CHAPTER 4

LITERATURE REVIEW

Studies on the relationship between stock prices and exchange rates can be traced way back to 1972. The available literature over the three decades established nothing conclusive and the debate still continues among researchers on the relationship between the two variables. The surveyed literature is classified into two broad categories viz. 1) Studies related to developed and other Asian countries 2) Studies related to India.

4.1 Studies related to developed and other Asian countries

4.1.1 The earliest of the studies was done by Frank and Young in 1972 who investigated the relationship between exchange rate and stock prices using six different exchange rates and found no relationship between the two financial variables.

4.1.2 Aggarwal (1981) studied the contemporaneous relationship between changes in the US stock prices and the changes in the trade weighted exchange rate of the US Dollar during the period 1974-1978 and found that the stock prices and the value of the US Dollar were positively correlated and the relationship was stronger in the short term than in the long term.
4.1.3 Solnik (1987) observed a negative correlation between real domestic stock returns and real exchange rates for the period 1973-1983 with respect to eight industrialized countries. However, a weak but positive relationship between the variables was observed for the period 1979-1983 based on monthly data.

4.1.4 Soenen and Hennigan, (1988) documented a strong negative correlation between US Stock indices and a fifteen country weighted exchange rate of the dollar. They further explained that the nature of the change in stock prices would depend on the multinational characteristics of the firm as a change in the exchange rates would affect a firm’s foreign operation and overall profits which would, in turn, affect its stock prices. Conversely, a general downward movement of the stock market will motivate investors to seek better returns elsewhere. This decreases the demand for money, pushing interest rates down, causing further outflow of funds causing depreciation of the currency, thus suggesting a two way relationship between the two variables.

4.1.5 Jorion (1988) applied maximum likelihood estimate and ARCH model on daily returns on stock markets and foreign exchange markets in the emerging economies. These markets manifested more significant jump components in foreign exchange market than in stock market spanning the period 1973 –1985 and suggested important differences between the structures of the two markets.
4.1.6 In 1988, Taylor M P. et al studied the impact of abolition of Exchange rate controls in UK on the degree of integration of stock markets (UK and overseas) applying Granger’s causality test and Engle - Granger's co-integration test over the period April 1973 to September 1979 and October 1979 to June 1986 respectively. For the post 1979 period the co-integration test confirmed the UK stock returns and foreign market indices were co-integrated. But there was no significant increase in the correlation of stock returns as a result of abolishing of exchange controls.

4.1.7 Ma and Kao (1990) found that domestic currency appreciation negatively affected the domestic stock price movements for an export dominant economy and vice versa for import dominant countries in their study on six major industrialized countries covering the period 1973-1983.

4.1.8 Jorion (1990) found a moderate relationship between the rate of return in stock prices of the US multinational firms and the rate of change in a trade weighted value of US dollar. The study covered the period 1971 to 1987.

4.1.9 Roll (1992) while investigating the pervasive forces causing variations in stock return in a country’s index portfolio return, used daily data on 24 country indices from April 1988 through March 1991 found that both real and nominal exchange rate behaviour causes variation in common currency denominated index returns. 23% of the volatility in stock return was explained by exchange rate factors.
4.1.10 Bahmani M Oskooe and Sohrabian (1992) employed co-integration and Granger causality test on monthly data for 185 months to explain the direction of movement between exchange rate and stock price and found there is no long run relationship between the stock price and exchange rate of Dollar in the US economy although bi-directional causality was seen in the short run between the two variables.

4.1.11 Smith C E (1992), in a study in which he attempted to derive exchange rate estimate using portfolio balance model, found that equity prices had significant influence on exchange rate of US $ vis-a-vis Deutche Mark and Japanese Yen. The study covered the period January 1974 to March 1988. It was also established that equity prices had greater influence on determination of exchange rate compared to prices of bonds and government securities.

4.1.12 Libly Rittenberg (1993) employed Granger causality test to examine the relationship between exchange rate and stock price levels changes in the context of Turkey. By using causality test with lag selection under three methods, it was found that causality runs from price level changes to exchange rates but not vice versa.

4.1.13 Bartov and Bodnar (1994) concluded that contemporaneous changes in the dollar have little power in explaining abnormal stock returns. They also found that lagged changes in the dollar are negatively associated with abnormal stock returns.
4.1.14 Ajay A and Mougoue (1996) studied the inter-temporal relation between stock indices and exchange rates for a sample of eight developed countries. By employing causality test and cointegration on daily closing stock market indices for the period 1984-1991 it was found that

i. an increase in aggregate domestic stock price has a negative short run effect on currency values,

ii. sustained increase in domestic stock prices will induce domestic currency appreciation in the long run.

iii. Currency depreciation has negative short run and long run effects on stock markets.

4.1.15 Qiao, YU (1997) found bi-directional causal relationship between stock prices and exchange rates for Tokyo market. While in Hong Kong market exchange rates changes caused changes in stock prices, no such interaction was seen in Singapore market as evidenced by Granger causality test on daily data covering the period 1983-1994. While using the VAR (Vector Auto Regression Model) a long run stable relationship was evidenced in the three Asian markets.

4.1.16 Richard Friberg and Stefan Nydahl in their working paper No 195 of September 1997 observed that the more open the economy, the stronger is the (positive) relationship between return on the stock market and the exchange
rate. The study was done with reference to ten industrialised countries based on monthly data for the period (1973-1996).

4.1.17 Li Lian Ong and Izan H Y (1999), using non-linear least square method found that US share price returns fully reflect information conveyed by movements in both Japanese Yen and French Franc with a lag of four weeks. They concluded that depreciation in a country’s currency would cause its share market returns to rise while an appreciation would have an opposite effect.

4.1.18 Mansor H. Ibrahim (2000), International Islamic University Malaysia, Kuala Lumpur, in his study of stock price behaviour in small emerging markets employed a variety of parametric and non-parametric tests, to test for predictability and the presence of seasonal patterns in the rates of return series for 18 stocks listed on the Barbados Stock Exchange as at December 31, 1997. The tests failed to find any statistical evidence of predictability or the presence of seasonal patterns in the rates of return series for the large majority of stocks listed on the Barbados Stock which exhibited the classical limitations of small emerging markets such as lack of illiquidity, thin trading, trading and reporting delays and the absence of official market makers.

4.1.19 The study by Katephylaktis and Fahiala Ravazzolo (2000) suggested that

i. There is no long run relationship between the real exchange rate and the local stock market of Pacific basin countries viz;

ii. During the 1990s for all six countries including Hong Kong the real exchange rate and the US stock prices were positively related to domestic stock prices.

iii. Foreign exchange restrictions have not been an important determinant of the link between the domestic stock and forex markets on the one hand and between the domestic capital and world capital market on the other hand.

4.1.20 Morely and Pentecost (2000) investigated the relationship between stock prices and exchange rates for G-7 countries for the period 1982-1994 by employing co-integration method and established that stock price index and exchange rate levels show a common cyclical pattern which is fundamentally short-run in nature rather than a common trend.

4.1.21 Ibrahim (2000) made an attempt to investigate the interaction between stock prices and exchange rates in Malaysia during the period 1979 to 1996 using bi-variate and multivariate co-integration and granger causality test. Other monetary variables, money supply, reserves, multiple forms of exchange rate – real effective and nominal were also included. The study could not establish any long run relationship between stock prices and any form of exchange rate through a bi-variate model. The multi variate test suggested that

i. there is unidirectional causality from stock market to exchange rate.
ii. both exchange rate and stock prices are Granger caused by the money supply and reserves.

iii. there is bi-directional causality between variables only in case of nominal exchange rate. The study also indicated that in the short-run a concerted stance on monetary policy, exchange rates and reserves policy is vital to the stability of the stock market.

4.1.22 Amare et.al (2000) examined the long-run association between stock prices and exchange rate for Japan, Hong Kong, Taiwan, Singapore, Thailand, Malaysia, Korea, Indonesia and the Philippines. The study considered monthly data spanning from January 1980 to June 1998 and employed co-integration technique. Long run relationship was found only for Singapore and Philippines. By including other important variables like interest rates they found co-integration between Stock prices, interest rates and exchange rate for six out of nine countries.

4.1.23 Granger et. al (2000), used co-integration and Granger causality test and structural break test on daily data of exchange rates and stock prices for a range of Asian countries, between January 1986 to July 1998 and suggested that

i. there exists a little interaction between currency and stock market except Singapore(Jan1986-Nov 1987).

ii. there is no definitive pattern of interaction between the markets. However, changes in exchange rates lead to stock price changes in
case of Singapore and vice versa in case of Taiwan and Hong Kong during the period (December 1987- May 1997)

iii. seven of the nine nations suggest significant relationship between these two markets.

iv. in case of South Korea changes in the exchange rate lead to stock prices changes where as the reverse is found to happen in case of Hong Kong and Philippines.

v. Other countries like Malaysia, Singapore, Thailand, and Taiwan are characterized by feed back interactions in which change in exchange rate can take lead and vice-versa (1997-1998).

4.1.24 Kanas A.(2000) studied the interdependence of stock returns and exchange rate changes within the same economy by considering the six industrialized countries – the US , the UK, Japan, Germany, France and Canada. By employing non parametric co-integration test and EGARCH specification on Daily data on stock return and exchange rate from the period 1986 to 1998, the study concluded that

i. there is co-integration between stock prices and exchange rate

ii. evidence of spillovers from stock returns to exchange rate changes is found for all countries except Germany.

iii. spillovers from stock returns to exchange rate changes are symmetric.
iv. volatility spillovers from exchange rate changes to stock returns are insignificant for all countries.

v. over the period April 1973 to Sept 1979 the correlation coefficient between the EGARCH filtered stock returns and exchange rate changes is negative and significant for all countries, indicating there is significant contemporaneous relationship between stock returns and exchange rate changes.

4.1.25 Bodart V. et al (2001) investigated the impact of foreign exchange markets on the conditional distribution of industry stock returns for assets of European countries by using the bivariate GARCH model over the period Jan 1990 to Nov 1998. The study confirmed that industries from traded sectors are usually more sensitive to exchange rates than industries from non-traded sectors both in mean and volatility. The influence of foreign exchange market on the mean and to a lesser extent on the volatility of industry stock returns is modified when innovations in exchange rate are abnormally large.

4.1.26 Fang and Miller (2002) attempted to investigate empirically the effects of daily currency depreciation on Korean stock market returns during the Korean financial turmoil of 1997 to 2000. By employing the Granger causality test and unrestricted bivariate GARCH model over the period spanning from January 1997- Dec 2000 the study found that,
i. there exists bi-directional causality between Korean foreign exchange market and Korean Stock market.

ii. currency depreciation has statistically significant effect on stock market returns through three channels. Firstly, the level of exchange rate depreciation negatively affects stock market returns; secondly exchange rate depreciation volatility positively affects stock returns and third, stock market returns volatility responds to exchange rate depreciation volatility.

4.1.27 Literature that provides empirical evidence about the long-term relationship between stock returns and monetary variables in emerging markets is limited. In those markets, unlike in mature ones, market participants and the availability of information as well as its quality, having been changing rapidly through time.

4.2 Studies on the Indian Stock Market

4.2.1 In 1997 Abdalla and Murinde conducted a study on the interaction between exchange rates and stock prices in case of India, Pakistan, Korea and Philippines by applying Bi-variate Vector Autoregressive models on monthly observations of stock price index and real effective exchange rate covering the period January 1985 to July 1994. The study evidenced unidirectional short run causality from exchange rate to stock prices for Pakistan and Korea and a unidirectional long-run relationship for India and Philippines. For India it was from exchange rates to stock prices, but for Philippines it was reverse, from
stock prices to exchange rates. The findings suggested that stock markets may have impact in response to the exchange rate policies of the respective governments.

4.2.2 Pathe and Karnik (2000) made an attempt to investigate the interaction of Indian stock market and macro economic variables and found there is no long-run stable relationship between stock prices and exchange rate. Other monetary variables considered were PLR, Money supply and index for industrial production.

4.2.3 Karmakar et al (2001) by employing the coefficient of determination and regression analysis on weekly closing values of exchange rates Re/US$ and five composite as well as five sectoral indices of stock market over the period 2000 concluded that the depreciation of rupee with respect to US $ leads to an appreciation of stock prices and vice versa.

4.2.4 Mohammed .N (2000) examined the long- run and short run association between stock- prices and exchange rates for four South Asian countries (Pakistan, India, Sri Lanka and Bangladesh) for the period 1994 to 2000 applying Co- integration and error correction model and Standard Granger Causality on monthly data. The study revealed that there is no long run equilibrium relationship between stock prices and exchange rates for Pakistan and India. Granger causality test confirmed that there seem to be no short run relationship either.

4.2.5 Apte (2001) attempted to investigate the relationship between volatility of the nominal exchange rate of India by using the EGARCH
specification on the daily closing US$/INR exchange rate, BSE Sensex and NIFTY over the period 1991 to 2000. The study shows an appearance of the spillover from the foreign exchange market to the stock market but not the other way round.

4.2.6 Battaharya et al. (2002) studied the nature of causal relationship between stock market, exchange rate, foreign exchange reserves and trade balance with respect to India from April 1990 to March 2001 by applying co-integration and long-run Granger causality test. The results suggested that there are no causal linkages between stock prices and the three variables under consideration. viz., exchange rate, foreign exchange reserves and value of trade balance.

4.2.7 Nath and Samantha (2003) employed Granger causality test on daily data during the period March 1993 to December 2002. The empirical finding suggested that the two markets did not have any causal relationship. Moreover, the extended analysis of the study did not find any significant causal relationship between exchange rate and stock price movements except for the year 1993, 2001 and 2002 Unidirectional causal influence from stock to foreign exchange market was detected in these years and mild reverse causal influence during 1997 and 2002.

Studies on the interrelationship between Stock Prices and exchange rate have so far used many methods and tests from Correlations and Regression to Causality and Co-integration tests. The various studies at various time points in
different countries solely and collectively yielded results which are non conclusive on the nexus-relationship between the two variables.

Relaxation of the controls over the foreign exchange transactions eased capital flows to and from India to a great extent. Although stock market liberalization and foreign participation has been in vogue for quite sometime, the free flow of capital in and out of India is still constrained by policy. Free trading in foreign exchange is still lagging in terms of a full fledged currency market and on the issue of full convertibility of capital account and a matured market is still evolving in the Indian scenario. As both markets are getting much closer and integrated it is important to consciously recognize the influence of the prices/rates in one market on the other.

In the light of the foregoing expositions, the present study makes an attempt to empirically establish the impact, if any, of the exchange rate fluctuations on the share prices in the Indian Capital Market by taking into consideration the landmark changes in the foreign exchange policies/market and identifying the major time buckets/cycles during the study period 1991 to 2006 with special emphasis on the most recent period 2001 to 2006.