

## The Impact of Mass Media Communication on Stock Trading Decisions: An Empirical Study

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*Acknowledgement: The authors gratefully acknowledge the support and guidance of anonymous reviewers and Prof. S. Swami, Head, Department of Management, Dayalbagh Education Institute (Deemed University), Agra.*

### Abstract

The buy or sell decision of any stock in stock market has been regarded as one of the most challenging problem for traders or investors. This study investigates the impact of mass media communication on stock trading decisions. The study examined the determinants for buy or sell decisions. The empirical investigation showed the impact of mass communication on the buy or sell trade. This research is based on the Indian stock markets, SENSEX and NIFTY. To analyze the impact of mass media communication on stock trading decisions, a primary survey is conducted with the investors or traders as members of social system, and how they change (react) their decisions with response to different ideas, news and messages they receive from different channels of communication at a certain period of time. A regression model is formulated to compare the impact of technical, fundamental and mass media communication on stock trading decisions. The result shows that mass media communication is probably more effective and influencing than the technical and fundamental analysis. This research paper will help investors and traders to take sell and buy decision of their stock in more efficient manner by means of knowing the impact of mass media communication on stock trading. Further this research work will provide a base to conduct future researches in this area on a large scale, which are the limitations of this research work.

**Keywords:** Technical analysis, Communication channel, Mass communication, Buy or sell.

### Introduction

The purpose of this study is to assess the impact of mass media communication on stock trading decisions. Mass communication is the process by which an idea, news and rumor are communicated through certain channels over time among the member of social system. In the words of Foss (2005) define mass communication as “ The process whereby media organizations produce and transmit messages to large publics and the processes by which those messages are sought, used, and consumed by audiences” (p. 273). McQuail (1994) states that mass communication is, “only one of the processes of communication operating at the society-wide level, readily identified by its institutional characteristics” (p. 7). In this process there are some mass communication variables like market news, and information related with stocks, company’s news and their declaration and political news spread knowledge and information through different channels over certain period of time. A set of studies examines the comparative usefulness of the various mass communication variables individually like News, Website of stock exchanges, Company announcements and reports, etc. Since they focus on predefined periodic single variables of mass communication, the concept and impact of other variables together with Technical and Fundamental analysis in these studies is limited. Ryan and Gross (1943) explained the different adopter categories viz. innovators, early adopter, early/late majorities, laggards. The revolutionary work of Shefrin and Statman (1985) shows that investors in markets tend to sell and purchase their stocks too soon. In this order they have shown that investors tend to sell winning

transactions as early as possible and hold losing transactions for long time. They named this effect the disposition effect. The goal of this paper is to experimentally examine the effect of various mass media communication variables on trading decisions made by subjects under different conditions. Our measure of stock trading decision are monthly returns, monthly trading volume, Fundamental and Technical analysis, rumors, website and other media news, company announcements, online announcements, etc.

### **Objectives of Study**

The main objectives of the study are as follows:

1. To identify different mass media communication determinants influences the stock trading decisions.
2. To analyze the impact of mass media communication on stock trading decisions.
3. To compare the impact of mass media communication Vs. Fundamental and Technical analysis

### **Literature Review**

Katz (1957) shows the three stages of diffusion of innovation media, opinion leaders, and opinion followers. Everett M Rogers (1962-95) diffusion of innovation is the process by which an innovation is communicated through certain channel over time among the members of a social system. Frida Schultz and Lina Schollin (1981) has examined in their master thesis the relationship between mass media communication and stock prices by observing the amount of media coverage and the share price movements in an IPO at the first day of trading. According to the results media demonstrates a non-existent effect on the share price, which implies that mass media fails to manipulate the accurate value of stock. Robert M. Entman (1989) has written a paper entitled 'How the media Affect What People Think: An Information Processing Approach', and findings indicate that the media make a significant contribution to what people think to their political preferences and evaluations. Glenne Llisona and Drew Fudenberg (1995) have studied the way that word-of-mouth communication aggregates the information of individual agents. They found that the structure of the communication process determines whether all agents end up making identical choices, with less communication making this conformity more likely. Despite the players' naive decision rules and the stochastic decision environment, word-of-mouth communication may lead all players to adopt the action that is on average superior. These socially efficient outcomes tend to occur when each agent samples only a few others. Gyllenram (2001) has written in his book on psychological effects on the stock market by concluding that humans are only human and all their decisions are influenced by their emotional and rational behavior from time to time. This psychological effect even comes when the stock rates start moving sideways and investors start changing their earlier adopted decisions, which can result in a great fall or rise in stock prices. All investors who have joined the stock market by purchasing or investing some amount in shares have the same aim, i.e. to maximize their investment value. This makes "peer behavior" a common feature of the stock market. To fulfill this aim they (investors) behave or react in the same manner in response to mass media and other information sources. (Gyllenram, 2001). This phenomena is referred to as the "human behavior explanation and describes why many unpredicted stock movements occur. According to theories concerning investor behavior which state the fact that investors use all available information to make their decisions in total accordance with rationality and efficiency. (Forssten, 2005). Asheq Rahman and Roger Debreeny (2005) has assessed the impact of frequency of online material information disclosures on market efficiency. They included monthly frequency of corporate announcements via stock exchange web sites. The results show that the frequency of announcements is positively associated with returns and volumes of stock market. Della Vigna and Ethan Kaplan (2007) have done an empirical test: Does media bias affect voting? Their estimates imply that Fox News convinced 3 to 8 percent of its viewers to vote Republican. They interpret the results in light of a simple model of voter learning about media bias and about politician quality. The Fox News effect could be a temporary learning effect for rational voters, or a permanent effect for voters subject to non-rational persuasion. Brown, Paul, Smith and Wirbenner (2008) establishes a causal relation between an individual's decision whether to own stocks and average stock market participation of the individual's community. The paper empirically

examines the influence of “community effects,” in the form of word-of-mouth communication, on the decision about whether to participate in the stock market. Barber and Odean (2008) A priori, one might expect the effects to be stronger on the buying side, given the evidence that investors are unlikely to sell stocks short. Wen-Chung Guo and Hsiu-Ting Shih (2008) studied the facts of herd behavior and stock price co-movement within high-tech stocks in the Taiwan market. Their empirical results demonstrate more significant and a consistent association with extreme market movements for high-tech stocks. Bertram, Alexandar and Hans-Bernd (2011), there is a short-term relationship between media coverage, stock-prices and trading volumes. They have done an experimental research by a Content analysis of news reports about the selected companies and a secondary analysis of the daily changes in closing prices and the trading volumes of these selected companies. Results suggest that media coverage rather reflects than shapes the developments at stock exchanges from a short-term perspective (2 months). Joseph E. and Christopher A. (2011) have compared the behavior of investors with access to different media coverage of the same information event. They find that local media coverage strongly predicts local trading, after controlling for earnings, investor, and newspaper characteristics.

### Conceptual Model

To make the clear picture of this research paper a conceptual model has been framed based upon the various mass communication variables and their impact on stock trading (buy or sell) decision. The model is depicted below in figure 1. This model is based upon input and output system approach. Here various mass communication variables are considered as input in the form of different sources of collecting information and their impact on decision making process. These inputs are then transferred to process of control mechanism in the form of influencing power of these variables by means of increasing the knowledge of investors/ brokers, by persuading them to take decision in favor of information variables. Finally the output comes in the form of decision as either to buy or sell stock. The buy may be in terms of continue buying process or to discontinue the buy process, whereas in case of sell stock decision, it either talk of to purchase it later or to continue selling decision.

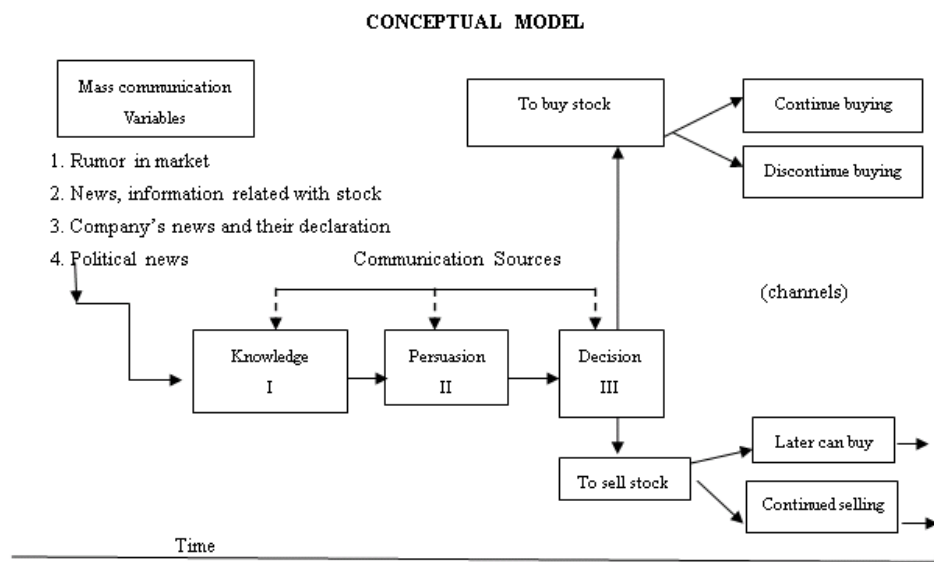
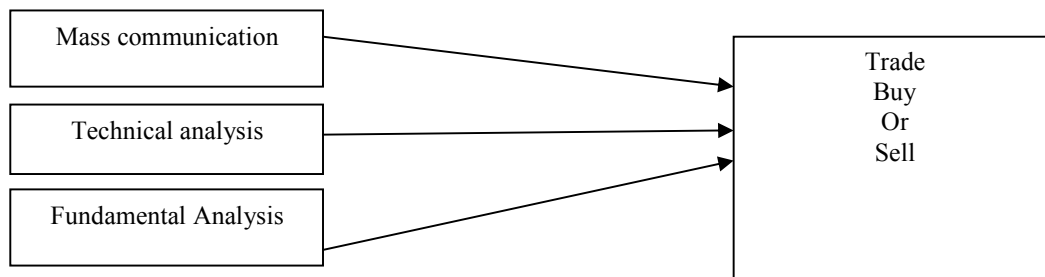


Fig. 1 - Conceptual Model

**Research Model**

To check the real applicability of the conceptual model we framed a research model based upon the third objective of the study. To compare the effectiveness and impact of mass communication, technical analysis and fundamental analysis on stock trading decision, this research model has been prepared.



**Fig. 2 – Research Model**

To check the above research model a mathematical equation has been set. This can be written in the mathematical form as:-

$$TdB S_{c,t} = \alpha_0 + \beta_1 MC_{c,t} + \beta_2 TA_{c,t} + \beta_3 FA_{c,t} + \epsilon_{c,t} \quad \text{-----(1)}$$

The mathematical equation has been tested by regression analysis by considering the responses of the respondents of the study. The above given mathematical equation has the following interpretation which given in table 1 below.

Table 1: Symbols and their meanings of mathematical model

Symbols	Meanings
$\alpha$	Constant
$\epsilon$	Model error
C	Trader
t	Trade at a particular time
TdBS	Buy or sell trade
MC	Mass communication
TA	Technical analysis
FA	Fundamental analysis

**Hypothesis**

The first hypothesis of this study deals with the assumption that mass communication does not have strong relationship with buy or sell stock trading by keeping in view that various other factors are also actively involved in stock trading decision. To check this primary survey was conducted through questionnaire technique. These questionnaires were given to various randomly selected investors and brokers of Agra region to give their opinion about the most influencing factor for taking decision regarding stock trading. To know its impact on decision making a mathematical model has been developed and multiple regression analysis test was used. The second and third hypotheses of this study are taking into consideration the technical and fundamental analysis. The null hypothesis is framed as Technical and Fundamental analysis does not have strong relationship with buy or sell stock trading. To check these two hypotheses, multiple regression analysis is applied on the data collected through primary survey of investors and brokers of Agra region.

Based upon the above assumptions the hypotheses are formulated as follows:

H<sub>0</sub>1: Mass communication does not have strong relationship with buy or sells stock trade

H<sub>0</sub>2: Technical analysis does not have strong relationship with buy or sells stock trade.

H<sub>0</sub>3: Fundamental analysis does not have strong relationship with buy or sells stock trade.

**Research Methodology**

### Sampling and Sample Size

The primary data was collected from different brokers of Agra region, taken as the area of the study. A sample of 210 traders was pooled up for the current study in which respondents of this study were requested to complete the questionnaire on the voluntary basis. Among the respondents 74% related to the income group of more than 35000 rupees PM, 30% related to group more than 25000 rupees PM, 10% related the income group less than rupees 25000 PM. 77% were male 23% were female. 79% were between age of 15-30 years, 15% were between age of 30-45 years and 6% were between age of 45-60 years.

### Procedure

The data collected by means of well developed, adopted likrt scale having four scales. All the questionnaires were distributed among the respondents in the area of Agra region. Total 210 questionnaires were distributed but only 193 questionnaires were returned. The responses of questionnaire were fed into the statistical packages of social sciences (SPSS) version 16 for analysis and evaluation. Multiple regression analysis was used as a statistical test to determine the degree of relationship between the variables involved in this study.

### Result and Analysis

The table 2 shows the result extracted on the basis of multiple regression to find the association between independent variables and dependent variable. The mathematical model of equation 1 has been modified as;

$$TdB_{c,t} = \alpha_0 - \beta_1 MC_{c,t} + \beta_2 TA_{c,t} - \beta_3 FA_{c,t} + \epsilon_{c,t}$$

Table 2 (Beta Coefficients, standard errors in parenthesis t-values in bracket and p-value in italics)

Constant	MC	TA	FA	R Square	F Statistics
1.140 (0.066) [17.197]	0.044 (0.015) [2.909]	0.016 (0.015) [1.023]	0.013 (0.019) [0.692]	0.043	2.902
<i>0.000</i>	<i>0.004</i>	<i>0.308</i>	<i>0.489</i>		
<b>Result of Null Hypothesis is testing</b>	H1 Rejected	H2 Not Rejected	H3 Not Rejected	-	-

Legend: Constant: Buy or sell trade  
 MC : mass communication  
 TA : Technical analysis  
 FA : Fundamental analysis

The above mathematical model and table 2 shows that null hypothesis 1 is rejected on the basis of their strong association among the variables ( $p < 0.05$ ). therefore it can be said that mass communication has a strong effect on trader's decision. However, since Hypothesis 2 and 3 are not rejected, so they do not have strong effect or association with stock trading decision of buy or sell. Here we found that there is positive significant impact of these independent variable on the dependent variable ( $F=2.902$ ) ( $p < 0.05$ ).

### Conclusion

This paper has experimentally examined the impact of mass media communication on stock trading under some basic assumptions and conditions. The result of this research study clearly indicate that there is weak relationship between the Fundamental Analysis and technical analysis with buy or sell trade but mass communication shows the strong relationship with buy or sell trade. Here in this research study we found mass communication indicate very strong association with trade decision hence some factors like

rumor ,news through certain communication channel at a particular instance of time can significantly influence decisions of traders and investors. Most of the studies on this area are focusing only on single factor or variable of mass communication to know the impact on stock trading. No study is focusing on the comparative issue of Technical and Fundamental analysis with Mass communication. This paper identifies that Technical and Fundamental analysis are having weak association with buy or sell decision whereas mass communication has strong association with buy or sell decision.

#### **Further Research**

The research can be further conducted on various issues, which are subject of limitation of this study. The same research objectives can be judged on a larger sample size and area. The correlation can be tested among all mass communication variables. The further research can be conducted to know that which mass communication variable is more effective and why?

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