

STUDY OF FOREIGN EXCHANGE EXPOSURE IN INDIAN CORPORATE FIRMS

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Abstract

This article attempts to estimate foreign exchange exposure of Indian corporate firms by using different trade weighted exchange rate indices of the sample of 27 Indian nonfinancial firms for a period between 2009 and 2013 by estimating foreign exchange exposure by using Ordinary least square regression by considering various issues connecting to exchange rate exposure. This paper analyses the relationship between exchange rate changes and stock returns for a sample firms by estimating foreign exchange exposure. The bench marked method of Jorion's model of foreign exchange exposure estimation was used and results are explained and compared with earlier studies in the international level. All the findings are substantially higher than the previous researches in the area of foreign exchange exposure. The results indicate that on average, Indian firms benefit from an appreciation of the home currency and they may lose from a depreciation of home currency . The study concluded that the overall, there is only weak significant evidence of the sensitivity of stock returns to changes in trade weighted foreign exchange-rate index.

Keywords: Currency Risk, Foreign Exchange, Foreign Exchange Exposure, FX Exposure method

1. INTRODUCTION:

It is widely believed that exchange rate changes should affect the cash flows of a firm and hence a firm's value. A corporate firm having international trade engaged in producing and selling goods or services in more than one country with price denominated with respective local currencies. Since the breakdown of the Bretton Woods system of the fixed exchange rate in 1973, exchange rate volatility has increased dramatically. Exchange rate changes reflect both the price and quantities of the inputs and outputs of corporate firms dealing in international trade, which lead to the change of their competitive advantage or disadvantage in the global market, therefore, their cash flows change, and so change the value of firms. While finance theory strongly supports that firm value is sensitive to exchange rate movements, existing empirical studies were weakly supported. Most empirical studies have failed to find a strong relationship between exchange rate changes and a firm's stock market return, which is a proxy for the change in firm value. The early paper of Jorion (1990) and later studies of Amihud (1994) and Bartov and Bodnar (1994) have so far documented a weak linkage between existing exchange rate fluctuations and stock returns of U.S. multinational corporations. Similar international studies that investigate several countries, such as Bodnar and Gentry (1993) and Doidge, Griffin and Williamson (2002), also find few firms with significant exchange rate exposure.

There are several potential reasons for the weak evidence of a relationship between fluctuations in exchange rate and firm value . One possible reason is that prior research has mainly focused on studying the exchange rate exposure of U.S. multinationals and it is not clear whether these empirical results are merely a spurious correlation that may not be confirmed in other countries.

The second major reason is that the selection of the exchange rate index does not appropriately capture the firm's sensitivity to exchange rate fluctuations. For example, most existing studies used trade-weighted exchange rate indices with weights deriving from national trade figures with major trading partners. By doing this, they generally assume that changes in the trade-weighted value

of the domestic currency affect corporate firms uniformly (Shin and Soenen, 1999). It is easily understood that the international linkage of individual firms may not uniformly relate to these national trade figures, especially in the case of large multinational corporations, which have operations in different countries. The exchange rates that have great impacts on their revenues should be the relative exchange rate that affects their foreign revenues, e.g. bilateral exchange rate between home currency and the currencies of the countries their subsidiaries operate in. Therefore, the trade-weighted exchange rate indices may appropriately capture the exchange rate exposure faced by individual firm.

Finally, the third reason is that firms may protect themselves against exchange rate risk through the use of various hedging instruments. Corporate on- and off-balance sheet hedging activities can reduce the firm's exposure. Empirical studies of the incentives to hedge for multinational firms also support this conjecture. The magnitude of the exposure can be explained by variables that proxy for a firm's hedging incentives (Chow and Chen, 1998; He and Ng, 1998).

In this article, the researchers addresses the first two issues mentioned above. To address the first issue, that is the majority of prior studies are US based, so the researchers examines the exchange rate exposure of Indian Corporate firms for the period from 2009 to 2013.

The second issue is that the selection of the exchange rate index does not appropriately capture the firm's sensitivity to exchange rate changes. To address this problem the researchers used several indices such as six currency trade weighted index, 36 currency trade weighted index (both are published by RBI) and 58 currency trade weighted index published by Bank for International Settlements (BIS).

2. DATA AND METHODOLOGY

This section examines the exchange-rate exposure of 27 non financial Indian corporate firm's during the period from 2009 through 2013. The measurement of exchange rate exposure as the sensitivity of the value of the firm, proxied by the firm's stock return, to an unexpected fluctuations in an exchange rate, as defined in Adler and Dumas (1984).

Data relevant to the computation of individual firms' stock returns and rate of return of market portfolio index (S&P CNX Nifty index) of sample firms were collected from NSE website. The moving, trade weighted exchange rate index of Indian rupee is collected from RBI Database, which is published by RBI bulletin in every month.

For the past decade, researchers have been empirically investigating the exchange rate exposure of firms. Following Adler and Dumas (1984), most of this research measures the exposure as the elasticity between changes in firm value and an exchange rate. Empirically, this exposure elasticity is obtained from a regression of stock returns on an exchange rate change, often with additional control variables such as a market portfolio return. Although estimates of exposure for individual firms, as well as industry portfolios, have tended to suffer from low levels of statistical significance, tests have demonstrated sensible patterns of cross sectional variation.

The early exposure studies and many of the more recent detailed empirical studies on exchange rate exposure of U.S. firms (e.g., Allayannis (1996), Williamson (1998), Allayannis and Ofek (2001), Wong (1999) all share several common methodological characteristics in their specifications.

The general concept of exchange rate exposure refers to the degree to which a company is affected by exchange rate changes. A number of theoretical papers have investigated the possible sources of exchange rate exposure. For example, Adler and Dumas (1980), and Hodder (1982) have defined economic exposure to exchange rate movements as the regression coefficient of the real value of a firm on the exchange rate across states of nature.

Adler and Dumas (1984) defined the exposure elasticity as the change in the market value of the firm resulting from a unit change in the exchange rate. This is the definition of exposure that an investor is interested in, and it can also be the definition of exposure that the risk manager of the firm would be interested in if the change in the value of the firm is directly related to the change in the firm's expected cash flows. Adler and Dumas (1984) showed that assuming that companies' value is the present value of future cash flows; a company's exposure to fluctuations in the exchange rate could be determined by the elasticity of the firm value with respect to changes on the exchange rate. Therefore, the following equation was estimated:

$$R_{it} = b_{0i} + \beta_i XR_t + E_{it} \quad (1)$$

Where R_{it} is the stock-return of firm i in period t , XR_t is the percentage change in an exchange rate variable B_{0i} represents firm exchange rate exposure. i.e., the sensitivity or elasticity of firm i stock-returns to movements in the exchange rate. This elasticity indicates the firm's average exposure over the estimation period, in home currency units, as a percentage of the firm's market value.

Bodnar and Wong (2000) depicted that there are some drawbacks with this specification. They explained that this exposure captures not only the sensitivity of a firm's value to changes in the exchange rate, but also the relation between exchange rate changes and macroeconomic factors that affected the market value of the firm. Using this specification, they found that the exposure of the firm was extremely volatile with respect to the period of the estimation, and could not be rationalized for any change in the firms or in industry activities. The solution found by researchers were to add a market portfolio return in equation (1) in order to control for macroeconomic variables. Jorion (1990), conscious that other macroeconomic variables can co-vary simultaneously with the currency rate, proposes [measuring the firm-specific exchange rate exposure by estimating a two-factor model:

$$R_{it} = B_{0i} + B_{1i}R_{mt} + B_{2i}TW_{xt} + E_{it}$$

Where R_{it} is the rate of return on the i th firm's common

Stock in period t , R_{mt} is the rate of market return and R_{xt} is the rate of change of the exchange rate for period t . Many studies in the literature used trade-weighted exchange rate indices instead of separate currencies (see, for example, Jorion, 1990; Bodnar and Gentry, 1993; He and Ng, 1998 and Allayannis and Ofek, 2001;). In the spirit of these studies, the researchers used a trade-weighted exchange rate index, that measures the value of one unit of Indian Rupee (INR) in foreign currency. So the equation (2) is adjusted to account the trade weighted exchange rate indices as follows:

$$R_{it} = B_{0i} + B_{1i}R_{mt} + B_{2i}TW_{it} + E_{it} \quad (3)$$

Where R_{it} is the monthly rate of return on the i th firm's common stock in period t , R_{mt} is the monthly rate of return on the market portfolio in period t , to control for the market movements, (S&P CNX Nifty monthly value weighted market index), TW_{it} is the monthly rate of return on a moving, trade-weighted exchange rate index, measured in Indian Rupee per unit of foreign currencies in period t and e , the error term, is assumed to be normally distributed.

In Eq. (3), B_{2i} represents the exchange-rate exposure. Similar to a market beta, the exchange-rate exposure measures the percentage change in the rate of return on a firm's common stock against a one percentage change in the exchange rate. For examining the exchange-rate exposure, the present study used several trade weighted indices such as six currency Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) Indices, 36 currency NEER & REER (both are published by RBI) and 58 currency NEER & REER trade weighted index published by Bank for International Settlement (BIS).

The indices of Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) were used as indicators of external competitiveness. NEER is the weighted average of bilateral nominal exchange rates of the home currency in terms of foreign currencies. Conceptually, the REER, defined as a weighted average of nominal exchange rates adjusted for relative price differential between the domestic and foreign countries, related to the purchasing power parity (PPP) hypothesis.

The Reserve Bank of India (RBI) has been constructing six-country and thirty six-country indices of NEER and REER as part of its communication policy and to aid researchers and analysts. These indices are published in the Bank's monthly Bulletin. The BIS (Bank for International Settlement) calculates Effective Exchange Rate (EER) indices for a total of 58 economies. Nominal EERs are calculated as geometric weighted averages of bilateral exchange rates. Real EERs are the same weighted averages of bilateral exchange rates adjusted by relative consumer prices.

3. RESULTS

In this section the exchange rate exposure of Indian firms using different trade weighted exchange rate indices has been discussed. The Ordinary Least Squares (OLS) Regression Equation (3) is estimated using a trade-weighted exchange rate over a period from April 2005 to March 2013. Table 1 presented the results of all 27 sample firms foreign exchange exposure (P_{2i}) by

regressing the monthly stock returns on the value-weighted market portfolio index return(S&P CNX Nifty) and the change of Six currency trade-weighted index of Indian Rupee(both NEER & REER).

Table 1 shows the results of the Exchange rate Exposure of Indian firms using Six currency trade weighted exchange rate index. Out of 27 sample firms 15 firms showed positive foreign exchange exposure ($p_{2i} > 0$) and 12 firms showed negative foreign exchange exposure($p_{2i} < 0$) by using six currency NEER index. Where as in the case of six currency REER 15 firms showed negative and 12 firms showed positive foreign exchange exposure. The positive exposures mean that stock returns increased as Indian rupee depreciated against trade weighted exchange rate. The negative exposures mean that stock returns increased as Indian rupee appreciated against trade weighted exchange rate. However the foreign exchange exposure is statistically significant only 2 firms(Mahindra & Mahindra Ltd and Tata Motors Ltd) at 10% level in Six currency NEER index and 3 firms(Bharti Airtel Ltd at 10% level significant, Mahindra & Mahindra Ltd at 5% level significant and Tata Motors Ltd at

Table 1: Distribution of Exposure Coefficients (P_{2i}) of sample firms Using a six currency Trade-Weighted Exchange-Rate Index

SI No	Name of Company	Six currency NEER	Sixcurrency REER
		$B_{2i}(\text{Exposure})$	$B_{2i}(\text{Exposure})$
1	A C C Ltd.	-0.007	-0.005
2	Bajaj Auto Ltd.	-0.003	-0.004
3	Bharat Petroleum Corpn. Ltd.	0.009	-0.005
4	Bharti Airtel Ltd.	0.006	0.008*
5	Cipla Ltd.	-0.008	-0.002
6	Dr. Reddy'S Laboratories Ltd.	0.001	0.000
7	Grasim Industries Ltd.	-0.007	-0.006
8	H C L Technologies Ltd.	-0.004	-0.005
9	Hero Honda Motors Ltd.	0.001	0,001
10	Hindalco Industries Ltd.	0.000	-0.002
11	Hindustan Unilever Ltd.	0.001	0.000
12	I T C Ltd.	-0.002	-0.003

13	Infosys Technologies Ltd.	0.004	0.002
14	Jindal Steel & Power Ltd.	0.007	0.004
15	Larsen & Toubro Ltd.	0.005	0.001
16	Mahindra & Mahindra Ltd.	-0.013*	-0.017**
17	Ranbaxy Laboratories Ltd.	-0.005	-0.004
18	Reliance Communications Ltd.	0.001	0.002
19	Reliance Industries Ltd.	0.001	-0.002
20	reliance infra	0.003	0.001
21	Siemens Ltd.	0.000	0.002
22	Sterlite Industries (India) Ltd.	-0.003	-0.004
23	Sun Pharmaceutical Inds. Ltd.	0.003	0.004
24	Tata Consultancy Services Ltd.	0.001	0.003
25	Tata Motors Ltd.	-0.009'	-0.009**
26	Tata Steel Ltd.	-0.00008	-0.002
27	Wipro Ltd.	-0.005	-0.006
<p>The model used to compute the exposure coefficients, B_{2i}, is as follows: $R_{it} = B_{0i} + B_{1i}R_{mt} + B_{2i}TWI_t + E_{it}$; where, R_{it}, is the monthly stock returns of firm's i common stocks; R_{mt}, is the monthly return on the S&P CNX Nifty Index, TWI_t, is "the monthly return on the exchange-rate of Six currency Trade- Weighted Index (TWI) value of INR in month t; E_{it}, is the error term, normally, and independently distributed with mean zero and constant variance. The parameters of this model are estimated using the Ordinary Least Square (OLS) for a sample of 27 Indian corporate firms for a period from April 2009 to March 2013.</p> <p>Note: ***, ** and '-significant at 0.01., 0.05 .and 0.10 level respectively</p>			

5% level significant) in Six currency REER index. The distribution of the exposure coefficients shown in Table 1 indicates that only two and three firms out of 27, approximately 7.40% and 11.11 % of the sample, are significantly different from zero.

Table 2: Distribution of Exposure Coefficients (P2i) of sample firms Using a 36 currency Trade-Weighted Exchange-Rate Index

SI No	Name of Company	36currency NEER	36currency REER
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		B _{2i} (Exposure)	B _{2i} (Exposure)
1	A C C Ltd.	-0.001	-0.002
2	Bajaj Auto Ltd.	-0.006'	-0.008**
3	Bharat Petroleum Corpn. Ltd.	-0.002	-0.001
4	Bharti Airtel Ltd.	0.005"	0.006**
5	Cipla Ltd.	-0.001	-0.002
6	Dr. Reddy'S Laboratories Ltd.	-0.002	-0.003
7	Grasim Industries Ltd.	-0.001	-0.001
8	H C L Technologies Ltd.	-0.004	-0.005
9	Hero Honda Motors Ltd.	-0.003'	-0.002
10	Hindalco Industries Ltd.	-0.005	-0.005
'11	Hindustan Unilever Ltd.	0.001	0,001
12	I T C Ltd.	-0.001	-0.001
13	Infosys Technologies Ltd.	-0.003	-0.003
14	Jindal Steel & Power Ltd.	0.006	0,008
15	Larsen & Toubro Ltd.	0.003	0.003
16	Mahindra & Mahindra Ltd.	0.002	-0.001
17	Ranbaxy Laboratories Ltd.	-0.006	-0.005
18	Reliance Communications Ltd.	0.003	0.004
19	Reliance Industries Ltd.	0.004*	0.004
20	Reliance infra	0.002	0.003
21	Siemens Ltd.	-0.003	-0.003
22	Sterlite Industries (India) Ltd.	-0.001	-0.001
23	Sun Pharmaceutical Inds. Ltd.	0.001	0.001
24	Tata Consultancy Services Ltd.	-0.003	-0.003

25	Tata Motors Ltd.	-0.005"	-0.007***
26	Tata Steel Ltd.	0.000	-0.002
27	Wipro Ltd.	-0.006""	-0,007***
<p>The model used to compute the exposure coefficients, B_{2i}, is as follows: $R_{it} = B_{0i} + B_{1i}R_{mt} + B_{2i}TWI_t + E_{it}$ where, R_{it} is the monthly stock returns of firm's i common stocks; R_{mt} is the monthly return on the S&P CNX Nifty Index, TWI_t is 'the monthly return on the exchange-rate of 36 currency Trade-Weighted Index (TWI) value of INR in month t; E_{it} is the error term, normally, and independently distributed with mean zero and constant variance. The parameters of this model are estimated using the Ordinary Least Square (OLS) for a sample of 27 Indian corporate firms for a period from April 2009 to March 2013.</p> <p>Note: ***, ** and *-significant at 0.01., 0.05 .and 0.10 level respectively.</p>			

This findings consistent with prior studies such as Al-Shboul (2009), London (1993a) and Jorion (1990) who found significant exposure coefficients for 8.06%, 6.4% and 5.2%, respectively, for their sampled firms.

Table 2 presents the results of all 27 sample firms foreign exchange exposure (p_{2i}) by regressing the monthly stock returns on the value-weighted market portfolio index return (S&P CNX Nifty) and the change of 36 currency trade-weighted index of Indian rupee (both NEER & REER).

Table 2 shows that out of 27 sample firms 17 firms showed negative foreign exchange exposure and 10 firms showed positive foreign exposure by using 36 currency NEER index. Where as in the case of 36 currency REER, 19 firms showed negative and 8 firms showed positive foreign exchange exposure. However the foreign exchange exposure statistically significant is 6 firms in 36 currency NEER index and 4 firms in 36 currency REER index. The distribution of the exposure coefficients shown in Table 2 indicates that only 6 and 4 firms out of 27, approximately 22.22% and 14.81 % of the sample, are significantly different from zero. this results are consistent and higher than with prior studies such as Al-Shboul (2009), Loudon (1993a) and Jorion (1990) who found significant exposure coefficients for 8.06%, 6.4% and 5.2%, respectively, for their sampled firms.

Table 3 presents the results of all 27 sample firms foreign exchange exposure (p_{2i}) by regressing the monthly stock returns on the value-weighted market portfolio index return (S&P CNX Nifty) and the change of 58 currency trade-weighted index of Indian Rupee (both NEER & REER). Table 3 presents that out of 27 sample firms 16 firms showed negative foreign exchange exposure and 11 firms showed positive foreign exchange exposure by using 58 currency NEER index. Where as in the case of 58 currency REER 17 firms showed negative and 10 firms showed positive foreign exchange exposure. However the foreign exchange exposure statistically significant is 8 firms in 58 currency NEER index and 4 firms in 58 currency REER index. The distribution of the exposure coefficients shown in Table 3 indicates that only 8 and 4 firms out of 27, approximately 29.62% and 14.81 % of the sample, are significantly different from zero. This results are consistent and higher than that of prior studies such as Al-Shboul (2009), Loudon (1993a) and Jorion (1990) who found significant exposure coefficients for 8.06%, 6.4% and 5.2%, respectively, for their sample firms,

Table 3 : Distribution of Exposure Coefficients (B_{2i}) of sample firms Using a 58 currency Trade-Weighted Exchange-Rate Index

SI No	Name of Company	58 currency NEER	58 currency REER
		B_{2i} (Exposure)	B_{2i} (Exposure)

1	A C C Ltd.	0,000	-0.002
2	Bajaj Auto Ltd.	-0.005*	-0.009*
3	Bharat Petroleum Corpn. Ltd.	-0.002	-0.002
4	BhartiAirtelLtd,	0.005**	0.006*
5	Cipla Ltd.	-0.001	0.000
6	Dr. Reddy'S Laboratories Ltd.	-0.002	-0.002
7	Grasim Industries Ltd.	0.000	-0.002
8	H C L Technologies Ltd.	-0.004	-0.005
9	Hero Honda Motors Ltd.	-0.003*	-0.002
•10	Hindalco Industries Ltd.	-0.006*	-0.004
11	Hindustan Unilever Ltd.	0.001	0.001
12	I T C Ltd.	-0.002	0.000
13	Infosys Technologies Ltd.	-0.002	-0.003
14	Jindal Steel & Power Ltd.	0.006	0.011
15	Larsen & Toubro Ltd.	0.003	0.004
16	Mahindra & Mahindra Ltd.	0.003	-0.005
17	Ranbaxy Laboratories Ltd.	-0.006*	-0.006
18	Reliance Communications Ltd.	0.003	0.003
19	Reliance Industries Ltd.	0.004*	0.003
20	Reliance infra	0.001	0.006
21	Siemens Ltd.	-0.002	-0.002
22	Sterlite Industries (India) Ltd.	-0.001	-0.002
23	Sun Pharmaceutical Inds. Ltd.	0.000	0.001
24	Tata Consultancy Services Ltd.	-0.003	-0.003

25	Tata Motors Ltd.	-0.005**	-0.008**
26	Tata Steel Ltd.	-0.001	-0.002
27	Wipro Ltd.	-0.006***	-0.008**

The model used to compute the exposure coefficients, B_{2i} , is as follows: $R_{it} = B_{0i} + P_i R_{mt} + B_{2i} TWI_t + E_{it}$, where, R_{it} , is the monthly stock returns of firm's i common stocks; R_{mt} , is the monthly return on the S&P CNX Nifty Index, TWI_t , is the monthly return on the exchange-rate of 58 currency Trade-Weighted Index (TWI) value of INR in month t ; E_{it} , is the error term, normally, and independently distributed with mean zero and constant variance. The parameters of this model are estimated using the Ordinary Least Square (OLS) for a sample of 27 Indian corporate firms for a period from April 2009 to March 2013.

Note: ***, ** and "-significant at 0.01, 0.05 and 0.10 level respectively.

Table 4 : Foreign exchange Exposure Coefficients (P_2) (Summary Statistics)

Alternative TWI	6 Currency NEER	6 Currency REER	36 Currency NEER	36 Currency REER	58 Currency NEER	58 Currency REER
Vlean	-.000855	-.001778	-.001148	-.001185	-.000926	-.001185
Standard Deviation	.0052304	.0049016	.0032782	.0039617	.0033846	.0046080
Minimum	-.0130	-.0170	-.0060	-.0080	-.0060	-.0090
First Quartile	-.005000	-.005000	-.003000	-.003000	-.003000	-.004000
Median	.000000	-.002000	-.001000	-.002000	-.001000	-.002000
Third Quartile	.003000	.002000	.001000	.001000	.001000	.001000
Maximum	.0090	.0080	.0060	.0080	.0060	.0110
No. of +ve exposure	15	12	10	8	11	10
No. of -ve exposure	12	15	17	19	16	17
No. of sign, exposure	2'	3(2" & D	6(3', 2" & !")	4 (2** & 2***)	8 (5', 2" & 1")	4(2* & 2**)
% of sign, exposure	7.40	11.11	22.22	14.81	29.62	14.81

The model used to compute the exposure coefficients, B_{2i} , is as follows: $R_{it} = B_{0i} + B_{1i}R_{mt} + B_{2i}TWI_t + E_{it}$ where, R_{it} , is the monthly stock returns of firm's i common stocks; R_{mt} is the monthly return on the S&P CNX Nifty Index, TWI_t is the monthly return on the exchange-rate Trade- Weighted Index (TWI) value of INR in month t ; E_{it} , is the error term, normally, and independently distributed with mean zero and constant variance. The parameters of this model are estimated using the Ordinary Least Square (OLS) for a sample of 27 Indian corporate firms for a period from April 2009 to March 2013.

Note: ***, ** and * -significant at 0.01, 0.05 and 0.10 level respectively.

Table 4 summarizes the results of the estimation of exposure coefficients, p_{2i} , estimated by Equation (3), for all the 27 sample firms using all alternative trade weighted exchange rate exposure. The table provides statistics that describe the distribution of the estimated exchange rate exposure measures, p_{2i} , including the mean, median estimates and the standard deviation of the estimates, some aspects of its range, and the number of firms whose exposure is found to be statistically significant.

The first and second column of Table 4 shows the summary statistic of foreign exchange exposure coefficients (P_{2i}) using a narrow six currency trade weighted exchange rate index NEER and REER respectively. Only Two firms in NEER (7.40%) and Three firms in REER (11.11%) out of 27 Indian firms showed significantly exposed to exchange rate risk for six currency NEER and REER respectively. The third and fourth column of Table 4 presents the summary statistic of foreign exchange exposure coefficients (P_{2i}) using a broad thirty six currency trade weighted exchange rate index NEER and REER respectively. Out of 27 Indian firms only six (22.22%) and four (14.81%) showed significantly exposed to-exchange rate risk for 36 currency NEER and REER respectively. The last two columns of Table 4 presents the summary statistic of foreign exchange exposure coefficients (p_{2i}) using BIS broad 58 currency trade weighted exchange rate index NEER and REER respectively. The results showed 8 firms in NEER (29.62%) and 4 firms in REER (14.81%) out of 27 Indian firms are significantly exposed to exchange rate risk for 58 currency trade weighted index.

Compared with previous studies Al-Shboul (2009), Loudon (1993a) and Jorion (1990), who found significant exposure coefficients for 8.06%, 6.4% and 5.2%, respectively, for their sampled firms, Indian firms are more frequently exposed to exchange rate change. Furthermore, out of total sample more firms are showing a negative exposure coefficient in all alternative trade weighted exchange rate indices except six currencies NEER. These results indicate that on an average, Indian firms benefit from an appreciation of the home currency and they may lose from a depreciation of home currency. The study concluded that the overall, there is only weak significant evidence of the sensitivity of stock returns to changes in trade weighted foreign exchange-rate index. However this is slightly higher than and consistent with prior studies such as Loudon (1993a), Jorion (1990) and Al-Shboul (2009).

Over all the results above gives some support for hypothesis that foreign exchange rate do affect on firm values (stock returns). The fact that the exposure appears more important in India than developed countries accords with arguments that it important to look at firms in more open economies when studying exchange rate exposure.

4. CONCLUSION

The study examine the relationship between exchange rate changes and stock returns for a sample of 27 Indian non financial firms for a period between 2009 and 2013 by estimating foreign exchange exposure by using the standard Jorion-model. The study found that some of the Indian companies are exposed to exchange rate fluctuation and that, on average, Indian companies do not benefit from home currency depreciations, using monthly data. The study found that about 7.40% and 11.11% of the 27 firms in the sample are significantly exposed to exchange rate changes by using six currency trade weighted exchange rate of Indian rupee NEER and REER respectively. 36 currency trade weighted exchange rate are using instead of six currency trade weighted exchange rate, the number of significant exposure increased to 22.22% and 14.81% respectively for 36 currency NEER and REER. the study also find that the number of significant exposure are increased to 29.62% and 14.81% of the 27 firms in the sample while using BIS 58 currency trade weighted exchange rate NEER and REER respectively. All these findings are substantially higher than the previous researches in the area of foreign exchange exposure. The results indicate that on average, Indian firms benefit from an appreciation of the home currency and they may lose from a depreciation of home currency. The study concluded that the overall, there is only weak significant evidence of the sensitivity of stock returns to changes in trade weighted foreign exchange-rate index.

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