

# Impact of Real Effective Exchange Rates Changes on the Top 500 Firms of the BSE From 2014 - 2015

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DOI:10.37648/ijtbm.v13i03.007

<sup>1</sup>Received: 02 June 2023; Accepted: 27 August 2023; Published: 07 September 2023

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## ABSTRACT

This Paper studies the impact of real effective exchange Rates on the Performance and profitability of the top Indian firms from 2014 to 2015. This paper uses various regression models to examine the factors affecting the performance of the top 500 firms on the Bombay stock exchange. This study will analyse the correlation between REER and business performance indices by exploring changes in import and export patterns through foreign exchange liabilities. Since the export and capital goods sectors have a more significant impact on the firm's performance, revenue and profitability, they outperform the impact of the import sector. The BSE 500 is a market-weighted index that works on a free-float system; This paper talks about all the significant sectors in the Indian economy. In the following article, we will look at factors such as revenue and profits, growth rates, resource utilisation, forex spending and exchange rate changes to analyse the effect on firm performance. Through these factors, we can see a clear relationship between the stock performance of the firms and the changes in REER. Along with these leading indices, we will explore larger ratios to help mitigate the impact of exchange rate fluctuations on Indian firms. In the following analysis, all the above factors positively correlate with the REER.

## INTRODUCTION

The global economy has seen a tremendous increase in international trade, and over the last 25 years, along with this increase in business, a rise in the importance of developing nations acting as significant contributors to the global trade panorama has also been seen. Since the first world war, the global commerce percentage has increased more than eight times. With the expanding significance of global supply chains, networks, and high-tech solutions, emerging and developing nations such as India are becoming significant hubs for international commerce. India is the correct country for this study as, firstly, it is a drastically developing nation and has a rising economy that is a substantial contributor to global commerce; along with this, what makes it easy to analyse is its free-floating exchange rate system. In the early years, India followed a fixed exchange rate system; however, as time passed and with crises attacking the Indian economy one after the other, they had to shift to a market-based exchange rate system which allowed them to become more flexible and react to the given crisis of those times in the right way, after the change year on year India has seen steady growth in all its sectors as well as makes and exchange rates. Sudden exchange rate swings can impact the firm's performance through various routes, including the cost of imports to other given variables, the price of exports and its effect on international rivals and global commerce. It has also affected the cost of borrowing, both foreign and domestic. There are a lot many other ways in which these fluctuations affect the economic development of a nation. One of the main contributors to the economy is its exports. Export firms in the country provide high profits, output

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<sup>1</sup> How to cite the article: Patel N., Shanbhag D. (September 2023); Impact of Real Effective Exchange Rates Changes on the Top 500 Firms of the BSE From 2014 – 2015; *International Journal of Transformations in Business Management*, Vol 13, Issue 3, 78-90, DOI: <http://doi.org/10.37648/ijtbm.v13i03.007>

and employment levels in their given sectors. A strong export sector and vigorous export activities in the nation also boost the other sectors, promising economic growth and allowing the country to expand its ties in global commerce. In recent years India's sudden boom in the economy is directly due to its expansion in the export sector. India has built healthy ties with nations to have trade agreements and receive support from other countries. Thus for an economy like India to grow, the export industry plays a significant role in developing the entire economy. From about 15% in the 90s to about 40% in 2014-15, India's export sector has seen a substantial increase year on year and India not only grew internally but these changes were showcased on the international markets as well from about 0.4% in 1990 to almost 1.6% in the late 2012's India jumped up the index showing its share in global commerce and by this period India was the 12th largest commercial centre for both international and domestic trade.

Exports of services saw an effective increase between 2007-2014 than the export of goods from the nation, with services expanding at rates of almost 25% and goods growing year on year at nearly 19%. These significant trends also contributed to India's real effective exchange rate by almost 1.9% during the same period. Changes in the exchange rates can affect how prosperous a nation and its business are. Changes in domestic and global price levels due to the fluctuations in exchange rates might alter the level of exports and imports and vary input prices for industries due to high international or import costs, causing them to reduce their costs in other areas. It converts the valuation of assets bought or evaluated in foreign currencies and causes more significant price fluctuations. Due to these three main factors, specific sectors are primarily affected by the exchange rate fluctuations and have a direct impact on the global commerce levels and global economy along with other factors such as unemployment, cash flow problems etc., when we see an increase in the value of the domestic currency, in this case, INR it causes the domestic price of inputs with international prices to decline which lowers costs of production for the firms. Making their business much more profitable during these times, they tend to employ more workforce to maximise their production and earn the most significant amounts of revenue; however, a depreciation of the exchange rate causes the inverse effect on firms where profits tend to decrease costs increase.

Further, these fluctuations also cause an impact on the value of assets denominated in foreign currencies. Companies with international interests and multinational operations have current cash flows in the foreign currency, and the value of their home currency will depend on the exchange rates according to the market; thus, the importance of industries with these foreign-denominated assets often rises when the home currency depreciates and falls when a home currency appreciates causing drastic fluctuations in price and profit levels. Through empirical observations such as returns and profitability performance, growth performance, stock performance, growth rates related to firm specifics, cash flow, unemployment charts, and a few export-import charts, we tend to examine the effect of the exchange rate on solid performance and unemployment in the Indian economy. The top 500 companies listed on the Bombay Stock Market in India. This study aims to assess the effects of exchange rate fluctuations on business performance for the leading Indian enterprises, whether they engage in foreign business activities or not, but who may still be indirectly impacted by currency movement.

Section 2 discusses the literature review, and Section 3 describes the dataset in detail, presenting all statistics and valuations. Section 4 lays out the empirical formulation and presentation of results, and section 5 presents the conclusions.

## LITERATURE REVIEW

[6] The paper is related to the microeconomic literature that examines the impact of exchange rate fluctuations on firm-level performance. One section of this literature focuses on the effects of exchange rate changes on a firm's value measured by its stock returns. Another strand of the literature looks at the issue of pricing policies in response to currency fluctuations. [7] The paper presents a literature survey on the impact of exchange rate fluctuations on firm-level performance. The study focuses on the effects of the real effective exchange rate on Indian firm performance. The analysis is based on a multivariate regression model from 1 Dec 2011 to 1 Dec 2012 for the top 242 Indian firms in the Bombay Stock Market. [8] The empirical analysis of this paper reveals that, on average, there has been a substantial negative impact of currency appreciation and currency volatility on Indian firms' export shares. While the firm-level accounting information and other macro variables have limited implications, there is evidence that these Indian firms respond asymmetrically to exchange rates. For instance, the REER change effect is likely driven by a negative appreciation effect but not so much a depreciation effect. Also, the Indian firms with smaller export shares tend to respond more robustly to REER change and volatility. Compared with those exporting goods, the firms that

export services are more affected by exchange rate fluctuations. [9] The present study assesses the 'probability of incurring loss' of manufacturing firms in India during different phases of business cycles. We use data on 87 manufacturing companies from 2002 to 2014. The paper empirically tests the hypothesis using the panel logit model with the dependent variable derived from the return on assets. The study assumes significance because of the importance of macroeconomic variables in the strategic decision-making of the general corporate sector and manufacturing firms. [10] The study investigates the relationships between the Indian stock market index and five macroeconomic variables, namely, the industrial production index, wholesale price index, money supply, treasury bills rates and exchange rates over the period 1994:04–2011:06. Johansen's cointegration and vector error correction model have been applied to explore the long-run equilibrium relationship between the stock market index and macroeconomic variables. The analysis reveals that macroeconomic variables and the stock market index are cointegrated, so a long-run equilibrium relationship exists between them. [11] This paper investigates interactions between exchange rates and stock prices in the emerging financial markets of India, Korea, Pakistan and the Philippines. The motivation is to establish the causal linkages between leading prices in the foreign exchange market and the stock market; the connections have implications for the ongoing attempts to develop stock markets in emerging economies simultaneously with a policy shift towards independently floating exchange rates. Some recent econometric techniques are applied to a bivariate vector autoregressive model using monthly observations on the IFC stock price index and the real effective exchange rate. [12] The study found no evidence of the J-curve phenomena in India, and this work employs an asymmetric model. Currency depreciation improves the trade balance in the short term, whereas currency appreciation worsens it. The same response is seen in the long run, but only the impact of currency depreciation is statistically significant. The trade balance worsens more due to increased domestic demand than it improves due to declining domestic market conditions. Finally, an increase in foreign demand positively affects the trade balance statistically more significantly than a fall in the foreign market. [13] The Paper examines the long-term relationships between macroeconomic factors such as the gold price, inflation rate, foreign exchange reserve, and exchange rate change with the BSE. The model of numerous regression equations should look at how these aspects relate. The empirical findings show a strong correlation between the exchange rate, gold, and stock prices. On the other hand, the influence of foreign exchange reserves and inflation on stock prices can only be felt to a limited extent. [14] This paper aims to support the macroeconomic theory that domestic currency appreciation discourages export because it drives domestic goods and services up in price, and domestic currency depreciation discourages export because it goes local goods and services down in price. The authors are testing this theory for the Indian rupee while concentrating on software services export. The collected time-series data were subjected to a multiple regression analysis by the authors of this study. The real effective exchange rate, the US dollar to Indian rupee exchange rate, the growth of the external gross domestic product, and the growth of the household gross domestic product of India have no discernible effects on the export of software services, according to the author's analysis of the data. [15] Mohan Rakesh presented a paper at the FICCI-IBA Conference on Global Banking. The study mainly focused on the connection between Indian company success and economic reforms. Mohan talked about how the performance of firms had been impacted by the economic reforms carried out in the nation. The discussion addressed the necessity to face new issues and the paradigm shift in the global banking industry. It revealed the opportunities and difficulties businesses confront in the evolving economic environment and offered light on the effects of economic changes on the corporate sector in India. Overall, the discussion aimed to promote a greater comprehension of how economic reforms and company performance interact in the Indian context. [16] This study examines the effect of the exchange rate in explaining company investment between 2006 and 2014. Other firm-level variables based on the Census on Establishments are also considered, along with export and import channels as potential drivers. Compared to earlier literature, we can more accurately capture the cost and revenue channel using the data's complete information on exports and imports. According to the empirical investigation, the export channel is modest compared to accepted wisdom. The import channel, however, is crucial and demonstrates that a firm's investment may stay the same due to currency appreciation. [17] This paper empirically examines the exchange rate effects on firm exports, domestic sales, total sales, value-added and productivity by using data on firms listed on the Taiwan Stock Exchange merged with customs trade data covering the period of 1992-2000. The findings indicate that the actual depreciation of the NT dollar led to an increase in exports, domestic sales, total sales, value-added, and productivity. In addition, it finds that the productivity improvement induced by real currency depreciation may result from firm-scale expansion. [18] In a sample of more than 13,500 enterprises globally, this study examines how 12 "major depreciations" occurred between 1997 and 2000 and affected various firm performance metrics. According to the findings, corporations experience significantly more significant market capitalisation growth but significantly lower net income growth in the year after depreciation. Various indices show that companies with more exposure to international sales fare substantially better following depreciations. Although there is no strong correlation between debt exposure and the other performance

indicators, companies with more excellent debt ratios typically have slower net income growth. Although the significance and robustness of this result vary among specifications, larger enterprises usually perform worse than smaller ones. [19] The relationship between business leverage and profitability is examined in this paper. The results show that corporate profitability and cash flows decrease as influence increases based on firm-level data on the manufacturing industry in India from 1995 to 2004. More significantly, compared to other organisations, enterprises participating in international debt markets exhibit a stronger marginal impact of increased power on earnings. The results are solid after accounting for the economic climate and firm-specific controls.

## DATA COLLECTION AND METHOD

Our primary source of data will be the Bombay Stock Exchange financial publications, and along with that, to go deeper into the economy and learn about other patterns and valuations, we will be looking at the PROWESS database that was created by the CMIE which holds financial results of almost every Indian firm listed in the economy out of these companies we will be looking at the top 500 companies which have a substantial impact on the stock market, huge contributors to the economy and large employers in the nation they include both domestic and global firms as well as take into account import and exports from these levels and profitability ratios and the effect of exchange rate fluctuations on the top Indian firms.

We will also use the statistical technique known as ANOVA, or analysis of variance, comparing the means of three or more groups to see any notable differences between them. It evaluates whether the observed differences between group means exceed what would be predicted by chance. The "between-group" variance and "within-group" variation are calculated using the ANOVA method. The difference between the group means compared to these two sources of variation to see if it is statistically significant. An F-statistic, or the ratio of between-group to within-group variation, is calculated through an ANOVA. The F-statistic indicates that the group means are significantly different if it is higher than what would be predicted by chance. The data must adhere to specific assumptions, including independence, normality, and homogeneity of variances. ANOVA offers valuable insights into group differences if the presumptions are true, and it permits researchers to make judgements based on the sample data.

In conclusion, ANOVA is a statistical technique that compares variance within and between groups to see whether there are any significant variations in group means.

### EQ 1. $Y = \alpha + \varepsilon + (\text{REER} - \text{PR}) + \Delta\text{REER}$

The given equation will allow us to set up the base for the study and find values and the impact of exchange rates on the firms. Y represents the firm's performance over the year and profitability. Absolute practical exchange rate volatility is calculated using the standard deviation of monthly REER indexes over the year. Delta REER is the change in the real effective exchange rate, with an increase signifying an appreciation of the Indian rupee. Delta REER and (REER - PR) are utilised as coefficients of changes and volatilities of foreign currency of Indian enterprises; hence, we chose Import and Forex borrowing and Forex spending as exchange rate indices to showcase the impact of the fluctuations. Apart from these aspects, every firm has different variables, effects, and problems regarding operations; thus, the data set needs to be controlled. Thus it gives a limitation to the study. The import, foreign currency borrowing, and foreign currency expenditure indices are negatively impacted by exchange rate fluctuations and volatility, which is statistically significant. The following sections have created these hypotheses to explore how exchange rate fluctuations affect company performance in the given sectors and firms. Results of multivariate research linking firm performance indices to variations in foreign currency accounts impacted by the exchange rates for Indian enterprises are shown. Therefore, it is expected that changes in the exchange rate will affect the accounts for imports, foreign currency spending, and foreign currency borrowings—Adjustments in company performance indices as a result and how the firm employs resources.

### Table 1 - Variables for the entire analysis

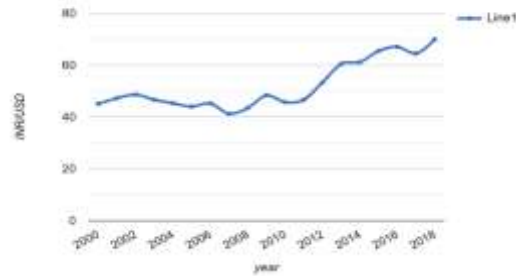
The dependent, independent and controlled variables used in the empirical analyses in the current study are defined in the following subsection. Since our goal is to investigate how the exchange rate affects business performance and other effects of these fluctuations, we computed various indices to generate analysis and justify the hypothesis strongly since the real effective exchange rate is a notion that represents economic health and offers an excellent option for determining the fair values of a currency about significant currencies worldwide.

Sr. no	Variable	Parameters
1	Controlled	1) Leverages: Degree of Financial Leverage, Degree of Combined Leverage, Operating Leverage 2) Stock specifics: Stock Price per Share, Dividend Payout Ratio 3) Profitability 4) Financial ratios: Current Ratio, Quick Ratio, DebtEquity ratio; 5) Foreign Currency ratios 6) Firm assets
2	Dependent	1) Import and export valuations 2) Stock prices 3) Cash flow 4) growth and expansion performance
3	Dependent	1) Forex changes on Imports. 2) Total forex spending and borrowing 3) Forex import fluctuations. 4) Currency fluctuations

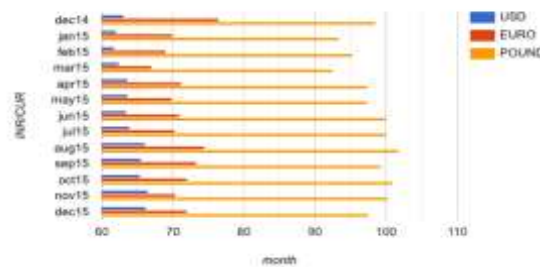
Table 2 - Forex Fluctuations from Dec 2014 to Dec 2015 against Indian Rupee

Date	US dollar	Euro	Pound
Dec 2014	63.05	76.48	98.4622
Jan 2015	62.01	69.97	93.4161
Feb 2015	61.7	69.08	95.2499
Mar 2015	62.43	67.01	92.5357
Apr 2015	63.60	71.19	97.4418
May 2015	63.71	69.92	97.4813
Jun 2015	63.58	70.94	99.9585
Jul 2015	63.87	70.32	100.0218
Aug 2015	66.14	74.41	101.8615
Sep 2015	65.50	73.41	99.3708
Oct 2015	65.40	71.97	100.897
Nov 2015	66.46	70.41	100.3031
Dec 2015	66.16	71.99	97.6196
<b>Average</b>	<b>64.16</b>	<b>71.31</b>	<b>98.04</b>
<b>Max</b>	<b>66.46</b>	<b>76.48</b>	<b>101.8615</b>

**Table 3 - Average annual exchange rate of the Indian Rupee against the USD**



**Table 4 - Average annual exchange rate of the Indian Rupee from 2014 - 2015**



**RESEARCH RESULTS**

**Hypothesis 1 - CAPEX**

$$EQ 2. CAPEX = \varepsilon + \beta + \beta FCCGI + \beta CFFS + \beta CFB + \beta CSSI + \beta FTI$$

We view capital expenditures as an indicator of the effectiveness of expenditures because they generate future cash flow and a sizable ROI which is necessary for any firm. Forex Changes in Capital imports are affected by changes in the real effective exchange rate, meaning that the demand and supply of the capital goods of the given firms relate to the real effective exchange rate of the Indian currency. Currency Fluctuations on Total Foreign Spending are Total Foreign Spending affected by variations of Real Effective Exchange Rate for Firms' Sample. Imports of stores and spare parts are impacted by changes in the real effective exchange rate for the sample of enterprises when considering forex fluctuations; Forex Fluctuations on Total Imports refer to how changes in the real effective exchange rate affect the total imports account for the sample of firms involving their store and their spare production capability given below table 5 presents the findings from the estimation of Equation 2 and includes a multivariate regression model for the top 500 Indian companies of the BSE, which showed that capital expenditures connect foreign currency accounts which means that it showcases a connection between the flow of money within the firm and exchange rate fluctuations in the global market. Table 5 summarises the model we generated, showing that R square is excellent and F change is considerable for the given firms and regression pattern. It is anticipated that rising exchange rates and exchange rate movements will result in more frequent modifications to import indexes, causing the firms to change their practices in response to the REER fluctuations. As a result, increasing capital spending and raising costs will directly impact the firm's profitability. A positive correlation exists between capital expenditure, changes in forex borrowing indexes, and changes in forex spending. Thus, exchange rate fluctuations directly and primarily impact capital expenditure.

Table 5 - Multivariate regression analysis for EQ 2.

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
1	0.972	0.921	0.849	596301.62

Model	Unstandardised coefficients		Std. Coefficient	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	98238.003	42013.411		3.02	0.014
	Forex Changes on capital goods imports	-41970187.24	2997631.003	-0.531	-17.222	0
	Currency fluctuations on Total forex spending	98.329	33.228	0.873	3.835	0
	Changes on Foreign Currency Borrowings	62994.658	5923.237	0.374	11.925	0
	Forex Changes on stores and spares imports	-163009221.2	18196871.99	-0.425	-9.003	0
	Forex fluctuations on total imports	-121.009	34.114	-1.001	-3.994	0.001

## Hypothesis 2 - P/E Ratio

$$\text{EQ 3. } P/E = \varepsilon + \beta + \beta\text{CFGI} + \beta\text{FFCB} + \beta\text{FRMI} + \beta\text{CSSI} + \beta\text{FCCGI}$$

We define the stock performance index as stock price/earnings. Forex Imports of completed goods are impacted by variations in the real effective exchange rate for the sample of enterprises; Currency Fluctuations on Foreign Currency Borrowings is the term used to describe how changes in the actual effective exchange rate influence the model of enterprises' foreign currency borrowing accounts and thus affect their earnings ratio; Forex Fluctuations on Raw Material Imports is the effect of currency fluctuations on the real effective exchange rate for a sample of businesses; Currency Changes Affecting Supplies and Spares For the model of enterprises, imports are affected by changes in the real effective exchange rate in the implications of stores and spare parts. Changes in the real effective exchange rate for the sample of enterprises in Forex Fluctuations on Capital Goods Imports impact imports of capital goods of the firms. According to Table 6, which comprises a multivariate regression model for Indian enterprises and the results of estimating Equation 3, the ratio is related to foreign currency accounts. Accordingly, Table 6 displays a model summary demonstrating excellent R square and significant F change and the ANOVA analyses establishing the regression and all significant coefficients. Rising exchange rate fluctuations result in rising changes in import indices—increased volatility in the exchange rate results in increased swings in foreign currency borrowing and spending. Consequently, costs and earnings will rise, and (P/E) will decrease. Because the link between the (P/E) and changes in import indices in our model is negative, our evidence supports the predictions drawn from the model. The model shows a significant negative correlation between changes in imports of stores and spare parts and the size of

impact for different import indices (P/E). The (P/E) ratio has a slight inverse association with changes in foreign currency borrowings.

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
2	0.727	0.578	0.498	83.01305

Model	Unstandardised coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
2	(Constant)	21.693	5.993		3.978	0
	Forex changes on finished goods imports	-2468.839	172.104	-0.931	-15.926	0
	Currency fluctuations on foreign currency borrowings	-0.009	0.004	-0.212	-3.989	0.004
	Forex fluctuations on raw materials imports	0.005	0.001	-0.818	-6.987	0
	Forex changes on stores and spares imports	-19184.738	3274.673	-0.721	-6.892	0
	Forex Changes on capital goods imports	-7.00E-02	0.021	-0.371	-5.101	0

### Hypothesis 3 - Net cash flow

$$\text{EQ 4. NCF} = \varepsilon + \beta + \beta\text{CSSI} + \beta\text{CCGI} + \beta\text{FTFS} + \beta\text{FTI}$$

Net Operating Cash Flow is what we use as a measure of cash performance. FX fluctuations on spare parts and stores Imports are affected by changes in the actual effective exchange rate for the sample of enterprises' imports of supplies and spare parts; Imports of capital goods are impacted by changes in the real effective exchange rate for the sample of enterprises according to forex changes; Currency variations on Total Foreign expenditure are variations in the total foreign expenditure account for the selection of firms; Currency Fluctuations on Total Foreign Imports are fluctuations in the total imports account for the selection of firms; The multivariate regression model for Indian enterprises, which is included in Table 7, gives the estimation results for Equation 4 and reveals that the relationship between Net Operating Cash Flow and Foreign Currency Accounts. Accordingly, Table 7 displays a model summary demonstrating excellent R square and significant F change and the ANOVA analyses establishing the regression and all significant coefficients. Rising exchange rate fluctuations are anticipated to result in increasing changes in import indices—growing expenses, and decreasing net operating cash flow. Changing exchange rates and increasing exchange rates are driving up foreign currency borrowing and spending and raising Net Operating Cash Flow. Since there is a blatantly negative correlation between Net Operating Cash Flow and changes in import indices in our model, our



evidence is consistent with the predictions made by the model. It is noted that different import indexes are affected to varying degrees and that changes in stores and imports of spare parts have a significant negative influence on net operating cash flow. A positive correlation exists between changes in total forex spending and net operating cash flow.

Table 7 - multivariate regression analysis for EQ 4.

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
3	0.721	0.537	0.42	32069.53933

Model	Unstandardised coefficients		Standardised Coefficients	T	Sig.	
	B	Std. Error	Beta			
3	(Constant)	1331.538	2198.219		0.676	0.05
	Forex changes on stores and spares imports	-2010458.953	970028.779	-0.238	-1.785	0.05
	Forex changes on capital goods imports	-630001.99	144499.984	-0.377	-4.983	0
	Currency Fluctuations on total forex spending	4.222	2.008	2.224	2.5	0
	Forex fluctuations on total imports	-4.79	1.794	-1.8	-2.753	0.033

#### Hypothesis 4 - Firm growth rate

$$\text{EQ 5. } \text{FGR} = \varepsilon + \beta + \beta\text{CSSI} + \beta\text{FCGI} + \beta\text{CFCB} + \beta\text{CRMI} + \beta\text{FFGI}$$

Internally growing at The highest rate of expansion a business can experience without taking out loans, issuing additional shares, or finding another funding source. We view it as a measure of internal growth performance; Forex Modifications to Spares and Stores Imports are affected by changes in the actual effective exchange rate for the sample of enterprises' imports of supplies and spare parts; changes in the real effective exchange rate for samples of businesses cause Forex Fluctuations on Capital Goods Imports. Foreign Currency Changes For the sample of firms, borrowings are changes in the real effective exchange rate's foreign currency borrowing account; Imports of capital goods are impacted by changes in the actual effective exchange rate for enterprises' samples, according to a study called Forex Fluctuations on Capital Goods Imports. Foreign Currency Changes For the sample of firms, borrowings are changes in the real effective exchange rate's foreign currency borrowing account; Forex For the selection of enterprises, changes in the fundamental effective exchange rate impact changes in the imports of raw materials. Forex Import of completed goods is affected by changes in the actual effective exchange rate for the sample of enterprises, according to fluctuations in finished goods imports; The internal growth rate is related to foreign currency accounts, as shown by the multivariate regression model for Indian enterprises used in Table 5's reporting of the results of estimating

Equation 5. Accordingly, Table 8 displays a model summary demonstrating excellent R square, significant F change, and an ANOVA analysis establishing the regression and all significant coefficients. Rising exchange rate fluctuations result in rising changes in import indices. Increased variations in exchange rates result in increased swings in foreign currency borrowing and spending. Costs will rise as a result, and the internal growth rate will decline. Because there is a negative correlation between internal growth rate and changes (fluctuations) in import indices in our model, our evidence is consistent with the predictions made by the model. It is noted that the impact sizes for different import indices vary. Changes in store inventory and imports of spare parts have a more excellent inverse relationship with the internal growth rate. The internal growth rate and changes in foreign currency borrowings have a negative association.

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
4	1.08	0.921	0.864	0.16429

Model	Unstandardised coefficients		Standardised Coefficients	T	Sig.	
	B	Std. Error	Beta			
4	(Constant)	0.003	0.014		0.368	0.06
	Forex Fluctuations on stores and spares imports	-75.694	5.442	-0.722	-11.635	0
	Forex Fluctuations on capital goods imports	0	0	-0.372	-8.994	0
	Changes in Foreign currency borrowings	-0.011	0	-0.208	-6.864	0
	Forex changes on raw materials imports	-0.563	0.054	-0.476	-7.401	0
	Forex fluctuations on finished goods imports	-5.00E-05	0	-0.21	-5.184	0

## CONCLUSION

We evaluate the effect of the exchange rate on firm performance since changes and variations in exchange rates are significant. A country's import and export patterns will vary due to changes in the exchange rate, and changes in its imports and exports will change the economic environment and the performance of its businesses. We discover that rising exchange rate fluctuations lead to rising fluctuations in import indices, which reduces a firm's net worth, total asset value, and total assets—increased fluctuations in the exchange rate result in increased fluctuations in foreign currency borrowings and spending. As a result, this causes a fall in net worth, total asset value, and total assets reducing the firm's total market value.

We discover that rising exchange rate fluctuations result in rising import indices, foreign currency spending, and borrowings. This lowers the internal growth rate and (P/ E). This suggests that changes and volatility in exchange rates will less impact businesses with larger (P/E) ratios. Another aspect is that enterprises with more substantial internal growth rates will be less affected by exchange rate swings and fluctuations. Additionally, we discover that

rising exchange rate changes result in rising import indices. They are decreasing the Net Operating Cash Flow as a result. Rising exchange rate fluctuations result in rising foreign currency borrowings and spending. They were rising Net Operating Cash Flow as a result.

Changes in imports of capital goods and imports of supplies and replacement parts are more valuable than other indexes for measuring a firm's performance. We also discover little correlation between the real effective exchange rate and the stock price relative to book value, sales price, total assets value/shares outstanding, and operating leverage level.

### **LIMITATIONS**

It would be advantageous to use time series data from specific years in a specified period to increase the trustworthiness of this study. The top 500 companies listed on the Bombay Stock Exchange (BSE) provided the primary data, which may not represent the entire country of India. Additionally, the developments in India might only be representative of some of the global economy; therefore, using datasets from several international markets would enable more accurate research and appraisal. The ability to generate patterns of the trends for a better debate would also be boosted by considering several years in more detail.

### **FUTURE STUDIES**

Future studies should use larger samples to increase the generalizability of their findings. Data from other significant Indian stock exchanges, including the National Stock Exchange of India (NSE), will be analysed. Additionally, we will divide or create sector-wise analysis to enable us to dig deeper into the market and better understand how REER affects each market. These categories include industry type, ownership structure, and firm size. Indian businesses can aim to match their foreign currency income and expenses to lessen the consequences of exchange rate changes. A corporation will naturally insure against changes in exchange rates if, for instance, its revenue is made in US dollars and its expenses are made in US dollars. Additionally, to lock in a currency rate for future transactions, Indian businesses can sign forward contracts with banks or other financial institutions. In doing so, they can protect themselves against currency volatility by fixing the exchange rate beforehand. As a result, people will trade products and services at a set price. The Indian government has the authority to enact currency swaps, which entail exchanging one currency for another, promising to reverse the transaction later. For businesses with long-term foreign currency liabilities, this can assist in offsetting exchange rate concerns. By diversifying their markets, Indian businesses can enter new nations and regions. The performance of other needs can be used to balance the effects of exchange rate changes in one specific location while operating in different markets. For instance, Indian businesses can start functioning in other nations, and the top 500 Indian corporations can grow their operations abroad. By sourcing materials locally or setting up production facilities in their international markets, Indian businesses can lessen their vulnerability to exchange rate volatility. As a result, fewer goods or services must be imported, lowering currency risks. Companies might use pricing strategies that account for changes in exchange rates. They could consider flexible pricing strategies like indexing prices to local currencies or utilising dynamic pricing models that modify prices in response to fluctuations in exchange rates. To protect themselves against exchange rate risks, Indian businesses can use financial derivatives such as options, futures, or currency swaps. These tools enable companies to hedge against unfavourable currency changes and participate in potentially advantageous ones. Some businesses purchase currency risk insurance to guard against potential losses due to exchange rate swings. Insurance companies may offer plans that cover the exchange rate risk in whole or part. Effectively identifying and monitoring exchange rate risks can be facilitated for businesses by developing and implementing comprehensive policies. This entails routinely monitoring the currency markets, predicting changes in exchange rates, and developing risk mitigation plans as necessary. Due to these characteristics, Indian businesses can withstand exchange rate changes without suffering severe consequences for their operations or the Indian market.

### **OTHER IMPACTS**

The government unveiled the GST Bill 2014 to streamline and simplify the nation's indirect tax structure. The GST was implemented in July 2017 after the bill was passed in 2016. Multiple taxes imposed by the federal and state governments were replaced by the GST, creating a uniform tax system throughout India. This reform impacted firms

in both positive and negative ways. While it simplified taxation and lightened the load of many levies, several firms found adjusting to the new system complicated. The Make in India initiative, introduced in September 2014, sought to increase domestic production and promote foreign investment across various industries. It aimed to promote India as a centre of global manufacturing. The initiative provided a range of incentives to draw capital and increase output. Many businesses profited from increasing government assistance and foreign investment during this time. During this time, the government implemented several initiatives to improve the convenience of doing business in India. There have been initiatives to streamline company regulations, lower administrative barriers, and expedite different approval procedures. These changes were made to improve the business climate and lure investments. As a result, some businesses saw decreased administrative costs and increased operational simplicity. The government strongly emphasised infrastructure development, investing in various industries, including roads, trains, airports, and ports. Infrastructure projects, particularly construction, logistics, and allied sectors, can significantly impact businesses. Better connections, lower logistical costs, and more commercial prospects might result from improved infrastructure. During this time, the Indian economy expanded, with the GDP growth rate rising from around 6.4% in 2013-2014 to about 7.2% in 2014-2015. An expanding economy can benefit businesses by boosting demand for goods and services. To encourage foreign investment, the government loosened FDI regulations in several industries. Increased FDI limits were seen in the retail, insurance, and defence sectors. This action prompted international investors to enter the Indian market and boost local businesses with a cash infusion and technology transfer. All these economic reforms also took place during the taken time period with the exchange rate fluctuations. These factors have also affected the firm performance drastically as these were some of the most crucial years for the Indian economy.

#### ACKNOWLEDGMENT

This paper is an independent and individual work and not in connection with any school-based work or school curriculum.

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**Abbreviations:**

REER	Real effective exchange rate
BSE	Bombay Stock Exchange Ltd.
ANOVA	Analysis of Variance
CMIE	Centre for Monitoring Indian Economy
CAPEX	capital expenditure
P/E	Price-to-earning ratio
NCF	Net cash flow