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Impact of Political Event on Trading volume and Stock Returns: The Case of KSE

Sidra Malik, Shahid Hussain and Shakil Ahmed

This paper examines the relationship between aggregate stock market trading volume and of daily stock returns during 18th Feb 2008- 18th Feb 2009, on KSE 100 index, in order to evaluate the impact of non-informational trade due to events. The time horizon of the study is time series analysis with a setting of field study. We employ Phillips Perron unit root test to investigate the relationship between trading volume and stock returns. It indicates that stock returns moved too much due to change in the fundamentals, aggregate expected returns. The same results found in the pre and the post-resignation period of Ex President Pervez Musharaf. Political events affect the stock price due to which the trading volume and stock return fluctuate positively or negatively as per the intensity of the event.

Field of Research: Finance

1. Introduction

This paper examines the dynamic relation between stock market returns, trading volumes and volatilities in Karachi stock exchange. The underlying argument for price-volume relationship relies on the rate of information arrival in the stock market. In general, a famous competing hypothesis was put forward in explaining this phenomenon is to investigate the casual relationship between stock returns and trading volume. Many studies reported a contemporaneous correlation between stock returns and trading volume. The uncertain nature and their relationship between price volatility and trading volume in stock market has led many researchers, academicians, policy makers and investors to examine if there is an asymmetric relationship between these two variables in various contexts by employing a wide range of analytical techniques. Studies focusing on the impact of information events on trading activity use individual turnover as a measure of volume (Bamber; 1986, 1987), (Lakonishok and Smidt; 1986), (Morse; 1980), (Richardson, Sefcik, Thompson; 1986), (Stickel and Verrecchia; 1994). As such, (McKenzie and Faff; 2003) have shown that the conditional autocorrelation in stock returns is highly dependent on trading volume for individual stocks but not for the index, reflecting the fact that liquidity disparity for stocks has a significant impact at individual level but not at aggregate level.

Sidra Malik, Department of Management Sciences, COMSATS Institute of Information Technology, Pakistan email: sidramalik2987@yahoo.com
Shahid Hussain, Department of Management Sciences, COMSATS Institute of Information Technology, Pakistan email: Shahid_hussian@comsats.edu.pkL

Shakil Ahmed, Department of Management Sciences, COMSATS Institute of Information Technology, Pakistan email: onlyshakil@gmail.com

2. Literature Review

The academic literature provides the association between trading volume and stock return volatility. It is also found that high stock volume is linked with volatility and positive relation between stock returns and volume. Karpoff (1987) cites in his comprehensive survey on the return and volume relationship in both spot and future markets was positively correlated. Several theoretical models are proposed to explain this relation between two variables Osborne (1959), Westerfield (1977), and Rogalski (1978). These include mixture of distribution model for asymmetric information was proposed by Clark (1973), Epps and Epps (1976), Tauchen and Pitts (1983) and Harris 1986). Therefore, the trading volume reflects information about price changes and investors expectations Harris and Raviv (1993). During early nineties the non-informational factors greater influence on stock market activity in Pakistan. These factors are including structured changes in stock market, constructing the stock price index, based on market capitalization. (Omran and Mckenzie, 2000) investigated the relation between volume of trade and conditional variance of trade and found the significant relation between timing of innovational outliers in returns and volume. (LeBaron and Sentana and Wadhwani, 1992) show that the autocorrelations of daily stock returns change with the variance of returns. We compare the effects of volume and volatility on stock return autocorrelations. During early nineties the non-informational factors greater influence. (McKenzie and Faff; 2003) has discovered that trading volume represent one of the main factors in predicting return volatility. Suggested by (Morgan, 1999) volume is regarded as a major risk factor contributing to the volatility of returns, particularly in less liquid and thin markets including emerging markets. Stock market trading volume is extensive, but is mostly concerned with the relationship between volume and the volatility of stock returns. Numerous papers have documented the fact that high stock market volume is associated with volatile returns (Jain and Joh; 1998) and (Mulherin and Gerety; 1999)

The fluctuation in trading activity is not only explained by publicly available information but also by non-information trade due to events, short selling, and insider traders. These factors are exogenous to the general price behavior in stock market (Campbell, Grossman and Wang; 1993). Political events affected the stock price due to which the trading volume and the stock return are fluctuated (Nishat, M. and Mustafa, K.; 2002). Result with the data from Dec 14, 1991 to Dec 31, 2001 is likely to be dominated in pre-nuclear test Period (Pakistan had nuclear test on May 28, 1998 that has significant impact on KSE-100 and it declines from 1040.19 to 789.15 and trading volume from Rs16 million to Rs9 million).

(Morse 1980) found that the serial correlation of returns in high volume and high volume periods tend to have positively auto correlated returns. (Campbell,

Grossman and Wang; 1993) examined the relationship between aggregate stock market trading volume and the serial correlation of daily stock return. They found that a stock price decline on high volume day is more likely than a stock price decline on low volume day to be associated with an increase in the expected stock return. In general, both Mixture of Distribution Hypothesis and sequential arrival of information hypothesis support a positive and contemporaneous relationship between volume and absolute return and assume symmetric effects of price increase and decrease for futures contracts Karpoff (1987). The Mixture of Distribution Hypothesis is initially developed by Clark (1973) who argues that the values of the consequential price change and trading volume are distributed independently from each other. Pyun Lee and Nam (2000) provide positive evidence from the Korean stock market. Bohl and Henke (2003) shows support for the Polish stock market, while Luckey (2005) finds mixed evidence for the mixture of distribution hypothesis in the Irish stock market.

Furthermore, Ragunathan and Pecker (1997) focus on the relationship between volume and price variability for the Australian futures market and explore positive relationship between volume and volatility by documenting asymmetric volatility response to unexpected shocks in trading volume by using the model developed by Bessembinder and Seguin (1993). Positive unexpected shocks to trading volume were found to induce an average increase in volatility at 76 per cent, while negative unexpected shocks to trading volume induce a smaller response in volatility. Daigler and Wiley (1999) examine the volume-volatility relation in futures markets for Chicago Board of Trade for four types of traders. Blume et.al (1994) derives that investors can able to predict the market information with past price and trading volume. Wang (1994) shows that investors trade informational and non-informational reasons will also lead to different dynamic between trading volume and stock returns. Moosa and Al-Loughani (1995) examine four Asian stock markets using monthly data and finds strong evidence for causality running from volume to absolute price changes and from price changes to volume in all markets except Philippines. Chorida and Swaminathan (2000) analyze the correlation between volume and short-term returns by concluding that trading volume plays a significant role in propagating a wide range of market information.

The inflow and out flow of capital depends on the political and economic condition of the country. It is also caused of excessive fluctuation in stock market (Nishat; 2000). (Ali; 1997) studied the relationship between stock prices and trading volume in context of Karachi stock market's daily data for very small time period i.e. nine months data. (Gunduz and Hatemi; 2005) determined that there is a co integrating relationship between stock price changes and volume in stock market indicating a long term relationship between these variables resulting from the information based effect of volume on price changes as well as the encouraging impact of positive price changes on trading volume. Some theoretical papers suggest 'causality' between changes in volatility and volume. This is due to the arrival of new (private) information (McMillian and Speight;

2002). High volume usually implies that the market is highly liquid, resulting in low price variability. This also reduces the price effect of large trades. In general, with an increase, broker revenue will increase, and market makers have greater opportunity for profit as result of higher turnover. Brailsford (1996) found the irrespective of the direction in price change was significant across three measures of daily trading volume for the aggregate market and was significant for individual stocks. The main message to take from this empirical and theoretical survey is that there seems to be a strong relationship between return volatility and trading volume.

The purpose of the research is to examine the relationship between trading volume and stock returns in Karachi Stock Exchange (KSE) 100-INDEX. It is difficult to test non-informational trade by using merely the stock return data (Ali, 1997). We check the stationary of the data by using the Phillips Perron test. The rest of the paper is organized such that next section discusses the methodology and described the data used in this paper. Section four present the results. Conclusions are given in section five.

3. Methodology and Research Design

The main return series used in this paper is daily return on value weighted index of stock traded on KSE, over the period 18th Feb 2008- 18th Feb 2009(i.e. 6 months before and 6 months after the resignation of Ex President of Pakistan). Trading volume data and stock price data are collected from daily newspaper "Business Recorder". For the data analysis and interpretation different software were used like SPSS Version 12, Minitab, & EViews 301. The results were interpreted using statistical tests as Phillips Perron Unit Root Test, Correlation, and Regression.

3.1 Methods

3.1.2. Testing for Unit Roots

The **Phillips-Perron unit root test** corrects the statistics for serial correlation and possibly heteroskedastic error terms. To test the contemporaneous and causal relationship between trading volumes, stock return, and to check whether the time series data for stock returns and detrended trading volume of the hypothesis are stationery we have used Phillips Perron Unit Root Test.

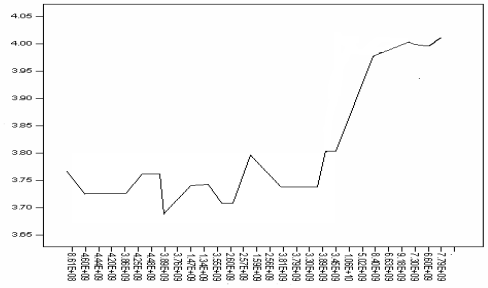
3.1.2 Trading Volume & Stock return changes

We examine whether the stylized facts relating to stock returns and trading volume relation fit the data for selected Karachi Stock Exchange by testing with the help of contemporaneous correlation.

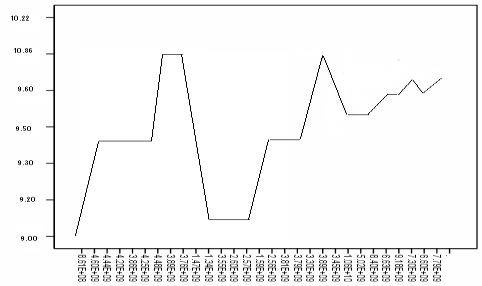
4. Discussion of Findings

Data from 18th Feb 2008- 18th Feb 2009 is dominating the resignation period of Musharaf. That is why this period is split into two-sub sample period, i.e. 18th Feb 2008 to 17th Aug 2008 and 18th Aug 2008- 18th Feb 2009

Graph 1



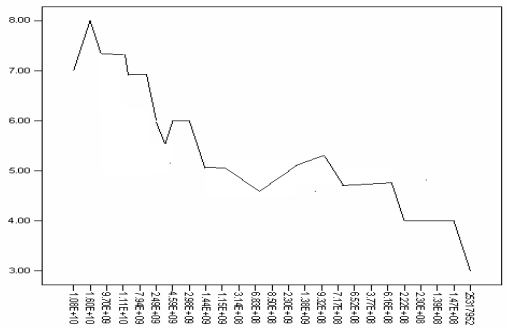
Log Price



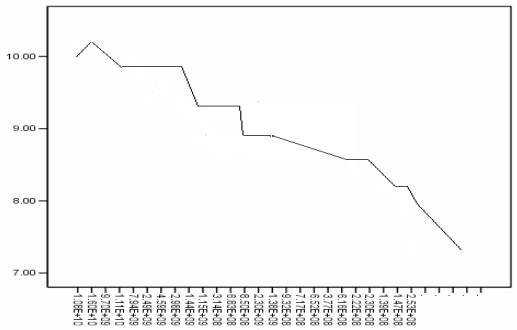
Log Volume

Graph 1 shows high frequency variations in prices and volume. To reduce the variations we have taken log of prices and volume. In the graph log prices and volume is measured relative to the trading volume from 18th Feb 2008 to 17th Aug 2008. In graph 1 we can see the log prices and volume was relatively high until 18th July 2008, after that started decreasing. Then there has been an exponential increase in it (This increase continues until 19th Aug 2008 i.e.2-3 days after Pervez Musharafs' resign).

Graph 2



Log of return



Log of volume

Graph 2 shows variations in return and volume from 18th Aug 2008- 18th Feb 2009, after resignation of Pervez Musharaf. In graph 2 we can see that there is an increase in log of returns and volume, because KSE 100 INDEX increased from 10258.71-10719.62 (Due to resignation of Pervez Musharaf on 18th Aug 2008).
Then after 2-3 days KSE 100 index started decreasing, because many healthy investors and businessmen stopped investing in Pakistan. This was mainly due to the Pakistan's particular political situation.

Table 1
Phillips Perron Unit root Test

Variable	PP test	Result
Log of return	-8.01	Stationary
Difference of log volume	-13.98	Stationary
MacKinnon critical values for rejection of hypothesis of a unit root. at significance level 1%= -4.18: at 5%= -3.54: at 10%= -3.36		

Unit root test has a crucial importance in the time series analysis as the choice of the techniques and procedure for further analysis and modeling of series depends on their order of integration. Table 1 shows Phillips Perron Unit root Test, which tests the stationary of series of return and trading volume. It indicates that both series are stationary in log form (The absolute value of return and trading volume are greater than the values at 1%, 5% and 10%, which shows the stationary of data). Stock series is generated by first difference of log price and trading volume is used as the log of daily turn over.

Table 2

Correlation between Trading Volume and Stock Returns

Sample period 18^{th} Feb 2008- 18^{th} Feb 2009		R^2
(Pre-resignation period) 18^{th} Feb 2008 to 17^{th} Aug 2008.		
Correlation	0.490	24.1%
Regression	.604	
Coef	6.02	
Error	0.008	
t-value	51.65	
p-values	0.00	
Sig	0.05	
(Post-resignation period) 18th Aug 2008- 18^{th} Feb 2009.		
Correlation	0.795	63.2%
Regression	18.35	
Coef	3.98	
Error	0.004	
t-value	34.65	
p-values	0.00	
Sig	0.05	

The results for pre-resignation period and post-resignation period are presented in table 2. As shown in pre-resignation period, the correlation of the trading volume and stock return is 0.490 and a regression of return associated with volume is 0.604. In the post resignation period the correlation is greater i.e. 0.795 and regression is explained by 18.35. In this period R^2 increased by 63.2%. The result points out that the addition of data after resignation period has a strong effect of trading volume on stock returns. In this period the trading volume is significant at 5%. In pre resignation period the coefficient of trading volume are 6.02 with standard error of 2.09 respectively. In post resignation period the coefficient of trading volume are 3.98 with the standard error of 6.65 respectively. This implies that the correlation should increase with higher value of trading volume. R^2 is just the square of the correlation. The highest correlation is observed in the post resignation period which is .632 and the lowest R^2 is observed in the pre resignation period which is .241. The variation between the Pre-resignation period (18^{th} Feb 2008 to 17^{th} Aug 2008) and Post-resignation period (18th Aug 2008- 18^{th} Feb 2009) is the hypothesized statement of political events having an impact on the stock returns and trading volumes. Therefore the resignation of the President of Pakistan had a positive impact on our variables thus enhancing the values in the post resignation period.

5. Conclusion and Recommendations

This study investigates the relationship between aggregate stock market trading volume and daily stocks returns during 18th Feb 2008- 18th Feb 2009. The study also identifies any difference in this relationship during pre resignation period (18th Feb 2008 to 17th Aug 2008) and post resignation period (18th Aug 2008-18th Feb 2009). The time horizon of the study is time series analysis with a setting of field study. Phillips Perron unit root test is employed to investigate the relationship between trading volume and stock returns using the daily logarithmic returns and change in volume during the period 18th Feb 2008 to 18th Feb 2009.The results indicate a positive correlation between trading volume and stock returns. Because due to the resignation of Ex President of Pakistan Pervez Musharaf stock market affected a lot and this effect continues till start of 2009. The post-resignation period indicates more positive relation as compared to pre-resignation period. Which shows that there exists a relationship between trading volume and stock returns both in the pre as well as in the post resignation period but this relationship is more positive or strong in post resignation period as compared to in the pre resignation period. The post-resignation period indicates more positive correlation as compared to pre-resignation period, correlation from 0.490 to 0.795Regression from .604 to 18.35, the PP test gave Log of return -8.01 Stationary and Difference of log volume -13.98 Stationary. This implies that the non-informational trade due to events has a significant effect on prices and trading activity has explanatory power in addition to the present returns and volatility. It shows that due to the arrival of event the relationship between trading volume and stock return is affected. The results also indicate that stock market moved too much due to change in the fundamentals, aggregate expected returns, and changes in effective risk aversion of market participants.

On the basis of this study it can be recommended that further studies can be conducted basing on the entire tenure of the ex-president of Pakistan, where the impact of the his Presidency as well as his position as a General can be studied that how his position effected the stock exchange as well as the political situation in Pakistan. As in this research there exist a positive relationship between trading volume and stock returns so there is a scope to study the negative impact of events on stock returns and trading volumes, plus further scope of research lies in this study as well where the intensity of impact of the stated political event can further explained. This political event can further be studied by increasing the time period as this research was conducted by collecting data for a period of one year. There is a scope to study the impact of this event on other stock exchanges in Pakistan (like Islamabad stock exchange or Lahore stock exchange).

References:

Ali, S. S. 1997.Prices and Trading Volume in Pakistan Stock Markets. Journal of Economic Cooperation among Islamic Countries, 18, 3, 115-137.

Bamber, L.1986, the Information Content of Annual Earnings Releases. A Trading Volume Approach. Journal of Accounting Research 24, 40-56.

Bessembinder, H. and Seguin, P.1993, Price Volatility, Trading Volume, and Market Depth: Evidence from Futures Markets, Journal of Financial and Quantitative Analysis, Vol. 29, pp. 21- 39.

Blume, L., D. Easley, and M. O'Hara, 1994, Market statistics and technical analysis: The role of volume, Journal of Finance, Vol: 49, No: 1, pp. 153-182

Bohl, M.T and H. Henke, 2003, Trading volume and stock market activity: the Polish Case, International Review of Financial Analysis, Vol.12, pp. 513-525

Brailsford, T. J. 1996, The Empirical Relationship between Trading Volume, Returns and volatility, Accounting and Finance, Vol. 36, pp. 89- 111

Campbell, J. Y. Sanford J. Grossman and Jiang Wang. 1993. Trading Volume and Serial Correlation in Stock Return. Quarterly Journal of Economics, 905-939.

Clark, P. K. 1973, A subordinated stochastic process model with finite variance for speculative prices, *Econometrica,* Vol. 4, pp. 135-155

Chordia, T. and B. Swaminathan,2000,Trading volume and cross-autocorrelations in stock returns, Journal of Finance, Vol. 55, pp. 913-935.

Daigler, R and Wiley. M 1999, The impact of trader type on the futures volatility-volume relation, Journal of Finance, Vol. 54, pp. 2297-2316.

Epps, T.W. and Epps, M. L. 1976, The Stochastic Dependence of Security Price Changes and Transaction Volumes: Implications for the Mixture-of-Distributions Hypothesis, *Econometrica*, Vol. 44, pp. 305-321.

GUNDUZ, Lokman ve HATEMI, Abdulnasser 2005. Stock Price and Volume Relation in Autocorrelation in Stock Returns. The Journal of Financial Research, 26, 259- 274

Harris, L.1986, Cross-security tests of the mixture of distributions hypothesis, Journal of Financial and Quantitative Analysis, Vol. 21, pp. 39-46.

Harris, M., Raviv, A.1993, Differences of opinion make a horse race, Review of Financial Studies, Vol. 6, pp. 473-506.

Jain, Prem C., and Gun-Ho Joh. The Dependence between Hourly Prices and Trading Volume. Journal of Financial and Quantitative Analysis, XXIII 1998, 269-83.

Jones, Charles M., Gautam Kaul, and Marc L. Lipson. Transactions, Volume, and Volatility. Unpublished paper, University of Michigan, 1999.Journal of Finance, 49, No.3. pp. 923—950.

Karpoff, J. M. 1987, A Relation between Price Changes and Trading Volume: A Survey. *Journal of Financial and Quantitative Analysis*, Vol. 22, pp. 109-126.

Lakonishok, J. and S. Smidt, 1986. Volume for Winners and Losers: Taxation and Other motives for Stock Trading. Journal of Finance 41, 951-974.

LeBaron, Blake. Some Relations between Volatility and Serial Correlation in Stock Market Returns. Journal of Business, LXV (1992a), 199-219.

Lucey, B.M., 2005, Does volume provide information? Evidence from the Irish stock market, Applied Financial Economics Letters, Vol. 1, pp. 105–109.

McMillian, D. and Speight, A. 2002. Return-volume dynamics in UK futures. Applied financial economics, 12, 707-713.

MCKENZIE, Michael D ve FAFF, Robert W. 2003. The Determinants of Conditional Autocorrelation in Stock Returns. The Journal of Financial Research, 26, 259- 274.

MORGAN, I. G. 1999. Stock Prices and Heteroscedasticity. Journal of Business, 49, 496-508.

Morse, D., 1980. Asymmetric Information in Securities Markets and Trading Volume. Journal of Financial and Quantitative Analysis 15, 1129-1148.

Moosa, I.A., and Al-Loughani, N.E. 1995, Testing the price-volume relation in emerging Asian stock markets, Journal of Asian Economics, Vol. 6, pp. 407-422.

Nishat, M. 2000, Institutional Development and Risk Premia in Pakistan**,** Paper presented at Asia-Pacific Finance Association Conference 2000, held in Shanghai, China.

Nishat, M. and Mustafa, K. 2002. Anomalies in Karachi Stock Market. (Draft).

Omran, MF and McKenzie F. 2000. Hetroscedasticity in stock return Data: Revised Volume verses GARCH Effects. Applied financial economics

Osborne, M.F.M., 1959, Brownian motion in the stock market, Operations Research, Vol.7, pp. 145-173.

Ragunathan. V and A. Peker 1997, Price variability, trading volume and market depth:evidence from the Australian futures market. Applied Financial Economics, Vol. 7, pp. 447-4454.

Richardson, G., Sefcik, S. and R. Thompson, 1986. A Test of Dividend Irrelevance Using Volume Reaction to a Change in Dividend Policy. Journal of Financial Economics 17, 313{333}

Pyun, C., S. Lee, and K. Nam, 2000, Volatility and information flows in emerging equity markets: A case of the Korean stock exchange, International Review of Financial Analysis, Vol. 9, pp. 405–420.

Rogalski, R. J. 1978, The Dependence of Prices and Volume, Review of Economics and Statistics, Vol. 60, pp. 268-274.

Stickel, S. and R. Verrecchia, 1994. Evidence that Volume Sustains Price Changes. Financial Analysts Journal (November-December), 57-67.

Tauchen, G. E. and Pitts, M. (1983), “The Price Variability- Volume Relationship on Speculative Markets”, Econometrica, Vol.51, pp. 485- 505.

Wang, J., (1994), A model of competitive trading volume, Journal of Political Economy,Vol.102, pp. 127–168.

Westerfield, R., (1977), The distribution of common stock price changes: An application of transactions time and subordinated stochastic models, Journal of Financial and Quantitative Analysis, Vol. 12, pp. 743-765.