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Stock Market and Factors Affecting Trading Volume

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Abstract: The objective of the study is to understand the relation between the stock price and volume in the stock market and secondly to analyze different factors which affect the trading volume of the stocks. It is vital to understand the investor psychology whenever a transaction is carried out and these factors play a major role in influencing the investor's investment decision. Secondary research was carried out considering the BSE index. Also an exploratory study of 30 respondents was carried out. Both the studies revealed that price and volume are highly correlated and at the same time only price is not the only factor which affects the trading volume instead a lot of other factors play their role time to time. Investors do find trading volume an important parameter in order to estimate market trends.

Keywords: trading volume, stock price, market trends, factors, investors.

I. INTRODUCTION

Indian stock market is ever growing and it is major attraction for small to huge investments. It provides a platform to the investors to buy or sell various market instruments. BSE and NSE are the major indices which acts as medium for the safe and well coordinated transactions. There is no specific factor to analyze which way the trend line of stock market will move but still on the basis of fundamental and technical analysis market behavior can be studied. India is in the trillion dollar size stock market. Because of the activities of the major market participants the market size keeps on falling and regaining. Investor sentiments build the overall market sentiment and thus it is necessary to understand what are the factors which are responsible for the change in the trading volume and stock prices and what kind of relationship they share.

Trading volume

Volume is defined as the number of shares of stock, bonds, options, or futures contracts traded over a designated period (e.g., daily, weekly, monthly). Volume helps to understand the intensity or strength of a stock, commodity or index. It also indicates the quality of price trend and liquidity of a security or commodity.

1.1. Relationship between stock price and volume:

A price change with relatively low volume for a stock suggests an aberration; however a price change on high volume indicates a genuine trend reversal. Generally traders look at volume to determine a price trend and their goal is to trade in the direction of the clearly major price trend.

When a stock is going down on low volume (with no particular news) in comparison with recent increases on higher volume, is the best time to buy it. This tells that the selling is lighter and that the holders of the stock who were going to sell have finished selling and the rest of the holders are holding.

1.2. FACTORS AFFECTING TRADING VOLUME

Liquidity:

Liquidity is defined as the ease to buy or sell shares of stock. Thus presence of volume or its lack has a direct impact on the liquidity in the market. If there is low transaction of stocks from one hand to other then the stock is termed as illiquid during a typical period. Similarly if the number of stocks traded is high then we call the stock as liquid.

This relationship is not so direct because it is yet not defined as to how many shares when trades will lead to a liquid stock. Generally a stock trade volume of 100000 shares in a day is considered liquid.

Volume breakouts:

- Breakout is termed as a situation in where price breaks above the resistance level and heads higher than the resistance or support levels instead of heading lower of the support level. If price breaks the resistance level once, it is considered as next level of support.
- It is important to pay close attention to the stock volume when volume breakout occurs. If volume of the stock for one day is significantly higher than the average trading volume of that particular stock, then it is considered to be healthy.
- If breakout occurs in the situation of heavy volume then it shows that a large number of participants are involved and the price might show an upward trend from here.
- On the other hand if a breakout at low volume then it is a doubtful situation because the trend might go back to its normal trajectory in the following days.

Manipulation in the market:

Traders in order to make greater profits sometimes indulge into artificial buying or selling of the stocks which inflate or deflate the volume and thus affecting the stock prices. This kind of manipulation is unhealthy for the market and generates wrong sentiments in the investors.

Previous returns and portfolio:

Investors base their investment decision on the portfolio they have and also their past experience as to what returns they got from a particular stock.

News and media reports:

Certain news or events or reports released by media have a huge impact on the investor sentiment. In case of such an incident trading volume and price generally show changed trends.

II. LITERATURE REVIEW

Finance literature talks about the relation between volume and stock prices of stocks. Volume is a very significant parameter in deciding the degree of price disagreement that exists post arrival of new information. Saatcioglu and Starks (1998) suggested that there is lead-lag relationship between price and volume and when volume is relatively heavy in bullish markets and relatively light in bearish markets, it can make the stock prices move. More recently, Gunduz and Hatemi-J (2005) empirically tested the relationship between volume and absolute price change and between volume and price change per se and found mixed results. In particular, chartists and technical analysts have been well-known for their interest in volume, which presumably conveys valuable information about future price movements. Intensive trading volume can help to identify the periods in which either allocational or informational shocks occur and thus can provide valuable information to market observers about future price movements of the stock (Llorente et al, 2002). Of the several factors affecting trading volume, the one which correlates the most to the fundamental valuation of the security is the arrival of new information. Andrew W Lo and

Wang (2001) explained trading volume by developing well-articulated economic models of asset prices and volume and empirically estimating them using available daily volume data for individual securities from the University of Chicago's Center for Research in Securities Prices. (Sun, 2003) Karpoff and others modeled and determined empirically that large turnover occurred during times of large absolute price change, although significance could not be found for the direction of this price change. Campbell and Morse considered how abnormal volume would affect the autocorrelation of returns. Markus Glaser and Weber (2005) past market returns as well as past portfolio returns affect trading activity of individual investors (as measured by stock portfolio turnover, the number of stock transactions, and the probability to trade stocks in a given month) and are thus able to confirm predictions of overconfidence models. However, contrary to intuition, the effect of market returns on subsequent trading volume is stronger for the whole group of investors. (Xin Sheng).The study finds that liquidity-based price movements, which are normally related to higher trading volume, can be transmitted across borders and have a global impact on stock market performance in other countries. Weekly volume of trades does have an effect on the changes in stock prices (Kyle Portnoy, 2011).Price impact adjustments, blockholding constraints, and avoidance of securities with large expected price impacts have large negative effects on portfolio returns for most strategies. Such constraints eliminate significant abnormal returns to the size and return reversal strategies, whereas the cash flow-to-price, return momentum, and post-earnings-announcement drift strategies continue to perform well, as do the book-to-market and operating accrual strategies in some scenarios (Bushee and Raedy, 2006). Behavioral factors affect investors' trading decisions in equity markets, suggested by Huddart and Yetman (2003). Loughran and Schultz (2003) conducted a study suggesting that weather has a impact on the stock returns and the localized trading behaviour. The cross sectional variation in the relation between volume and return autocorrelation is related to the extent of informed trading in a manner consistent with the theoretical predictions (Llorente, Michaely, Saar, Wang, 2007).

III. METHODOLOGY

The exploratory study was carried out on 30 respondents in order to understand the perception of the respondents towards the factors which affect the trading volume. The sample is selected on the basis on non probabilistic convenience sampling. Responses were collected through well structured questionnaire. The sample is homogenous and consists of respondents of same profession i.e. relationship managers in the Pune region. Data was transferred to IBM SPSS 20 for analysis. The tools used for data analysis include Factor Analysis, Cross Tabulation and Chi Square.

IV. LIMITATION

The sample size is small and the respondents are selected on the basis of profession only. Whereas the responses may be varied with some different segment of population as stock market is governed by investor sentiments.

V. DATA ANALYSIS

5.1 Regression analysis

Descriptive Statistics			
	Mean	Std. Deviation	N
Share price	19426.795920	513.7868780	125
Shares Traded(Cr)	.931600	.2565824	125

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.227 ^a	.051	.044	502.4534126	.051	6.657	1	123	.011

a. Predictors: (Constant), Shares Traded(Cr)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1680632.430	1	1680632.430	6.657	.011 ^b
	Residual	31052510.110	123	252459.432		
	Total	32733142.540	124			
a. Dependent Variable: Share price						
b. Predictors: (Constant), Shares Traded(Cr)						

Results:

From the output tables the R value comes out to be 0.227 which shows the linear correlation between the two variables, which is very low. The R² value is 0.051 which indicates the per cent change in index, caused by 5% change in the traded volume. It concludes that the two variables cannot be explained by each other.

From ANOVA table the significant value is 0.011. It concludes that there is statistically significant difference between the two variables.

5.2 Hypothesis

H0: There is significant relationship between price and trading volume of BSE index.

Vs

H1: There is no significant relationship between price and trading volume of BSE index.

Cross Tabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8375.000 ^a	8308	.300
Likelihood Ratio	1018.891	8308	1.000
Linear-by-Linear Association	6.367	1	.012
N of Valid Cases	125		
a. 8500 cells (100.0%) have expected count less than 5. The minimum expected count is .01.			

Directional Measures			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.766	.023	29.849	.000
		Share price Dependent	.540	.045	12.017	.000
		Shares Traded(Cr) Dependent	1.000	.000	54.772	.000
	Goodman and Kruskal tau	Share price Dependent	.540	.000		.498 ^c
		Shares Traded(Cr) Dependent	1.000	.000		.498 ^c
a. Not assuming the null hypothesis.						
b. Using the asymptotic standard error assuming the null hypothesis.						
c. Based on chi-square approximation						

Symmetric Measures		Value	Approx. Sig.
Nominal by Nominal	Phi	8.185	.300
	Cramer's V	1.000	.300
	Contingency Coefficient	.993	.300
N of Valid Cases		125	
a. Not assuming the null hypothesis.			
b. Using the asymptotic standard error assuming the null hypothesis.			

Results

From the above output, the chi square test gives the significance level as .00 at 90% confidence level. For 90 per cent significance level is 0.1(1-0.90), thus the above output show that there is significant relationship between the two variables under study i.e. the THE SHARE PRICE AND TRADED VOLUME of BSE index.

From the value of contingency coefficient of 0.993, we can conclude that there is significant association between the dependent and the independent variable since the value is close to 1 and not to 0. From lambda asymmetric value of 0.54 we conclude that the association between the two variables is moderate. This concludes that the stock prices affect the trading volume of stock.

FACTOR ANALYSIS

Table 2: Communalities

Rate the factors affecting trading volume	Initial	Extraction
Stock prices	1.000	.695
Liquidity	1.000	.854
News and media report	1.000	.657
Portfolio and previous returns	1.000	.715
Dividend declaration	1.000	.493
Market manipulation	1.000	.334
Bid ask spread	1.000	.600
Extraction Method: Principal Component Analysis.		

Table 2.1: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.036	29.092	29.092	2.036	29.092	29.092	1.837	26.243	26.243
2	1.295	18.498	47.590	1.295	18.498	47.590	1.345	19.219	45.462
3	1.017	14.528	62.118	1.017	14.528	62.118	1.166	16.656	62.118
4	.958	13.693	75.811						
5	.774	11.058	86.868						
6	.678	9.687	96.556						
7	.241	3.444	100.000						
Extraction Method: Principal Component Analysis.									

Table 2.2: Rotated Component Matrix^a			
Rate the factors affecting the trading volume	Component		
	1	2	3
Stock prices	-.285	.876	.108
Liquidity	.912	.143	.041
News and media report	.800	.048	.820
Portfolio and previous returns	-.026	.180	.126
Dividend declaration	.126	.591	.358
Market manipulation	-.338	.469	.008
Bid ask spread	.391	-.345	.572
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 4 iterations.			

Interpretation of Output

The output of factor analysis is obtained through requesting principal component analysis and specifying the rotation. As evident from the table 2.1 (looking at the cumulative % column), we find that the three factors extracted together account for 62.118% of the total variance. Hence we have reduced the number of variables from 7 to 3 underlying variables. Looking at Table 2.2 we see that the variable, liquidity have a loading of 0.912 on factor 1 and stock prices have loading of 0.876 on factor 2. And lastly news and media report have a loading of 0.820 on factor 3. Thus third important factor is news and media report.

VI. FINDING AND RECOMMENDATION

The study is divided into two parts. First part gives out results on the basis of secondary analysis of the relationship of the price and volume of the BSE index by collecting 125 samples of quarter 1 of the year 2013. The second part consist the exploratory study on 30 respondents in order to study the most important factors affecting the trading volume. After analyzing the data on SPSS we came to the conclusion that there is significant difference between the price and trading volume of BSE index. Price and volume cannot explain each other. This is so because each variable is working under many other market forces which individually might not cause much change in price and volume but they have a significant cumulative effect. Secondly we have analyzed 7 major factors which affect the volume of different stocks. From the results we came to the conclusion that majorly trading volume is affected by stock prices, liquidity and news and media reports. These are the most prominent and most frequent factors which have a dominant affect on trading volume.

Various other factors like dividend declaration, previous returns and portfolio of the investors, stock breakouts, bid ask spread etc are some of the factors which affect the trading volume of stocks. Studying these factors is very difficult and market is not easy to be monitored. Thus investors keep their eye on the most crucial factors which generally bring changes to the stock volume and thus the stock prices. From the exploratory study, three factors vis stock prices, liquidity in the stock market and the news and media reports are the dominant factors which have a very close association with the trading volume. On the basis of our output and result we accept the null hypothesis(table 5.1) that there is significant relationship between price and volume of BSE index.

Thus on the basis of the results of this study we can conclude that tracking the above mentioned three factors will help the investors to estimate the volume trends more closely and more efficient investment decision can be taken. This will help to minimize the risk and get better returns.

VII. FUTURE SCOPE

The study can be extended by adding the psychological factors affecting the trading volume. This would help to understand the investor sentiment in better way which ultimately results into better market trend estimations. Such tools help investors to take better investment decisions and minimize the risk associated with it.

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