DISCLOSURES & STOCK PRICE VOLATILITY: A STUDY OF INDIAN STOCK MARKET

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Abstract

The major concern for any investor in stock market is volatility. During the recent past, the stock returns on an average are negative. The frequent changes in stock prices, makes it difficult for the investor to invest in stock market. One of the major factors causing volatility in the stock market is lack of proper disclosure of information by corporates. In India SEBI has given certain guidelines regarding disclosures. Corporates do follow these guidelines. Disclosures are both compulsory and voluntary. Some corporates provide information above the statutory requirements. The present article examines the correlation of disclosures and volatility of stock prices. The study uses regression model for understanding the significance of disclosures on stock price volatility.

Key Words: SEBI, Financial disclosures, Non-financial disclosures, Debt-equity, Book to market value, Trading Volume.

1. Introduction

The major concern for any investor in stock market is volatility. During the recent past, the stock returns on an average are negative. The frequent changes in stock prices, makes it difficult for the investor to invest in stock market. A study by National Stock Exchange on securities market in India (2010) revealed that the households were investing around ten percent of savings only in stock market as compared to around seventy eight percent in fixed income investments. The volatility in the stock market is further de-motivating the investors. There are various factors which influence stock price volatility. Previous research documented that disclosure(Titas Rudra 2010), firm's size,(Chang & Dong 2006) debt-equity,(Bushee & Noe 2000) book to market value (Kothari 2009), return on net worth,(Rubin & Smith 2009) firm's age,(Rubin & Smith 2009) and trading volume (Eric Girard, Mohammed Omran2009) influence stock price volatility. Of all the factors disclosures play a key role on volatility. A full disclosure of information avoids confusion and helps investors to take decisions. Ambiguity in information or no information often leads to decisions which may not prove to be correct. The present study attempts to point out the significance of disclosures.

2. Brief note on Disclosures

In India the disclosure norms are issued by SEBI (Securities Exchange Board of India). The following are the disclosures required by SEBI.

- ➢ Mandatory Disclosures
  - Statement of transactions with related parties in ordinary course of business
  - Details of transactions with related parties
  - Financial statements along with management explanation on accounting treatment different from accounting standards
  - Risk assessment
  - Quarterly reporting of uses and sources of funds
  - Remuneration of directors
  - CEO/CFO certification
  - Compliance report
- ➢ Non-Mandatory
  - Unqualified audit report
  - Performance evaluation of non-executive directors
  - Whistle blowers

United Nations Conference on Trade and Development (2006) on guidance to good practices in corporate governance disclosures also made a note on financial and non-financial disclosures. The financial disclosures include adherence to International financial reporting standards, explanations to financial statements in management discussion and analysis, and fair value computations. The non-financial disclosures are objectives of the company, ownership and share holders' pattern, change in control, members of the board and key executives, material issues regarding stake holders, foreseeable risk, independence of external auditor and internal audit function.

The disclosures both mandatory and non-mandatory give information to investors required for decision making. Investment based on information would be wiser than incomplete information. The regulatory bodies across the world have recognized the need for information and therefore made necessary regulations for disclosures.

3. *Review of Literature*

Titas Rudra (2010) made an attempt in studying FII's, Disclosures and Volatility and observed that there is a positive correlation among the three variables. Maria Assunta Baldini (2011) observed that brand announcement and stock price volatility although believed to be an important value driver, the mere occurrence of a purchase/sale operation for this asset only occasionally leads to a reaction in the market; at any rate, the stock's volatility quite rarely depends solely on such an occurrence.

Dimitrios Tsoukalas(2005) focused on dividend innovations as a determinant of predictability and volatility of returns in three major stock markets, the U.S., U.K., and Japan and observed that there is persistent variance in stock returns attributed to the innovations. Samer AM Al-Rjoub, Hussam Azzam (2012) empirically examined stock returns behavior during financial crises for an emerging market from 1992 to 2009. The study identified episodes of significant price declines "crashes" and observed the stock price behavior during these episodes. The article observed seven historical episodes of stock market prices and found that crisis have negative effect on stock market and year 2008 crisis had the largest effect.

Varsha Kulkarni (2007) examined the volatility of an Indian stock market in terms of correlation of stocks and quantified the volatility using the random matrix approach. The study observed a linear relation between the extent to which individual stock correlate or anti-correlate to in the market. Gary Gang Tian(2007) examined both the interday and intraday return volatility of the Shanghai

Composite Stock Index, it was found that the open-to-open return variance is consistently greater than the close-to-close variance. Charles K.D. Adjasi (2009) observed that higher volatility in cocoa prices and interest rates, increases volatility of the stock prices, whilst higher volatility in gold prices, oil prices, and money supply reduces volatility of stock prices.

Eric Girard, Mohammed Omran (2009) examined the change in speed of dissemination of order flow information on stock volatility of return in 79 traded companies at the Cairo and Alexandria Stock Exchange. It was found that volume on an average tends to be positively related to volatility. Phillip D. O'Shea (2008) studied small and mid-cap companies which use frequent and repetitive disclosure to promote price volatility and heighten market interest. Excessive disclosure indicates instances of self-promotion or poor disclosure practices, and these habits could mislead investors. The study quantitatively investigated the impact of firm disclosure on price volatility in the Australian stock market. The observation of the study was that the number of price and non-price sensitive disclosures and the number of disclosures by category has significant influence on daily price volatility.

Bixia Xu (2006) explored how R&D strategies selected by biotech firms affect their share price volatilities. The study empirically investigated the impact of drug discovery and development diversification on share price volatility. The findings of the study are R&D strategies have significant impact on volatility and that firms with diversified drug portfolios are associated with lower share price volatilities and returns than firms with concentrated drug portfolios which are associated with higher share price volatility and returns. Pratap Chandra Pati (2010) estimated time-varying conditional volatility, and examined the extent to which trading volume, as a proxy for information arrival, explain the persistence of futures market volatility using National Stock Exchange S&P CRISIL NSE Index Nifty index futures. The paper finds evidence that negative shocks increase the future market volatility more than positive shocks of the same magnitude.

Robert F Engel(1993) defined news impact curve that measures the extent to which new information is incorporated into volatility estimates. It studies the asymmetric affect of news on volatility. New diagnostic tests, a partially non-parametric model for discovering the empirical relations between news and volatility and a metric for interpreting the differences between volatility models is also observed. The model was fitted for Japanese stock returns from 1980 to 19988 and results were analyzed. The study found that negative shocks introduce more volatility than positive shocks. This was more apparent for largest stocks. However, for extreme shocks the forecasts differed dramatically.

The review literature has provided insights into the factors associated with volatility. During the recent past much importance is given to disclosures and investors protection. The study therefore attempts to verify whether there is significant association of disclosures and stock price volatility.

4. Research Objective

Disclosures reduce the volatility of stock prices by reducing the information asymmetry. Lack of information or unclear information creates confusion and makes the investor act erratically. This creates volatility in stock prices. The study therefore attempts to understand the correlation of disclosures and stock price volatility. Though there are other factors causing volatility, the study brings out the fact that disclosures play a significant role in causing market volatility.

5. Methodology

For the purpose of the study stocks forming part of the BSE index are selected as sample. There are totally thirty companies forming part of the index. In the thirty, banking companies are four, which are excluded as there disclosures are different. In the remaining twenty-six twenty-five companies are selected. One company was excluded as information was not fully available. The sample constitutes twenty-five companies. The variables taken for the analysis include, disclosures, size, trading volumes, debt equity, book value to market value, age, and return on net worth. All these factors influence stock prices. Volatility is taken as a dependent variable. The data for the purpose is collected from BSE website, company websites and annual reports. The study covers year 2010-2011.

Regression Model

Defining the variables

Volatility (VOLAT) – Dependant Variable

It is calculated as the natural log of variance of 365 days returns of each stock taken in the sample.

Disclosure Index (DI) – Independent Variable

The index consists of totally thirty-two items. Out of which nine are financial data. The items include Summary of financial results, financial highlights for a number of years, statement of sources and application of funds, value added statement, economic value added, brand valuation, human resource valuation, current cost statement and key ratios. The non-financial data include chairman report, mission – vision – objectives, value system, history of the company, organization chart, principal

plants, marketing net works, market share analysis, order back log, unit sales, IT initiatives, country/world, quality management, variation in performance, important events, list of directors, share-holders, accounting standards, functional classification of employees, knowledge management, working environment, attrition rates and corporate social responsibility. Each item would be given one point, and index is calculated by dividing number of points by thirty-two.

Firm Size (FS) – Controllable Variable

It is measured as a natural log of market value of the firm's share the end of the year.

Debt Equity Ratio (D/E) - Controllable Variable

Book to Market Ratio (B/M) - Controllable Variable

Return on Net worth (RONW) - Controllable Variable

Firm Age (FA) - Controllable Variable it is the natural log of number of years since the firm is incorporated.

Trading Volume (TVOL) - Controllable Variable it is measured as a natural log of the average of the daily turnover ratio of each firm for the year of study.

$$\text{Volatility} = \beta_0 + \beta_1 FS + \beta_2 D/E + \beta_3 B/M + \beta_4 RONW + \beta_5 FA + \beta_6 TVOL + \beta_7 DI + \epsilon$$

Where 1 to 6 are the defined controllable variables and DI is an independent variable.

6. *Descriptive Statistics*

Variables	Mean	Median	Standard Deviation	Min	Max
VOLAT	1.4080	1.1003	0.8187	0.4893	3.8156
DI	47.6286	46.87	7.3603	37.5	68.875
Size	27.5011	27.1971	0.9738	26.3264	30.8328
D/E	0.3841	0.1485	0.4858	0	1.71
B/M	30.5842	25.65	20.3556	4.29	86.12
RONW	25.416	20.71	15.7656	6.89	74
AGE	3.9583	4.0254	0.5034	2.8332	4.7362
TVOL	-3.1386	-2.9957	1.3283	-6.2146	-0.5551

Table-1

Volatility had a mean of 1.408, Median of 1.10, Standard deviation of .08187 and max of 3.8156 and min of .4893. The mean disclosure index was 47.6286, median was 46.87, standard deviation of 7.3603, the max was 68.875 and min was 37.5. The mean size of the firms was 27.50 and median was 27.1971. Standard deviation was 0.9738; min was 26.3264 and max was 30.8328. The mean of D/E was .3841 and median .1485, the standard deviation is .4858, min was 0 and max was 1.71. RONW max was 74, min was 6.89 mean 25.416, median 20.71 standard deviation 15.765. The average age is 3.9583, median was 40254, standard deviation.5034, min was 2.8332 and max was 4.7362. The TVOL mean was -3.136, median -2.9957, standard deviation 1.3283, min -6.2146 and max was -.555.

7. *Correlation of the Variables*

The analysis of the table shows that Disclosure index showed a negative correlation, indicating that higher disclosure will mean low volatility. B/M to volatility, D/E to volatility and TVOL to volatility also showed negative correlation. The other variables Size, RONW, Age showed positive correlation. Of all the variables DI showed highest negative correlation with volatility. The analysis of the table further indicates that there is positive correlation of DI with size RNOW and TVOL, indicating that firms would have better disclosures would be associated with size, RNOW and TVOL. A large size organization with high RNOW and TVOL will have better disclosures.

	VOLAT	DI	Size	B/M	D/E	RONW	Age	TVOL
VOLAT	1.000							
DI	-0.3088	1.000						
Size	0.0063	0.3352	1.000					
B/M	-0.0132	-0.3088	-0.1321	1.000				
D/E	-0.0894	-0.2966	-0.6337	0.1672	1.000			
RONW	0.1163	0.1324	0.0378	-0.4936	-0.3864	1.000		
Age	0.2071	-0.1353	-0.1392	0.1422	-0.18583	0.1716	1.000	
TVOL	-0.2475	0.0364	-0.0235	0.2294	0.5459	-0.0855	-0.1027	1.000

Table - 2

8. The Intercept and Slope Values

Using the regression model the following intercept values were obtained. DI and volatility had the highest intercept value of 3.04389102, indicating highest influence on volatility. This was followed by D/E, B/M, Size and TVOL. Age had the lowest intercept. The slope for DI was negative indicating that better disclosures would reduce volatility. Size, RONW and B/M had less slope values. D/E, and TVOL also had negative slope values. Age showed a positive slope value. This was tested at five percent level of significance. The null hypothesis was true in the case of D/E, Age and TVOL. In case of DI, B/M, Size and RNOW the null hypothesis was rejected.

VOLAT	Intercept	Slope
DI	3.04389102	-0.034347391
Size	1.263082808	0.00526852
B/M	1.424191485	-0.000530294
D/E	1.493838321	-0.153339544
RONW	1.254418618	0.006041637
Age	0.074763201	0.336816639
TVOL	0.929172747	-0.152554206

Table - 3

The study therefore proves that among all the variables, disclosure index is the significant factor influencing volatility. The correlation, intercept and slope values also indicate that disclosure index is the key factor in determining the volatility.

9. Conclusion

The study examined the factors influencing volatility in stock market by examining stocks included in the sensex. Totally seven variables have been studied and key factor influencing volatility was examined. The correlation showed that DI, D/E, B/M and TVOL had negative correlation while, size, RONW and age had positive correlation. The regression model used showed that DI had the highest intercept of all the variables followed by D/E, B/M, size and RONW. The slope values for DI were also negative. However, D/E and TVOL also showed negative slope values. But the hypothesis tested for D/E and TVOL accepted the null hypothesis, which indicates that these factors do not have significant influence on volatility. In case of DI, B/M, Size and RNOW the null hypothesis was rejected, indicating that influence was significant. Among the factors DI intercept, slope and correlation all proved that DI is the key factor influencing volatility.

The research study therefore proved that disclosures have significant impact on volatility. The regression model has shown highest intercept values. The slope was negative indicating that better disclosures would reduce volatility. Since disclosures play a significant role the government needs to make strict regulations for better disclosures. The corporates should also understand the importance of disclosures and adhere to both statutory and voluntary disclosures.

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