistical Results of Foreign Exchange Operations of Century Textiles and Industries Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	42561.6	3141.6	3774.08	-632.52	28.91	544.98	271.92
Mean	6080.23	448.79	539.15	-90.36	4.13	77.85	38.85
SD	1409.11	91.21	166.31	188.55	13.9	155.84	84.61
Range	3486.87	223.33	511.2	530.15	39.22	410.68	209.01
Min	4547.57	365.51	371.97	-511.54	-11.49	-54.52	-29.99
Max	8034.44	588.84	883.17	18.61	27.73	356.16	179.02
Derivatives Used					Forward Contracts		
Currencies of Operations					USD, EUR, GBP, CAD, JPY, and CHF		

Source : Compiled from Annual Reports of Century Textiles and Industries Ltd.

Table 4. Statistical Results of Foreign Exchange Operations of Himatsingka Seide Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	11357.8	4956.3	1767.22	3189.08	10.64	412.67	-36.76
Mean	1622.55	708.04	252.46	455.58	1.52	58.95	-5.25
SD	375.2	224.4	108.04	152.74	11.68	59.69	17.96
Range	949.57	515.58	311.54	409.2	34.76	182.39	45.67
Min	1083.31	443.64	142.64	275.36	-19.73	-15.78	-31.14
Max	2032.88	959.22	454.18	684.56	15.03	166.61	14.52
Derivatives Used	Forward Contracts and Currency Swap						
Currencies of Operations	USD, EUR, GBP, SGD, AED, JPY, and CHF						

Source : Compiled from Annual Reports of Himatsingka Seide Ltd.

Table 5. Statistical Results of Foreign Exchange Operations of Indo Count Industries Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	3472.35	2259.8	346.77	1912.98	42.39	141.75	2074.05
Mean	496.05	322.82	49.54	273.28	6.06	20.25	296.29
SD	153.05	100.52	30.95	87.85	3.25	19.2	553.75
Range	466.3	327.47	71.61	278.18	9	43.85	1501.29
Min	301.28	177.07	16.17	153.12	2.69	0.31	11.62
Max	767.58	504.54	87.78	431.3	11.69	44.16	1512.9
Derivatives Used	Forwards and Options						
Currencies of Operations	USD, EUR, GBP, and CHF						

Source : Compiled from Annual Reports of Indo Count Industries Ltd.

was reported at ₹ 28.91 crores and average net exchange gain was ₹ 4.13 crores, which was 5.31% of the net profit. The company only used forward contracts to hedge the currency exposure.

Himatsingka Seide Ltd. is an India based global textile manufacturer. It manufactures silk blended fabrics, spun silk blended yarn, bed linen fabric, and bed linen sets and exports to Germany, France, England, Italy, South America, Australia, and USA. The company has international operations denominated in USD, EUR, GBP, SGD, AED, JPY, and CHF. The Table 4 exhibits statistical results of foreign exchange operations of Himatsingka Seide Ltd. during the study period from 2010 - 2017. The total revenue of the company was ₹ 11357.8 crores, out of which ₹ 4956.3 crores was exchange inflows and ₹ 1767.22 crores was exchange outflows. This resulted in a favourable exposure of ₹ 3189.08 crores, which was 28.08% of the total revenue earned by the company. Total exchange gain was reported at just ₹ 10.64 crores, and average net exchange gain was ₹ 1.52 crores, which was 2.58% of net profit. The company used both forward contracts and currency swaps to hedge its currency risk.

Indo Count Industries Ltd. is a specialized end-to-end bedding provider solely focused on creating all-encompassing sleep experiences. Boutique Living is a premium brand offering high quality bed linen in a variety

Table 6. Statistical Results of Foreign Exchange Operations of Indo Rama Synthetics (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	19999.5	5193.7	10042.4	-4848.7	-204.1	240.66	447.25
Mean	2857.07	741.96	1434.63	-692.67	-29.16	34.38	63.89
SD	247.25	245.83	352.95	264.03	42.07	54.19	312.47
Range	619.49	624.07	1081.58	758.05	114.53	160.1	938.55
Min	2556.57	417.6	693.75	-1034.2	-99.51	-20.69	-204.16
Max	3176.06	1041.7	1775.33	-276.15	15.02	139.41	734.39
Derivatives Used	Forward Contracts						
Currencies of Operations	USD, EUR, AED, and JPY						

Source : Compiled from Annual Reports of Indo Rama Synthetics (India) Ltd.

Table 7. Statistical Results of Foreign Exchange Operations of Raymond Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	29338.3	1211.2	1778.03	-566.8	0.36	504.74	-35.97
Mean	4191.18	173.03	254	-80.97	0.05	72.11	-5.14
SD	1146.45	24.21	113.94	131.6	8.42	66.43	10.96
Range	3095.53	69.68	225.66	287.28	28.05	201.72	30.02
Min	2606.06	126.02	128.34	-227.98	-16.49	-45.94	-25.16
Max	5701.59	195.7	354	59.3	11.56	155.78	4.86
Derivatives Used	Forward, Options, and Currency Swap						
Currencies of Operations	USD, EUR, GBP, CHF, AUD, RMB, and AED						

Source : Compiled from Annual Reports of Raymond Ltd.

of rich designs. It has partnership with some of the best-known retail, hospitality, and fashion brands in the world. The company has international operations denominated in USD, EUR, GBP, and CHF. The Table 5 exhibits statistical results of foreign exchange operations of Indo Count Industries Ltd. during the study period from 2010 - 2017. Total exchange inflows and outflows of the company for the selected period were ₹ 2259.8 crores and ₹ 346.77 crores, respectively and total revenue was ₹ 3472.35 crores. This resulted in a favourable net exposure of ₹ 1912.98 crores, which was as high as 55.09% of the total revenue earned by the company. During the period, it posted total exchange gain of ₹ 42.39 crores and average exchange gain was ₹ 6.06 crores, which was 29.23% of the net profit. Since the company has operations in multi currencies, it used both forward and option contracts to hedge its currency exposure.

Indo Rama Synthetics (India) Ltd. is a leading manufacturer and supplier of polyester products in India existing for the last two decades. The company has international operations denominated in USD, EUR, AED, and JPY. The Table 6 exhibits statistical results of foreign exchange operations of the Indo Rama Synthetics (India) Ltd. during the study period from 2010 - 2017. Total exchange inflows and outflows of the company for

the selected period were ₹ 5193.7 crores and ₹ 10042.4 crores, respectively and total revenue was ₹ 19999.5 crores. This resulted in unfavourable net exposure of ₹ 4848.7 crores, which was 24.24% of the total revenue earned by the company. During the period, it posted total exchange loss of ₹ 204.1 crore, and average exchange loss was ₹ 29.16 crore, which was 84.82% of the net profit. The company used only forward contract to hedge its currency exposure.

Raymond Ltd. is a Mumbai based company and is India's largest woolen fabric maker and world's largest integrated manufacturer of worsted fabric. The textile division of the company has a distribution network of more than 4,000 multi-brand outlets and over 637 exclusive retail shops in the domestic market. It exports to more than 55 countries and has more than 20,000 design and colours suiting fabrics. The company has international operations denominated in USD, EUR, GBP, CHF, AUD, RMB, and AED. The Table 7 exhibits statistical results of foreign exchange operations of Raymond Ltd. during the study period from 2010 - 2017. The total exchange inflows and outflows of the company for the selected period were ₹ 1211.2 crores and ₹ 1778.03 crores, respectively and total revenue was ₹ 29338.3 crores. This resulted in unfavourable net exposure of ₹ 566.8 crores, which was 1.93% of total revenue earned by the company. During the period, it posted total exchange gain of ₹ 0.36 crores and average exchange gain was ₹ 0.05 crores, which was just 0.07% of the net profit. Since the company had substantial amount of adverse net exposure, it used forward contract, options, and currency swap.

Trident Ltd. is a flagship company of $1 billion conglomerate, Trident Group headquartered in Ludhiana, Punjab. The company is one of the largest manufacturers of yarn spin, terry towel, and wheat straw based paper in having its operations in more than 100 countries across six continents. The company has international operations denominated in USD, EUR, and CHF. The Table 8 exhibits statistical results of foreign exchange operations of Trident Ltd. during the study period from 2010 - 2017. The total exchange inflows and outflows of the company for the selected period were ₹ 11300 crores and ₹ 1280.12 crores, respectively and total revenue was ₹ 21841.1 crores. This resulted in a favourable net exposure of ₹ 10019.59 crores, which is as high as 45.87% of total revenue earned by the company. During the period, it posted total exchange loss of ₹ 59.39 crores and average exchange loss was ₹ 8.48 crores, which was 8.86% of the net profit. The company used both forward and option contracts to hedge its currency exposure.

Welspun India Ltd. is a Mumbai based Asia's largest manufacturer of textile and the second largest terry towel producer in the word. It exports more than 94% of its towels to more than 34 countries and has international operations denominated in USD, EUR, GBP, and JPY. The Table 9 exhibits statistical results of foreign exchange

Table 8. Statistical Results of Foreign Exchange Operations of Trident Ltd.

(₹ in Cr.)

	Total Revenue	Exchange Inflows	Exchange Outflows	Net Exposure	Exchange Gain/Loss	Net Profit	% of Exchange Difference on Net Profit
Sum Total	21841.1	11300	1280.12	10019.59	-59.39	670.06	182.93
Mean	3120.15	1614.2	182.87	1431.37	-8.48	95.72	26.13
SD	780.41	496.25	148.83	457.09	27.12	93.01	56.35
Range	2081.9	1341.8	405.93	1351.23	82.03	272.84	157.25
Min	1803.37	839.48	95.04	715.97	-65.93	-43.74	-6.51
Max	3885.27	2181.3	500.97	2067.2	16.1	229.1	150.73
Derivatives Used					Forwards and Options		
Currencies of Operations					USD, EUR, and CHF		

Source : Compiled from Annual Reports of Trident Ltd.

Table 9. Statistical Results of Foreign Exchange Operations of Welspun 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	27236.2	137.95	2275.67	-2137.72	-291.38	1708.4	-293.53
Mean	1546.5	38.02	306.11	-321.17	-47.73	274.93	291.26
SD	3994.37	104.44	836.09	930.61	141.61	716.24	992.97
Range	2076.6	0	12.62	-840.23	-129.02	-13.37	-558.49
Min	6070.97	104.44	848.71	90.38	12.59	702.87	434.48
Max							
Derivatives Used				Forwards and Currency swap			
Currencies of Operations				USD, EUR, GBP, and JPY			

Source : Compiled from Annual Reports of Welspun India Ltd.

operations of Welspun India Ltd. during the study period from 2010 - 2017. Total exchange inflows and outflows of the company for the selected period were ₹ 137.95 crores and ₹ 2275.67 crores, respectively and total revenue was ₹ 27236.2 crores. This resulted in unfavourable net exposure of ₹ 2137.72 crores, which was 7.85% of the total revenue earned by the company. During the period, it posted total exchange loss of ₹ 291.38 crores and average exchange loss was ₹ 47.73 crores, which was 17.36% of the net profit. Since the company had substantial amount of adverse net exposure, it used both forward contract and currency swap.

Hypotheses Testing

In this section, the 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.

The Table 10 represents summary results of ANOVA for testing hypothesis H_{a1}. It is observed from the table that the *p* - value obtained is 0.0386265, which is less than 0.05 and the *'F'* value obtained is 1.086325, which is lower than the table value of 2.11. Hence, the hypothesis H_{a1} 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

Table 10. ANOVA Results of Selected Companies

ANOVA						
Source of Variation	**Sum of Squares**	***df***	**MS**	**'*F*' Value**	**'*P*' Value**	**'*F*' critical Value**
Between Groups	4.33E+09	9	4.82E+08	1.086325	0.0386265	2.040098
Within Group	2.66E+10	60	4.43E+08	-	-	-
Total	3.09E+10	69	-	-	-	-

Table 11. Summary Results of Multiple Regression Test

Summary Results of Regression					
'*R*' Value					0.045246
'*R*' Square Value					0.002047
Adjusted '*R*' Square Value					-0.04267
Standard Error Value					28.64153
Summary Results of ANOVA ('*F* ' Test)					
	Df	**Sum of Squares**	***MS***	**'*F* ' Value**	**Significance '*F*' Value**
Regression	3	112.7507	37.58357	0.068722	0.976386854
Residual	67	54962.61	820.3375	-	-
Total	70	55075.36	-	-	-
Summary Results of Coefficient and '*P*' Values of Regression Test					
		Coefficients	**Standard Error**	**'*t* ' Value**	**'*P* 'Value**
Intercept		-8.9962618	5.222662331	-1.7225433	0.089584
Foreign Exchange Inflows (in Cr. ₹)		0.00186483	0.005771643	0.32310274	0.747624
Foreign Exchange Outflows (in Cr. ₹)		0	0	65535	0
Net Exposure (in Cr. ₹)		-3.042E-05	0.000162857	-0.1867984	0

gain/losses of the sample companies is considered and tested through multiple regression test and the test results are presented in the Table 11.

It is observed from the Table 11 that *'R'* value is obtained (0.045246), which indicates low degree (i.e. 4%) of correlation between exchange exposure and exchange gain/losses and the *'R'* square value (0.002047) implies that the probable exchange gain/losses can be estimated only to the extent of 0.2% of foreign exchange exposure of the textile sector. It is further observed that *p* - value of the intercept obtained is 0.089584 and 0.747624 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 alternative hypothesis H_{a2} is rejected. It is ,therefore, inferred that foreign exchange exposure does not have a substantial bearing on profitability of the companies. From the values obtained in the analysis, the following equation can be derived :

$$Y = a + b_1X_1 + b_2X_{2+\ldots}$$

***Exchange Losses* = - 8.9962618 + *Exchange Exposure* (-3.042E – 05) + *Foreign Exchange Outflows* (0) + *Foreign Exchange Inflows* (0.00186483)**

↳ **H_{a3}:** Choice of currency derivative is independent of the exchange inflows and outflows, net exposure, and number of currency exposed to.

To test the hypothesis H_{a3}, multiple regression test is used and the results are presented in the Table 12. It is observed from the Table that the '*R*' value obtained is 0.922986, which indicates high (i.e. 92%) degree of correlation between net exposure and exchange gain/losses and the '*R*' square value obtained is 0.851904, which implies that the probable exchange gain/losses can be estimated to the extent of as high as 85% of net exposure of the textile sector. It is also observed from the table that the *p* - value obtained is zero for intercept, 0.0000177 for net exposure, 1.03E-17 for number of currencies, and 0.00890981 for exchange gain/loss which are less than 0.05. Since *p* - value is less than 0.05 for intercept, the alternative hypothesis H_{a3} is accepted. Hence, it is inferred from the results that the net exposure, exchange gain/losses, and number of currencies involved in international operations are independent of the choice of currency derivative. Based on the analysis, a model of predictive

analysis can be developed as follows :

$$Y = a + b_1X_1 + b_2X_{2+...}$$

***Choice of Derivative* = 0 + *Net Exposure* (0.00068) + *Exchange Gain/Loss* (0.00049) + *Number of Currencies* (0.31851)**

Table 12. Summary Results of Regression Test

Summary Results of Regression Test					
'*R*' Value					0.922986
'*R*' Square Value					0.851904
Adjusted '*R*' Square Value					0.814869
Standard Error Value					0.850017
Summary Results of ANOVA (*'F'* Test)					
	Df	***SS***	***MS***	***'F' Value***	***Significance 'F' Value***
Regression	5	274.3131	54.86261	94.91414	3.00095E-28
Residual	66	47.68694	0.722529	-	-
Total	71	322	-	-	-
Summary Results of Cefficient and *P* - Values of Regression Test					
		Coefficients	**Standard Error**	***'t' Value***	***'P' Value***
Intercept		0	0	0	0
Foreign Exchange Inflows (in Cr. ₹)		0	0	65535	0
Foreign Exchange Outflows (in Cr. ₹)		0.00067	0.00015	4.603068	0.0000195
Net Exposure (in Cr. ₹)		0.00068	0.00015	4.629432	0.0000177
Exchange Gain/Loss (in Cr. ₹)		0.00049	0.00359	0.137592	0.00890981
No.of Currencies		0.31851	0.02727	11.67847	1.03E-17

Table 13. Summary Results of Regression Test

Summary Results of Regression Test					
'*R*' Value					0.12676129
'*R*' Square Value					0.016068425
Adjusted '*R*' Square Value					-0.013302667
Standard Error Value					28.43961575
Summary Results of ANOVA (*'F'* Test)					
	Df	***SS***	***MS***	***'F' Value***	***Significance 'F' Value***
Regression	2	884.9743	442.4871	0.547083	0.581197949
Residual	67	54190.39	808.8117	-	-
Total	69	55075.36	-	-	-
Summary Results of Coefficient and *P*-Values of Regression Test					
		Coefficients	**Standard Error**	***'t' Value***	***'P' Value***
Intercept		-17.46389063	10.8509	-1.60944	0.112222
No. of Currencies		0.232147016	1.811439	0.128156	0.898409
No. of Derivatives		4.384367679	4.587486	0.955723	0.342648

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

To test the hypothesis H_{a4}, multiple regression test is used and the results are presented in the Table 13. It is observed from the table that '*R*' value obtained is 0.12676129, which implies that lower degree (i.e. 13%) of correlation exists between number of currencies and number of derivatives. *R* square value obtained is 0.016068425, which implies that exchange losses can be minimized through currency derivatives and multiple currency usage only to the extent of 2%. It is also observed from the table that *p* - value obtained is 0.112222 for intercept, 0.898409 for number of currencies, and 0.342648 for number of derivatives, which is more than 0.05. Since *p* - value is more than 0.05 for intercept, the null hypothesis H_{a4} is accepted. Hence, it is inferred from the results that foreign exchange losses cannot be substantially minimized through currency derivatives and multiple currency invoicing. From the values obtained, the following equation can be derived :

$$Y = a + b_1X_1 + b_2X_{2+...}$$

***Exchange Gain/Losses* = -17.46389063 + *No. of Derivatives used* (4.384367679) + *No. of Currencies used* (0.232147016)**

Findings and Suggestions

Based on the above analysis, the following findings have been observed and suggestions are given accordingly :

↳ From the above analysis, it is observed that in total, 11 currencies (USD, EUR, GBP, JPY, CHF, HKD, CAD, SGD, AED, AUD, RMB) are denominated by the nine sample companies. However, all nine companies have two common currencies, that is, USD and EUR and six companies use 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 the global level have to be prepared to handle any threat arising on account of fluctuations in the USD-INR parity.

↳ Out of nine companies chosen for the study in the textile sector, all nine companies used forward contracts to mitigate foreign exchange risk, options contract and currency swaps were used only by four companies, and no company used currency futures.

↳ The foreign exchange exposure among the selected companies in the textile sector remained uniform irrespective of size of the company.

↳ The foreign exchange exposure did not have substantial bearing on profitability of the companies in the textile sector.

↳ The net exposure, exchange gain/losses, and number of currencies involved in international operation are independent of the choice of currency derivative.

↳ It is also observed that the foreign exchange losses cannot be substantially minimized through currency derivatives and multiple currency invoicing.

Implications and Conclusion

The current study would benefit the companies having foreign operations in mitigating the currency

exposures. It would also be useful to the other participants in the forex market such as bankers to devise innovative currency derivative instruments and would also help the government and policy makers to find out loopholes in the current derivative instruments and modify the same accordingly. The uniqueness of the current study is that it identifies the type of currency derivatives and currencies used by the corporates for their day to day international business transactions.

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 and widely used hedging tool and easier to understand followed by currency swap and options. Most of the commercial banks in the private sector provide only forward contract for hedging currency exposure but not other derivatives like futures and option contracts. Bankers are suggested to popularize derivatives instruments, particularly option contracts by educating and creating awareness regarding the same.

Limitations of the Study and Scope for Further Research

The current study is subject to the following limitations :

- The current study is confined to secondary data obtained from annual reports of the respective companies.
- Only the companies listed on BSE and NSE are considered for the current study.
- The current study period pertains to 7 years commencing from FY 2010 to FY 2017.
- Only external techniques of currency derivatives used by the companies were considered for the analysis.

The current study is restricted to the textile sector and that too to nine selected companies. The study can be extended to other companies in the same sector and also to other sectors.

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