CHAPTER 1

INTRODUCTION

Many macro economic factors seem to influence the share prices in any capital market and Indian capital market is no exception. Analysts believe that share prices can reasonably be judged with respect to technical and fundamental analysis. While one may reason out and judge the price level and trends by attributing factors such as inflation, credit policy, monetary policies, economic growth etc. the impact of these factors have not been quantified to any reasonable extent. In a perfect market situation where information is available on such factors, the investor is expected to react rationally in tandem with the changes. However market realities have been different.

1.1 Relevance Of The Study

Proponents of economic reforms claim that India, over the last decade and a half, has been undergoing a measured, gradual, cautious, and steady process of efficient price discovery for interest rates, exchange rates and securities, in the overall functioning of the financial markets. While stock markets are subject to market forces for price determination the full convertibility of the rupee on current account and the partial convertibility on capital account should enable the rupee also to discover its price based more on market forces. A great degree of financial integration has also evolved over
the past one decade which is expected to strengthen the interrelationship between the different variables of the financial matrix of the country. More importantly Indian markets are increasingly getting recognized as destinations for investment by developed countries demanding greater level of integration with the global markets. Indian financial markets are not isolated from global happenings nor are they completely insulated from exogenous shocks. Whether we follow a flow oriented or a portfolio balanced approach, once exchange rates become competitive can its impact, if any, on pricing of stocks be ignored?

*Peter Drucker in his article ‘The global economy and the Nation-state’, stated that exchange rate fluctuations create a lot of virtual money and that money flows to the stock market and creates fluctuations in the stock market.*

It is in this context the study entitled *Impact of Exchange rate fluctuations on the Share prices in the Indian Capital Market*, was undertaken.

The share price volatility in the Indian capital market is apparently more pronounced since economic reforms kick started the liberalization process, and more especially after the rupee was freed from the administered price regime in 1993. Over the last two decades the rupee was subjected to wide fluctuations. From a pre-liberalisation rate of around Rs 21 to a US Dollar it declined to Rs 31.37 in 1993 to over Rs 49 in May 2002 and it temporarily strengthened to Rs 43 in March 04 before it declined over Rs 45 in 2005 and again to Rs 46 in 2006 against the US Dollar. The daily rate
variations were more pronounced when it was subjected to market forces and after being made convertible in 1995.

The progress and stability helped India and her stock market to become one of the preferred destinations for investment. Capital flows from both domestic and international investors to the Indian equity market have become significant post 2000. India now attracts a chunky portion of the global portfolio flows to emerging markets. Mobility of Capital especially invested through portfolio investment seems to traffic between economies all over the Globe, based on competitiveness of prices and returns. Stock prices/indices have also now become an important parameter in defining the financial matrix of any country along with conventional measures of interest rates, exchange rates, GDP growth rates etc. Some of these factors are mutually dependent also.

Evidence of stock market reaction to some of the factors like interest rate, inflation, and money supply has been reported at length. At the time of conceiving the topic for study no conclusive evidence was available on the response of share prices in relation to the exchange rate fluctuations. Seeing this research gap, it was decided to take up a detailed study on the topic of impact of exchange rate fluctuations on the share prices in the Indian capital market.
1.2 The Scope Of The Study

The scope of the study is limited to the exchange rate of Indian Rupee against the US Dollar and Equity Prices in the secondary market exchanges of BSE and NSE.

Initially the period of coverage considered was between 1991 and 1998. As the study progressed it became evident that later years are more significant to the topic of study, and hence the study was extended to the year 2006.

1.3 Objectives

The main aim of the study was to find out the impact of exchange rate fluctuations on the share prices in the Indian Capital Market.

This involved

- Examining the behavior of exchange rate of rupee versus the US Dollar during the study period
- Examining the movement of the selected share prices taking relevant stock indices and share prices of selected companies BSE and/or NSE stock exchanges.
- Finding out the relationship, if any, between the movement of the two variables ie. Exchange Rate and Share Price and
Establishing whether, there is any impact of the exchange rate fluctuations on the share prices either in the short run or in the long run.

1.4 Hypothesis

To achieve the above objectives the following hypothesis is formulated.

\[ H_0 \text{: There is no significant impact of exchange rate fluctuations on the share prices.} \]

\[ H_1 \text{: Fluctuations in the exchange rate do have an impact on the share prices.} \]

1.5 Research Design

The Study demands a clear understanding of:

- The various exchange rate systems/mechanism and the supporting theories,
- The functioning of the equity capital market, more especially the secondary market.
- The theories on valuation and pricing of securities.
- The major policy changes and the changes in the regulatory framework governing the operations of both Foreign exchange market and Equity markets in India.
And tracking down the following for the study period (July 1991 to June 2006),

- the major events affecting the stock market and foreign exchange market
- the daily movement of the exchange rate of the Rupee against the US Dollar
- the daily movement of the various indices and share prices in the secondary market with special reference to BSE and/or NSE.

1.6 Preliminary Study

In order to find out whether exchange rate fluctuations was a matter of any concern for investors a preliminary opinion survey was conducted among 20 experts in asset management companies in Mumbai and Cochin. As it was the time, not too far after the financial crisis in the Asian markets, the respondents were quite aware of the concurrent melt down in both currency market and stock markets. Most of them felt the two markets are mutually influencing each other, although some of them felt it was only a temporary impact. This finding motivated further analysis. Accordingly, a correlation study was conducted to find out the correlation between Exchange rate and the stock prices by regressing average monthly SENSEX 30 on average monthly nominal exchange rate of the Indian Rupee to the US $ covering the period (1995-2000). The results pointed towards some correlation between the two variables and this signaled the need for further investigation.
1.7 Literature Reviewed

A detailed survey of the studies and reports related to the topic was conducted. Most of the studies were on developed countries and only a few studies were available in the Indian context. It was seen that the range of methods used varied from simple regression and correlation in a few cases to causality and co-integration tests in many cases. There was no consistent pattern of relationship and the studies were non-conclusive and in case of certain periods and of countries, it was seen that long term relationship prevailed where as the relationship was too short term in case of certain others. Studies were more conclusive with respect to developed countries but were period specific and country specific. The validity of the period varied from very short term and event based to medium term and long term in some cases.

1.8 Changing Scenario

The equity market in India has been passing through significant changes in terms of the style of operations, type and volume of trade, regulatory framework, pricing and settlement mechanisms, speed and costs of transaction and level of technological support. It also appeared that the share prices have been undergoing some kind of cyclicality. Benefiting from the low cost of operations, broader markets, more transparency in pricing and efficiency of trading, the Indian equity market is now getting closer to an efficient market. In a fast integrating capital market which is becoming globally significant the interrelationship between various economies and the
interaction between various parameters of the macroeconomic matrix calls for due attention.

1.9 Sources of Data Collection.

The required data for the study were collected from various secondary sources such as publications of RBI, BSE, NSE and SEBI, Journals such as Economic and Political weekly, Journal of Financial Economics, Company reports, databases such as Cline, Prowess and websites such as


1.10 Data Used

1.10.1 The period of study was from 1\textsuperscript{st} July 1991 to 30\textsuperscript{th} June 2006, a tenure of 15 years and further sub periods marked by significant events since 1991, major trends in the exchange rate or indices and / or changes in policies governing exchange rates and equity market.

1.10.2 Exchange Rate: Daily spot rates i.e. daily exchange rates of US $ to Rupee as per RBI reference rate during the period from 1\textsuperscript{st} July 1991 to 30\textsuperscript{th} June 2006, covering fifteen years, were considered in the time series for exchange rate.
1.10.3 Share Prices: The daily closing prices of the Indian stock market indicator, SENSEX - the 30 scrip BSE index - for the from 1\textsuperscript{st} July 1991 to 30\textsuperscript{th} June 2006 was mainly considered to study the existence of any relationship between exchange rate and share prices in the Indian capital market.

Daily rate variations of BSE 100, BSE 200, the corresponding DOLLEX series, Sectoral indices covering various industry groups and the daily share prices of selected companies, were considered for shorter time periods for further detailed analysis.

1.11 Selection of Period, Stock Exchanges, Share prices and Exchange Rates

The exchange rate of the US $ to the rupee is taken to study the fluctuations in exchange rate, as it remained the dominant foreign currency for India. It was also observed that the Indian rupee exhibited a peculiar trend in its value against US $. It changed rapidly at certain time points, followed by long periods of placidity with minimal volatility before a further change. Such patterns were considered and studied separately. While the overall impact was measured in terms of the changes in the SENSEX further detailed analysis was carried out with respect to more broader indices like BSE 100 and BSE 200 and their exchange rate treated correspondents such as DOLLEX 30, DOLLEX 100, DOLLEX 200. The relative volatility in rates for the corresponding pairs were studied in detail to check on the impact of exchange
rate fluctuations. Further, Sectoral indices were considered to find whether the impact if any, was varying according to the different industry sectors. To verify the specific impact on export oriented and import oriented companies, the study was extended to shares of selected companies listed on BSE and/or NSE.

1.12 Tools Used and Methods of Analysis

Statistical tools used for the analysis varied from simple graphical analysis and descriptive statistics and correlation study to detailed time series analysis using econometric tools. Time series analysis was used extensively on the data sets for various combinations of different indices /share prices for different durations/time periods. As a first step, the data sets were checked for stationarity using Augmented Dickey Fuller (ADF) Unit root test. The data sets were found to be stationary at their first difference. The optimal lag period for each set of data was determined using Final Prediction Error (FPE) and Akaike’s Information Criteria (AIC). Johansen’s Co-integration Test and Granger Causality Test were applied on each set of data and on their subsets to facilitate a thorough investigation of the interrelationship between the two variables viz. Exchange rate (EXR) and Share prices (represented by the various indices and companies’ share price). The presence of any short – run dynamics and/or long-run equilibrium relationship was investigated.
1.13 Chapter Scheme

The thesis is organized under seven chapters. The first chapter provides an introduction to the study. In this chapter, the context is explained and a brief outline of the study is narrated. The second chapter gives a brief account of the scenario of the two markets viz. foreign exchange market and equity market- in terms of their evolution since 1991 and their transition through the liberalization period. The major developments, the important policy changes and the events that happened which were significant in shaking and shaping the two markets in India are cited in this chapter. The third chapter reviews the various theories of foreign exchange determination and those on stock valuation and pricing. In the chapter that follows i.e. the fourth chapter, the various study reports and other literature available on the relationship between exchange rates and stock prices for markets both in India and abroad are summarized under literature review. This is done under two broad categories, (a) studies related to developed markets and some Asian Markets and (b) those based on the Indian markets. The framework of the study, research design, the tools and techniques used for analysis etc are covered in Chapter 5 named under Research Methodology. The researcher has undertaken an extensive search for finding out the interrelationship between exchange rate and share prices which is notable both in terms of its depth and breadth. The analysis is carried out from a layman’s perspective by undertaking simple graphical and episodic analysis before going in for
sophisticated econometric tools of co-integration and causality in a time series analytical framework using software support.

The data analyses were carried out in four dimensions, as stated below, based on daily exchange rate and

- The Sectoral Indices for thirteen industry groups including MIDCAP and SMALLCAP indices.
- Daily Share prices of selected companies during 2000 - 2006
- Broader indices such as BSE100, BSE200 and BSE 500 and DOLLEX 30, 100 and 200 series during 2001-2006.

Chapter 6 gives the detailed account of the above along with the findings in each sub-section. For brevity sake, only relevant extracts of the test results are included as part of this chapter. Except for illustrative cases, most of the details of the test results are separately compiled along with supporting data, as soft copy in the CD ROM attached. The last chapter, Chapter 7 gives the summary of findings and conclusions drawn.

The relationship between exchange rates and stock prices in the Indian capital market is not consistent and is time varying more in line with the prevalent policy regime. In the long term tenure of fifteen years (1991-2006), taken at one stretch, a co-movement of exchange rate of the rupee to the dollar and the price levels in the Indian equity market was observed which
is indicative of a long run equilibrium relationship in a dynamic frame work. However, by taking different time zones of varying durations within the fifteen years, it was found that there is perceptible variations in the nature of interactions between the two variables. Their impact on each other which ranged from strong co-movement to clean indifference. To this extent the study replicates C W J Granger’s (2000) findings on developed markets that causality is time varying and movements in both capital markets and foreign exchange markets are “intrinsically a short run occurrence”. The impact of the exchange rate fluctuations is dynamic in nature and there is no uniformity in the nature of relationship between the two variables for different periods and for different industry sectors.

The study also made some important revelations about the Indian financial markets, which were undergoing gradual transition from a goods market approach to a portfolio balanced approach in determining their prices.

1.14 Contribution of the Researcher

The studies previously conducted were mostly confined to markets other than India. The few studies available so far, related to the topic covering the Indian Capital Market, covered earlier periods with latest up to 2002, and drew conclusions mostly based on a single index at a stretch and taking either monthly data or daily data of NSE index NIFTY.
The present study has been conducted with enhanced scope both in terms of depth and breadth of coverage. It has taken a long period of 15 years (1991-2006) and considered daily changes in the stock prices on BSE and made in-depth analysis, focusing on different industry sectors, selected individual companies and covering the latest period. The detailed analysis of the period 2001-2006 is unique in the sense that it has envisaged research on the dynamics of inter-linkages of exchange rate and stock prices in a period when the Indian capital market exhibited very close characteristics of a globally relevant and an efficient market as well. Moreover, it has included a comparative analysis of the movement of indices of broader coverage such as BSE 100 and BSE 200 against their counterparts in DOLLEX series.

More research needs to be undertaken in the Indian financial market arena to understand the dynamics of monetary and financial variables. The virtual money created through the fluctuations of exchange rate need to be tracked and quantified. With the growing support of the information technology and communication, and the increased transparency in the market information system, the reach in this direction seems achievable.