

# IMPACT OF EXCHANGE RATE FLUCTUATIONS ON PHARMACEUTICAL INDUSTRIES' STOCK PRICES IN INDIA

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## ABSTRACT

*Exchange rate is parameter to measure the International competition between the different countries. It is also known as index of competitiveness of currency of any country and an inverse relationship between this index and competitiveness exists. An exchange rate has two important component, the domestic currency and a foreign currency and it can be represent by the directly or indirectly. In the first way the price of a unit foreign currency is represent in terms of the domestic currency. In indirect way, the price of a unit of domestic currency is representing in terms of the foreign currency. The foreign exchange market is the place where the currency of one country is exchanged for that another country where the rate of exchange is determined.*

*The Indian pharmaceutical industry currently occupies the top position among science based industries. Indian pharma industry is organized sector and it has to be total market value of 4.5 US billion dollars. It growth rate is near about 8% to10% per annum. The Indian pharmaceutical sector is highly structured with Approx 20,000 units. It market capitalization is expected to grow to US\$ 85 billion by the year 2020.*

*The purpose of this paper is to investigate the exchange rate exposure of pharmaceutical Industry in india. For this stock price of selected companies (Yearly and exchange rate data) are taken from the government websites. The time periods are taken from 2003 to 2013. The result indicate that weaken rupee has significant positive relationship with pharmaceutical sector.*

**Key words :** Exchange rate, Pharma, fluctuations, foreign exchange rate exposure and Pharmaceutical

## INTRODUCTION:

Exchange rate is parameter to measure the International competition between the different countries. It is also known as index of competitiveness of currency of any country and an inverse relationship between this index and competitiveness exists. An exchange rate has two important component, the domestic currency and a foreign currency and it can be represent by the directly or indirectly. In the first way the price of a unit foreign currency is represent in terms of the domestic currency. In indirect way, the price

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Approx 20,000 units. Its market capitalization is expected to grow to US\$ 85 billion by the year 2020. The pharma market is dominated by branded generic which is almost 70 % to 80% of the market. India has successfully held an eminent global position in this sector. The country also has a huge pool of experts who have lot of potentials to take the pharma industry to a very reputed position.

### MARKET SIZE

The market size of the pharma industry is estimated to grow at 20% as per the report of Indian rating a Fitch company. Its market can be growing at 10% to 12% in financial year 2015 as compared to 9% percent in financial year 2014. In India Gujarat has the highest growth rate in pharma sector it is 22.4% as per the survey conducted by the marketing research firm AIOCD.

### CURRENT SCENARIO

The Indian pharmaceutical sector market size is expected to grow to US \$ 85 billion by 2020. The government of India has announced pharma vision 2020 which objective is to making India a global leader in end to end drug manufacturing. The government of India reduced the approval process for new investors in the pharma sector.

The government of India takes the few imitative for the growth and development of the pharma industries.

- Indian and global business partners have give their consent for 175 investment intentions for Rs 1000 crore in the pharma sector in the state of Gujarat.
- The India new created state Telangana has proposed to set up India largest integrated pharmaceutical city spread over 11,000 acres for the investment of R.S 30,000 crore.

### REVIEW OF LITERATURE

The Foreign Exchange rate concept measures the sensitivity of its cash flows to changes in exchange rates. However, since cash flows are very difficult to measure, most researchers have investigated the exposure by

studying how the firm's market value position and the present value of its expected cash flows, responds to changes in exchange rates. Exchange rate exposure certainly has the potential to be a significant risk factor for firms. The various researcher like Bodnar and Gentry (1993), Bartov and Bodnar (1994), Choi and Rajan (1997), Jorion (1990, 1991), Maand Rao (1990), Apte (1997) in his research work investigations have failed to discover significant relationship between stock returns and exchange rate changes either at aggregate level such as a market or industry indices or at the level of individual firms. There have also been studies of relation between stock returns and exchange rate changes using the cointegration Approach. (Ajayi and Mougoue (1996). All these research findings on the first moments i.e. relationship between mean stock returns and exchange rate return

He and Ng (1998): He and Ng (1998) and Glaum, Brunner and Himmel (2001) conducted his work in Japanese and German firms, respectively, and they found that a positive relation between stock returns and exchange rate movements. But even in these countries, where presumably the large firms have relatively more foreign trade than do their U.S. counterparts, the percentage of firms with significant return exposures was still less than would be expected.

Brown's (2001): Brown's (2001) research work of the hedging practices of a U.S. firm found that the firm hedged twenty-four different currencies due to both extensive foreign sales and the importation of a major portion of their manufacturing inputs.

Glaum, Brunner and Himmel (2001): Glaum, Brunner and Himmel (2001) investigated the Japanese and German firms, respectively, and they found a good relation between stock returns and exchange rate movements. But even in these countries, where presumably the large firms have relatively more foreign trade than do their U.S. counterparts, the percentage of firms with significant return exposures was still less than would be expected.

Bhattacharya et. al.(2001) conduct a case study to analyze "Causal Relationship between

Stock Market and Exchange Rate, Foreign Exchange Reserves and Value of Trade Balance". They used methodology of Granger non-causality recently proposed by Toda and Yamamoto (1995) for the sample period April 1990 to March 2001. In this study, the Bombay BSE Sensitive Index was used as a proxy for the Indian stock market. The three important macroeconomic variables included in the study are real effective exchange rate, foreign exchange reserves and trade balance. The analysis reveals interesting results in the context of the Indian stock.

Nieh and Lee in (2001) examined the relationship between stock prices and exchange rates for G-7 countries for the period from October 1, 1993 to February 15, 1999. They claimed no long-run equilibrium relationship for each G-7 countries.

Nishat and Shaheen (2004) analyze long-term equilibrium relationships between a group of macroeconomic variables and the Karachi Stock Exchange Index. The macroeconomic variables are represented by the industrial production index, the consumer price index, M1, and the value of an investment earning the money market rate. They used vector error correction model to explore such relationships during 1973 to 2004. Their results indicate a "causal" relationship between the stock market and the economy and show that industrial production is the largest positive determinant of Pakistani stock prices, while inflation is the largest negative determinant of stock prices in Pakistan. They found that macroeconomic variables Granger-caused stock price movements, the reverse causality was observed in case of industrial production and stock prices. Furthermore, he found that statistically significant lag lengths between fluctuations in the stock market and changes in the real economy are relatively short.

Aydemir and Demirhan (2009) studied the causal relationship between stock prices and exchange rates, using data from 23 February 2001 to 11 January 2008 for Turkey. Their empirical research found the bidirectional causal relationship between exchange rate and all stock market indices. While the negative causality exists

from national 100 services, financial and industrial indices to exchange rate, there exists a positive causal relationship from technology sector indices to exchange rate. On the other hand, negative causal relationship from exchange rate to all stock market indices is determined.

## RESEARCH AND METHODOLOGY

### Data Collection:

The period of this study is between 2003 to 2013. The yearly value of exchange rate and stock prices are taken from the BSE website and exchange rate data are collected from the website [www.rbi.gov.in](http://www.rbi.gov.in), [www.moneycontrol.com](http://www.moneycontrol.com) and others indian government website. The following Pharmaceutical companies are taken for the research.

- Aurobindo pharma
- Cipla Limited
- Dr Readdy Lab
- Lupin

### Tools and Techniques:

For analysing the secondary data, the correlation analysis is applied. First we take the secondary data (Exchange rate, share price of selected companies listed in Bombay stock exchange)

Data analysis and Interpretation

Impact of Exchange rate on Pharma industries)

(A) Aurobindo pharma

**Table: 1 Exchange rate and BSE share Price**

Aurobindo pharma		
Year	Exchange rate	BSE
2003	45	85.88
2004	44	64.79
2005	44	81.99
2006	43	141.03
2007	40	108.56
2008	48	33.56
2009	46	182.8
2010	45	263.48
2011	51	85.15
2012	55	189.3
2013	58	392.9

Source: Moneycontrol.com

**INTERPRETATION:**

The value of R is 0.575. This is a moderate positive correlation, which means there is a tendency for high X variable scores go with high Y variable scores (and vice versa). The value of R<sup>2</sup>, the coefficient of determination, is 0.3306 and p value is 0.064236

B) Cipla limited

**Table No: 2 Exchange rate and BSE share Price**

CIPLA		
Year	Exchange rate	BSE
2003	45	126.9
2004	44	126.9
2005	44	177.36
2006	43	250.7
2007	40	212.6
2008	48	186.9
2009	46	335.6
2010	45	369.9
2011	51	319.55
2012	55	414.1
2013	58	400.55

Source: Moneycontrol.com

**INTERPRETATION:**

The value of R is 0.6762. This is a moderate positive correlation, which means there is a tendency for high X variable scores go with high Y variable scores (and vice versa). The value of R<sup>2</sup>, the coefficient of determination, is 0.4572 and p value is 0.022346. The result is significant.

C) Dr Readdy Lab

**Table No: 3 Exchange rate and BSE share**

Year	Exchange rate	BSE
2003	45	714.03
2004	44	432.65
2005	44	489.25

Year	Exchange rate	BSE
2006	43	811.2
2007	40	735.35
2008	48	469.75
2009	46	1143.8
2010	45	1662.55
2011	51	1577.95
2012	55	1828.5
2013	58	2533.05

Source: Moneycontrol.com

**INTERPRETATION:**

The value of R is 0.8062. This is a strong positive correlation, which means that high X variable scores go with high Y variable scores (and vice versa). The value of R<sup>2</sup>, the coefficient of determination, is 0.65. The p value is 0.0002725 and result is significant.

(D) Lupin

**Table No: 4 Exchange rate and BSE share Price of Lupin**

Year	Exchange rate	BSE
2003	45	70
2004	44	68.55
2005	44	76.69
2006	43	122.41
2007	40	126.74
2008	48	123.57
2009	46	298.06
2010	45	480.45
2011	51	447.2
2012	55	613.3
2013	58	908.6

Source: Moneycontrol.com

### INTERPRETATION

The value of R is 0.8633. This is a strong positive correlation, which means that high X variable scores go with high Y variable scores (and vice versa). The value of R<sup>2</sup>, the coefficient of determination, is 0.7453. The p value is 0.000618 and result is significant.

### CONCLUSION:

This Research work Investigate the casual relationship between exchange rate and stock price performance of Information Technology stocks listed in BSE Sensex. The results of the study reveal that there is positive relationship between exchange rate and performance of the share price of pharmaceutical companies. From the above research it is clear that weaken domestic currency (Rupee) will have significant positive relation with stock price and stronger rupee will have negative impact on stock price of pharmaceutical company. This is due to hedging strategies adopted by pharma companies.

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