Can retail investors gain on Analyst Stock recommendations, Journalists Vs Brokerage Houses: Evidence from an Emerging Market?

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Abstract

This paper provides empirical evidence on investment value of two divergent sets of analyst recommendations available easily almost freely to retail investors of India; these are published in the two leading business dailies. The recommendations offered by desk research journalists are earning significantly 0.41% abnormal returns, while the re-used (second-hand) recommendations of brokerage houses are not at all providing any abnormal returns over the post recommendation period. Although the number of sell recommendations are just 22% of total recommendations offered by the journalists, the investment value of these recommendations are better than buy recommendations and retail investors can safely minimize their losses following the recommendation. We have also included in this paper subscribed recommendations (or costly information) of a brokerage house and found that these recommendations are offering higher abnormal returns than the low cost recommendations available through the business dailies. Our analysis also shows that journalist recommendations are biased to low value and low volatile stocks. This paper is unique in two aspects; first it provides first of its empirical evidence on investment value of analyst recommendations in the Indian context , two it discriminates the investment value of recommendations freely available from the subscribed (or paid) information to the investors. This paper also supports Price Pressure and Information Hypothesis in the Indian context

Key words: Analyst Recommendations, Abnormal Returns, Investment value, Emerging Markets, Indian Stock Market

JEL Classification: G11, G14

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1. Introduction

Stock recommendations of financial analysts and their impact on capital market efficiency has been well researched topic in the US context. Similar attempt has been done in a limited way with reference to other markets like United States (Palmon et.al (2009), Germany (Kerl and Walter, 2007), Sweden (Liden 2004) and emerging markets like China (Jiang et al 2014). Primarily analyst recommendations are coming from two sources- the brokerage houses and financial columnists and journalists. The vast majority of research is focused on stock recommendations offered by brokerage houses and their impact on investment value. Since brokerage houses employ huge departments to perform this kind of research for their clients, only significant abnormal returns would justify the costs of preparing the reports and to work out stock recommendations. These recommendations are available at a price and normally institutional investors can only afford this costly information. The low cost (or almost free) alternate channel available to the retail or private investors is recommendations published in business dailies or recommendations offered by financial columnists. The recommendations published in the business media further distinguishes between those recommendations which are mere restatements for example recommendations of brokerage houses (second-hand information) and others are based on self-contained original research by journalists.

In the US context, Brody and Rees (1996) have found that investors can earn returns by following recommendations published in popular magazines only in the very short term period and found that the mean return was not significantly different from market return. The empirical evidence on journalist recommendations in Germany ((Kerl and Walter 2007) shows that Buy recommendations of the stocks published by Five different German personal Finance Magazine, that these recommendations earned 2.58% abnormal return in the five-day window period and has observed that value stocks have high cumulative abnormal return driven majorly by information value Palmon et al (2009) who had examined value of stock recommendations from leading business magazines found that following columnists' advice in 2000-2003 no consistent significant returns are possible. Cumulative average abnormal return in three day window period surrounding the date of recommendation is 1.41% and they had observed that these returns increase gradually from 3 to 4 days prior and reach a peak return on the date of recommendation; concluded that analysts and columnists differ in many aspects and this has a potential to influence abnormal returns also stated that recommendations on small and illiquid stocks have strong market reactions

Analyzing the performance of journalists' recommendations might be particularly interesting since this group of financial experts is, unlike security analysts, free from the usual conflicts of interest.

In order to examine the role of journalists and brokers as a source of investment advice for retail investors, we evaluate stock recommendations of both journalists and brokerage houses published in the two popular business dailies of Indian market. The stock recommendations published in the two leading dailies '*The Business Line*' and '*The Economic Times*' are considered. To facilitate the comparison between freely available investment advice and costly investment advice, we also consider another set of paid or subscribed recommendations available from a leading brokerage house. *The Business line* newspaper employs self-contained research desk in order to derive original buy and sell recommendations for their readers[1]. The editorial team member of the newspaper also confirmed that these journalists possess professional qualifications in finance and may be some having experience of working with investment firms and brokerage houses. Whereas *The Economic Times*" publishes the recommendations offered by brokerage houses, these recommendations are available as first-hand information to the clients of the brokerage houses and then released to the newspaper for public dissemination, thus most of these recommendations are reused or second-hand.

Another motivation for our study is evolving state of Indian stock market; Indian stock market is one of the largest stock markets of world with presence of small number of firms with large market Capitalization and large number of low market capitalization companies. The breakthrough technology initiatives like establishment of national level electronic exchange, internet trading has widened the access to capital market investment to the retail investors. The recent policies further encouraging participation of retail investors. For example the market regulator SEBI has made it mandatory that the retail investor's subscription in IPO should be not less than 35% of total targeted amount for mobilization. Similarly all listed companies should have public shareholding of 25%, opening for diluting promoters/ owners stock. SEBI also encouraged companies to offer differential offer price to retail investors while raising the resources through public issue. Apart from all the disclosed information from the company and the stock exchange, these unprofessional, small and retail investors may depend on the recommendations available through the business media. Availability of stock recommendations in India through print media is also a recent practice of not more than ten years and the numbers of recommendations available are also relatively limited. Recently (in September 2014) the market regulator SEBI has also issued Regulations for Research Analysts covering duties and responsibilities. All this indicates growing importance of financial analyst recommendations.

The early work by Bekaert and Harvey (2003) concluded that emerging markets are less informational efficient than their developed counterparts. Over the past few years, Indian financial markets evolved to be more transparent with increased participation of retail investors and enhanced disclosures mandated by the regulators. Apart from these, additional information being available from year 2006 onwards is analyst and brokerage recommendations through financial dailies; websites like *money control*, reputed brokerage houses are providing these recommendations on payment basis also. These have assumed greater importance in influencing stock prices and even in individual stock investment decisions. In our paper, we tried to distinguish the journalists and brokerage houses bias and the investment value of these recommendations for Indian market.

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[1] We confirm this with a short conversation of the Business Line editorial team member

This paper investigates the style and pattern of recommendations of three different sources of analyst recommendations and analyzes holding period and cumulative abnormal returns post and prior to the date of recommendation to identify investor's behavior to analysts' recommendations. We have also examined two competing hypotheses emerge enlarging EMH Price Pressure Hypothesis (Kraus and Stoll (1972)) and the second is Information hypothesis (Scholes (1972). The paper also empirically tests the relationship between cumulative abnormal returns and various firm market specific variables to examine the analysts' bias in selection of stocks. We specifically examine the impact of analyst recommendations in creating investment value of small and mid-cap stocks.

Our analysis shows that stock recommendations of journalists seem to have investment value for retail investors on both buy and sell side with significant positive and negative abnormal returns respectively. Retail investors were guided correctly by the journalists if they sold respective stocks. With respect to the buy side, buy recommendations do contain positive abnormal returns for a shorter period of not more than three days from the date of recommendation. The investment value of journalist recommendations is better than reused brokerage house recommendations published in *'The Economic Times'*. On the other hand if investors prefer to go for costly information by subscribing to brokerage house recommendations, the abnormal returns of brokerage house recommendations are significantly higher and sustainable till one year post recommendations. Supporting the low value information hypothesis of Grossman and Stiglitz (1980). This paper also supports the Price pressure and information hypothesis. They found that increasing the quality of information increases the informativeness of the price system and found that costly information cannot fully reflect costly information. We conclude that Journalists specifically prefer to recommend the low value stocks and the abnormal returns of stocks recommended by them are negatively correlated with volatility and promoter's ownership.

This paper contributes to the literature; first we employ an extensive sample encompassing all stock recommendations made by two leading financial dailies. This gives us substantial coverage of low cost analyst recommendations available to the retail investors in the Indian market, excluding IBES recommendations available to institutional investors. This paper is first of its kind in the Indian context.

The remainder of the paper is structured as follows. Section 2 reviews related research while Section 3 describes the database and provides some descriptive statistics. The employed methodology both event-study methodology and panel regression are discussed in section 4, Section 5 presents our empirical findings. Finally, we conclude in Section 6.

2.   Review of Relevant Literature:

Analyst recommendations are considered having great ability to influence stock prices and an important source of information in capital markets. Following semi strong market efficiency hypothesis investors shouldn't make any profits on the basis of information publicly available such as analyst recommendations. But the analysts and various brokerage houses spend large sums of money on identifying undervalued securities expecting that they can create superior returns to their clients. Ball (1978) found that these abnormal returns are due to deficiencies in asset pricing models but not due to market efficiency. Contrary to this, Watts (1978) found statistically significant abnormal returns and concludes that abnormal returns are due to market inefficiencies and not due to asset pricing models. Galai (1978) found that these positive profits may be due to trading rule violations and these are wiped out by transaction costs. The empirical works of Davies and Canes (1978), Bjerring et al (1983) Palmon et.al (1994) find that the market reacts significantly to analysts' recommendations. Schipper (1991) studies that analyst's judgment and decision making is influenced by factors other than financial characteristics of the firms. Francis and Philbrick (1993) points out that producing earnings forecast is secondary to analysts, main objective is giving timely stock recommendations. Stickel (1995) and Womack (1996) found that the analyst favorable (unfavorable) recommendations are accompanied by positive (negative) returns at the time of announcement and they find a stock price drift due to this may last for one month for upgrades and six month for downgrades. Mendenhall (1991), Abarbanell and Bernard (1992), and Klein (1990) show that analysts appear to underreact to information in past quarterly earnings and past stock returns. Easterwood and Nutt (1999), reconciling these two sets of findings analysts underreact to negative earnings news but overreact to positive news, and hence appear systematically optimistic.

Grossman and Stiglitz (1980) observe that market prices cannot reflect all the information available in its prices or else information gatherers would gain no compensation for their costly activities. Hence, logical investors will be willing to pay to the analyst recommendation only if they can gain excess stock return from their recommendation changes. Asquith, Mikhail and Au (2005) have concluded that analyst provide new information and interpret existing information in a way markets find it valuable. In addition, Brennan and Subrahmanyam (1995) show that analysts influence liquidity, which, in turn, affects expected returns. Irvine (2003) demonstrates that there are significant return reactions to changes in analyst following, indicating that analysts, in spite of their biases, can influence the cost of capital for a company. Mikhail et al (2004) found that market reacts significantly positive following a recommendation (upgrade/ downgrade) from high performing analysts' in a five day period surrounding the date of recommendation.

On the other hand Lee (1986) measured the abnormal returns before and after the publication of the Forbes column. He found that recommendations did not allow investors to consistently outperform the market but provided useful information.

Although, researchers accept that markets are pretty hard to beat as they incorporate all the information available in the market and hence it becomes really difficult to pick winners or predict the stock price movement. Jegadeesh and Titman (1993) identified momentum effect and concluded that stocks with high returns over the past year tend to have high returns in next three to six months.

Chang et al. (2001), examine analyst activity around the world, including in a number of emerging markets. Bradley, Jordan and Ritter (2003) found more evidence on conflicts of interest due to investment banking relationships. Analysts are expected to express optimism for firms which have near term chances of capital raising in terms of IPO or SEO. Firms are most likely to choose underwriters who are optimistic about their company's future prospects. Due to many strategic reasons, analysts exhibit conflict of interest to increase their chances of getting hired as underwriters for IPO or SEO. Analysts also give optimistic recommendations on companies which have raised capital from the market recently because there are more chances that these firms may raise capital again near future (Kadan et al, 2009)

Barber et al (2001) have designed many investment strategies following analyst recommendations which take into consideration market size, size, book to market and price momentum effects and has concluded that their strategies involve great trading volumes thereby generating large transaction costs; accounting all these, they found that none of their strategies have generated net abnormal return greater than zero. Although market efficiencies exist, they are not easily exploited by the traders, thereby allowing the inefficiencies to exist. They have concluded that after trading costs are taken into consideration, the differences in trading performance among different analysts become insignificant. Bradshaw (2004) shows that earnings forecast have highest explanatory power of recommendation and these projections have least relation with future abnormal returns.

Sorescu and Subrahmanyam, (2006) explore whether high values of indicators that proxy for analyst ability, such as years of experience and the reputation of the analyst's brokerage house, are associated with superior return forecasting ability in the long term. The results show a clear pattern that analysts with more experience or better reputation show a greater ability to forecast stock returns by way of their recommendations. Therefore, there is reliable evidence that both experience and reputation count in the analyst industry.

Malmendier and kumar (2007) found that large and small traders show significant trade reactions following recommendations. Large investors adjust their positions to an upward distortion whereas small investors follow the recommendations literally and take less account of informational content of a recommendation change. Large investors react significantly positive for strong buy recommendations, insignificantly positive for buy recommendations, and significantly negative for hold, sell, and strong sell recommendations. On the other hand, small investors, instead, display significantly positive reaction to both buy and strong buy recommendations and zero trade reaction to hold recommendations. They display negative abnormal trading responses only to sell and strong sell recommendations.

The price pressure hypothesis (Kerl and Walter (2007)) asserted that heavy buying pressure by naive investors drove abnormal returns on publication day. These studies, using the price pressure hypothesis explained positive abnormal returns on the publication day and negative returns during the subsequent 20 days.

However, later studies (Kerl and Walter (2007) also documented reversals in prices to pre-publication levels. In most studies, a slow reversal was spotted within the 20–25 day period following recommendations. In addition, Liu et al. and Palmon et al. (2009) documented a significant increase in trading volume during the 3 days centered on the publication day of the columns.

Most of the studies on analyst recommendations have considered the I/B/E/S which largely consists of recommendations offered by brokerage houses, while a few studies (Kerl and Walter (2007), Liden (2004) and Palmon et al (2009) have considered the recommendations of financial columnists, Journalists and desk research analysts. This paper analyses three divergent sources of analyst recommendations-journalists, repeated brokerage house and paid recommendations of brokerage house recommendations, thus contributing to the existing literature more specifically investment value of journalist recommendations in an emerging market context.

Thus, obtaining a sound understanding of the analyst industry and its linkage to financial market prices is important both from an academic as well as a practical viewpoint. So questions related to analysts' forecast ability, conflict of interest and investment value and associated issues continued to be interesting for academics and investment analysts.

3. Data Description

We had hand collected data on all stock recommendations made in two popular and highly circulated financial papers; "The Economic Times" and "Business Line"). Our sample consists data from March 2007 to March 2015, this period captures crest and trough of the economic cycle also the beginning of reporting analyst recommendations. "The Economic Times" is an English-Language Indian daily newspaper published by Bennet, Coleman & Co. Ltd., (This Company along with other group companies is popularly known as The Times Group). It is the world's second-most widely read English-language business newspaper, after the *Wall Street Journal*, with a readership of over 800,000[2]. "The Economic Times" publishes the recommendations offered by brokerage houses. Our sample consists of 4074 recommendations of brokerage houses published in "*The Economic Times*" called it as Panel B. These recommendations are available to subscribed clients of brokerage houses as first-hand information and then released to newspaper. For each stock recommendation we recorded columnist name, company name, date of recommendation (date on which the recommendation is first available to its readers), target price, close price, columnist's source of information (whether the recommendation is relied solely on their research or has reference to analysts or brokers research), any ambiguous recommendations are excluded.

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[2]The New Yorker, 8 Oct 2012, 'Citizens Jain' - Ken Auletta Timesp.52

Another business daily, '*The Business Line*' is from the leading newspaper 'The Hindu' group. Business Line publishes in-house journalist recommendations; we have 1553 recommendations offered by Journalists (Panel A). *The Business Line* is having research desk of 10-15 members who have a financial background who follow specific sectors or firms. They gather information regarding these firms by attending analyst meetings, conferences or discussions with board members and release the research reports on firms. Although there might be some lag in e-paper and print media recommendations this doesn't create any bias because both are made available during offline market periods. So a recommendation is available to all their clients/ subscribers at the same time and no specific privilege to anyone. From the time of company identification to the point of publishing recommendations in paper is (maximum one week) not more than 3 to 4 days.

To facilitate the comparison with costly information i.e. subscribed recommendations of brokerage houses we have considered recommendations from one of the top[3] brokerage houses in India. We have considered a set of 1154 recommendations available on internet or paid recommendations these are available only to the subscribed clients (Panel-C), this data is extracted from *Bloomberg Terminal* which is monthly paid proprietary database. Analysts working for huge brokerage firms have high motivations and incentives for releasing better recommendations compared to journalists in Panel A whose main objective may not be releasing recommendations. So analysts in brokerage houses follow firms more closely and regularly keep track of it by regularly attending analysts meetings and conferences to gather more confidential information and act immediately before its public. They invest huge money, resources and time so that they can give value recommendations to their clients which increases their reputation.

Different brokerage houses use different rating systems while giving recommendations for ease and consistency throughout; we classify various stock recommendations of panels A and C as primarily "Buy" and "Sell". Buy includes Overweight, accumulate, outperform, invest and Buy; whereas Sell includes Hold, Neutral, Underweight, Underperformer, Book profits and Sell. The main reason for categorizing Hold and Neutral as SELL is because analysts employed at investment banking houses earn large commissions from corporate transactions. Either the company may be existing or potential client whom the firm doesn't want to antagonize by giving an explicit SELL recommendation or it may be a large influential corporate firm that the brokerage house will not want to remain in its bad looks. A distinction is made for HOLD/Neutral is made between these BUY/SELL levels based on the tone of the report, as well as information presented. A pessimistic picture and downbeat tone leads to a "SELL" recommendation, while the opposite leads to a "BUY" recommendation. However, we have observed that neutral/hold recommendations have a negative tone in these cases and many intelligent or well aware investors will perceive them as SELL.

To understand the style and bias of analyst recommendations coming from three different sources we have considered multiple variables like valuation multiples (P/E, P/B, P/CF, P/S),

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[3] Many financial periodicals in India have rated Share khan as the second largest share brokerage house

market parameters (Dividend Yield, Market Capitalization, volume, volatility, growth), investment parameters (Capex), and ownership variables (public institutional holding and promoter ownership), All these parameters are collected correspond to last month of the most recent reporting quarter.

Stock returns are computed using adjusted stock price data collected from *CMIE Prowess* data. Adjusted stock price is considered to ensure that any corporate actions like Dividends, stock splits, bonus issues are factored into the equity price.

Total number of recommendations in Panel B is 4074 out of which only 554 sell recommendations (13.5%) are given compared to Panel A which has 341(21.8%) sell recommendations in 1553 total recommendations and Panel C has 357 sell recommendations (31%) in 1154. Clearly, Panel C gives more number of sell recommendations compared to other panels. We don't know the reason for low number of Sell recommendations in Panel B, our guess is the new paper may be publishing select recommendations of brokerage houses thus biased to buy recommendations. Out of all these recommendations we have considered recommendations made on mid and small cap stocks which are having at least three recommendations during the study period. Our final sample set after excluding growth stocks have 471,882 and 1154 recommendations in Panel A, B and C respectively. Overall during this period   Panel A, B and C have stocks respectively of 94,121 and 44 representing value firms (Table 1). Buy recommendations occur more often indicating the reluctance of analysts to issue sell recommendations. On the over all, the number of sell recommendations are less in number, this also supports the cost based hypothesis (Womack 1996) On the over all, the number of sell recommendations are less in number, this also supports the cost based hypothesis (Womack 1996)

On the overall, one-third of paid recommendations are sell recommendations where as 15% of desk research analysts are recommendations are in favor of sell. This clearly indicates that the broking houses providing recommendations on payment basis are cautious while giving their recommendations. This also implies that cost of sell recommendations is more than Buy recommendation. This appears evident from cost-based hypothesis (Womack 1996) (Table 2)

Academic research shows that, value stocks have always shown better returns compared to growth stocks. For Value stocks returns are positively convergent because P/B rises when value companies become more profitable and then they move into low expected returns group. Motivated from their studies, if Analyst could identify the value stocks create higher returns (and positive convergence) compared to growth stocks which have lower returns (and negative convergence) then their recommendations are creating real investment value. In contrast to this if analysts are showing keen interest on growth and glamorous stocks then we can certainly conclude that there is a potential conflict of interest among analysts. Our paper intended to examine the analyst's ability in identifying value stocks, thus we have excluded stocks which are part of popular market portfolios (indices), and these are CNX Nifty, CNX Nifty Junior, CNX 100, LIX 15, S&P BSE Sensex and S&P BSE 200. If Analysts' are successful in finding and

recommending value stocks over a period of time then we can safely assume that analysts' recommendations in Indian Market are reliable and create real investment value.

Among all the three panels, migration of buy recommendations to sell is very insignificant with in a period of six months. Similarly, transmission of sell recommendations to buy is also not very significant which indicates that the analysts are consistent on their views and only in very few cases, the recommendations are reversed (Table 2).

Table 3 shows financial and certain non-financial characteristics of stocks recommended by three panels. The PE multiples of brokerage house recommendations is higher than PE multiple of journalist recommendations, whereas in the case of market capitalization all three types of analysts are selecting similar type of companies. They are also not biased to companies with different ownership structures. We can clearly see that there is not much difference in financial characteristics except for valuation multiplies. The mean of P/E multiple is maximum in Panel B (32.45x) and minimum in Panel A (21.75x). Panel A recommended companies having mean P/B values around 1.67 (slightly over valued) but Panel C has recommended stocks having mean P/B as high as 3.27 which indicates that highly over valued companies are being recommended in Panel C. Journalist recommendation favor low value stocks with low P/E and P/B multiples, journalists are biased to low value stocks compare to brokerage houses. Among the other parameters like volume, volatility, capital expenditure, the type of companies being recommended by all three panels are similar. We can also see that on an average mean promoter ownership of the firms recommended by all the three panels in around 50%, thus desk research analysts are not specifically favoring high institutional ownership stocks. Further, we have tested influence of these firm specific variables on cumulative abnormal returns through panel regression analysis.

4.   Methodology

Event Study Methodology:

We apply standard event study analysis to calculate abnormal returns and tested the significance of such returns followed by analyst recommendations.

Here we study the information content and investment value of an analyst recommendation and applied the methodology of market return model. The benefit from using the market return model is will depend on R-square of the regression. The higher the R-square, greater is the variance reduction of the abnormal return and larger gains. (Craig Mckinlay (1997). So we define the window period larger than the period of interest. This helps us in understanding the behavior of investors surrounding the date of recommendation. We have included both post and prior time periods to capture the analyst's impact on returns.

We have considered BSE Sensex as our benchmark index and abnormal returns are calculated using market return model in different window periods. Market model is a one factor model; to find whether profitable investment strategies exist with respect to analyst recommendations, we follow Brad Barber et al (2001) employing theoretical CAPM and estimated time series regression.

Daily actual returns in the share price and benchmark index are calculated as

$$R_{it} = \log(\frac{P_t}{P_{t-1}})$$

Where P_t and P_{t-1} are the adjusted closing values of stock or the benchmark index on days t and t-1. If we have to calculate actual returns of nth day from the date of recommendation then

$$R_{it} = \log(\frac{P_{t+n}}{P_t})$$

Where n is the day from the date of recommendation

Estimation period of 180 days prior to the date of recommendation is considered while calculating abnormal returns. Expected Return on a recommendation is calculated using market return model, in which we used previous 180 days share price to estimate parameter α_i and β_i. These are the intercept and slopes of time series regression of the firm and benchmark prices.

$$Ex(R_{it}) = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

$$E(\epsilon_{it} = 0) \qquad var(\epsilon_{it}) = \sigma_{\epsilon_i}^2$$

Where

R_{it}= Expected return on the share price

R_{mt}= Actual Return in the benchmark index

α_i = the estimated CAPM intercept (Jensen's alpha)

β_i = the estimated market beta, and

ϵ_{it}= the regression error term

Now holding period abnormal return is the difference of actual return and expected return in the share price as calculated by market model.

$$AR_{it} = R_{it} - Ex(R_{it})$$

Where R_{it} and R_{mt} are the returns on security i and market portfolio, respectively over a period-t.

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$$

In order to test for statistical significance of abnormal returns, we apply traditional t-statistic test based on Brown and Warner (1985). This method has found to be sensitive to asymmetrically distributed returns.

$$t = \frac{(\bar{X} - \mu)/(\frac{\sigma}{\sqrt{n}})}{s/\sqrt{n}}$$

Although it's very difficult to answer whether the behavior in stock price movement observed is owing to analyst recommendations or perhaps due to some predicted good news, we can get an idea of the impact by considering short term horizons surrounding the date of recommendations. So we have calculated cumulative abnormal returns (CAR) in different window periods to help us understand the investor's behavior to an analyst recommendation.

Cumulative Abnormal Return (CAR) from t_1 to t_2, is the product of abnormal returns in the specific period of interest. Following Xiaolin Qian (2014) we have analysed cumulative abnormal returns around the earnings announcement to understand the retail investor sentiment, difference in opinion and stock overvaluation.

$$CAR_i(t_1, t_2) = [\prod_{t=t_1}^{t_2}(1 + AR_{it})] - 1$$

We have considered various time periods and the results are presented   for all the three data panels.

Panel Regression

In addition to the univariate analysis, we conduct a regression analysis of returns to examine the variation in returns to recommendations' in each panel (source of recommendation), timing and content while controlling for liquidity, information leakage, and size factors. Using Panel regression (fixed, random and pooled OLS) we estimate the following equation. Panel data provides information on individual behavior, both across individuals and over time period – they have both cross sectional and time series dimensions. To account for variation over time and across individuals, we have applied different panel data models like pooled OLS, fixed effects and random effects model and their respective estimators to test the consistency and efficiency across different models. After applying all these models on our panel data, we have used Breusch-Pagan Lagrange Multiplier and Hausman test to choose between fixed and random effects model. If Breusch- Pagan LM test is significant we use random effects model instead of Pooled OLS model, similarly if Hausman test is significant we use fixed effects model or else Random effects model.

The following panel data regression model is tested;

$$CAR(-1,1)_{it} =$$
$$\propto +\beta_1 PE_{it} + \beta_2 PB_{it} + \beta_3 PCF_{it} + \beta_4 PS_{it} + \beta_5 SIZE_{it} + \beta_6 YIELD_{it} + \beta_7 VOLU_{it}$$
$$+ \beta_8 OWNER_{it} + \beta_9 VOLA_{it} + \beta_{10} CAR(-10,-2)_{it} + \beta_{11} AR(+1)_{it} + \varepsilon_{it}$$

Where, $CAR(-1,1)_{it}$ represents three day cumulative abnormal return for recommendation i in the time period -1 to 1 as our dependent variable following Womack (1996), we are calling this as Model-I of the panel regression. A set of independent variables considered are valuation multiples, market momentum, size and governance quality.

We considered four different valuation multiples: academic studies support that Price to Earnings ratio(P/E), Price to Book ratio(P/B) are widely used multiples in investment strategies; Jegadeesh et al (2004) considers these parameters in analysing the analysts. We have also considered Price to Sales (P/S) following William C. Barbeeet (1996)) Price to Cash flow (P/CF) following Xiaobao Song and Wenjia Zheng (2014), dividend Yield following Barber and Loeffler (1993) and Xia Qiang Cheng (2006).

To test the analysts' bias over momentum and trading volume we have considered volume and volatility. Volume is an important indicator as it measures the worth of a market move; if analysts rely on the predictive power of trading volume, we would expect their recommendations to tilt more favorably toward lower-volume stocks than higher-volume stocks (Jegadeesh et al (2004)) and following Jegadessh et al (2010), we have considered Volatility. Banz (1981) and Reinganum (1981), among others, show that small firms have generally earned higher returns than large firms. We take natural logarithm of firm's market capitalization at the end of most recent fiscal quarter as proxy for size. We control for size using the natural logarithm of the recommended firm's market capitalization, following Jegadish et al (2004).

Promoter ownership and institutional holding percentage play an important role in analyst following a certain company and issue recommendations on the company. Gompers and Metrick (2001) have found positive relation between institutional ownership and future returns. It is recognized that ownership concentration is dynamically related to firm performance (Gedajlovic & Shapiro, 2002; Thomsen & Pedersen, 2000; Yabei & Izumida, 2008 Amir Rubin 2007). We have considered promoter ownership as corporate governance variables as they play an important role in analysts' issuing recommendations.

The market reaction to a recommendation on the day of recommendation is due to the amount of information leaked to the public before the recommendation (Dan Palmon et.al (2009)). To account for any informational leakage we included cumulative abnormal return in the 9-day period ending 2-day prior to the date of recommendation, CAR (-10,-2).

AR is used as control variable just to see if post recommendation holding period returns are having any significant effect on CAR surrounding the date of recommendation

In addition to three day cumulative abnormal return (CAR(-1.1)), We have also tested influence of these variables on abnormal returns of multiple holding periods such as (-2,2),(-3,3),(0,5),(-2,3),(-3,5),(0,7),(5,10),(-3,11) and ,(-2,-10) across all the three panels; but reported results where regression is best fit with significant 'F' value. These are accordingly CAR (-3, 5) for Panel A, CAR (-3, 3) for Panel B and CAR (-3, 11) for Panel C. We called this as panel regression Model-II. Thus in model II, Panel B we have taken CAR (-3, 3) as our dependent variable and AR (t+3) as one of our independent variable. Similarly in Panel A and Panel C, we have considered CAR (-3, +5) and CAR (-3, +11) as our dependent variables and AR (+3) and AR (+15) as one of our dependent variables respectively, except the AR variable all other variables are same.

5.   Analysis of Results:

Buy Recommendations and Abnormal Returns: The journalist recommendations have generated abnormal returns up to 3 days of holding period, but thereafter, the abnormal returns reduced and turned negative also (Table 4). The abnormal returns of subscribed recommendations (panel C) are positive across all the portfolios. Especially, long term abnormal returns are positive and significant for panel C recommendations, thus the paid brokerage recommendations are creating value for investors. The other brokerage house (Panel B) recommendations published in the newspaper have generated abnormal returns a day prior to the recommendations and thereafter the returns disappeared. This clearly shows that the brokerage house recommendations published in the newspaper is not providing any abnormal returns and brokerage houses are releasing this information to the public only after sharing it with their paid clients. These results are similar to Kerl and Walter (2007) findings.

So, on the overall, the investors can make abnormal returns provided they acquire the recommendations through an expensive source rather than freely published in the newspaper. This supports the Grossman and Stiglitz (1980)'s view, the lower the cost of information, the higher will be the equilibrium percentage of individuals who are informed. Moreover, as more individuals become informed, the ratio of the expected utility of the informed to the uninformed decreases. Since the cost of accessing a financial column in the public media is nominal, although the cumulative abnormal returns are statistically significant have value only for a three day period.

Negative Short term and long term buy and hold abnormal returns in Table 4 clearly indicates that the stock prices have already been reacted to the information available and bring no new information related to the stock recommendations to the readers or investors. BHAR mean (1.96%) is highest when the recommendation is made 30 days prior to the date of recommendation and the returns keep decreasing further when the holding time period is decreased gradually. The lowest BHAR return (-23.9%) is observed one year post the recommendation. In Panel A, the BHAR are relatively larger compared to Panel B, with a

maximum return of 2.82% found 7 days prior to the date of recommendation. Panel A journalist recommendations have created positive holding period returns till 7 days post the recommendation date indicating investment value of journalist recommendations.

Interestingly, in Panel C, Abnormal returns are positive in all window periods post and prior to the publication day. Prior to the date of recommendation have positive returns as usual with a decreasing trend as we approach towards recommendation date. But in post recommendations holding period returns have gradually increased both long term and short term and surprisingly they are all positive in contrast to negative returns observed in Panel A and B. A maximum 5.4% abnormal return is observed on an average by holding buy recommendation for 6 months from the date of recommendation. Abnormal returns in the window periods post recommendation are greater than the pre recommendation window periods. This abnormal behavior in returns in Panel C can be due to the recommendations provided by them are paid, hence made available only to their subscribed clients and not available to the general public. Long term BHAR are significant at 5% level in all the three panels.

The mean abnormal return on the publication day is 0.79% (Panel A), 0.64% (Panel B) and 0.33% (Panel C).This is similar to other studies the post publication day abnormal returns are gained on the recommended stocks. Barber and Loeffler (1993) demonstrate 4% 2-day abnormal return, Metcalf and Malkiel (1994) report a 3% 1-day announcement effect and Wright (1994) documents a 4.59% 2-day abnormal return following the announcement. Challenging the EMH, in Indian market also prices react to any new and relevant information in the financial markets.

 Kerl and Walter (2007) found maximum value of AR 1 day prior to the publication day (PD) (-1.08%) and on the PD day, they found a significant market reaction of 0.64%. They display a highest market reaction for buy recommendations in the period CAR [-2 , +2] (2.58%), whereas we find a maximum CAR in the period [-3,+3] for Panel A (3.11%), [-2,+2] for Panel B (0.64%) and [-1,+1] for Panel C (0.57%).

Table 5 presents cumulative abnormal returns for buy recommendations. The cumulative abnormal returns of Panel A are positive till seven days (0, 7) following the recommendation whereas Panels B and C are showing mixed results, this could be due to different investment strategies followed by the investors. These results are consistent with the evidence of Stickel (1995) and Womack (1996). We also find that cumulative abnormal returns of 5-day (-2, 2) and 7-day (-3, 3) are positive across all the panels supporting the previous studies (Stickel (1995) and Womack (1996)), interestingly journalist recommendations (Panel A) are having highest cumulative abnormal returns. Panel A has the highest CARs in all the window periods indicating journalist recommendations are reaching to the market for all investors at a single point of time and investor's response is in tandem with the recommendation. In Panel A, we see that returns are more significant in periods prior to the date of recommendation where mean abnormal return is positive and long term post recommendation periods where returns are negative. Maximum of 46.94% significant positive returns are observed before the recommendation and post recommendation significant positive returns are only 40.8%.

Consistent with the studies, CAR (-2,-10) is negative for a buy recommendation implying information leakage prior to the publication day in all the three panels. Post recommendation CARs (5, 10) are negative indicating that the prices have already reacted to the recommendations and no returns are possible in these periods.

From Table 5 we can see that subscribers who receive recommendations 3 days prior would earn a significant CAR [-3, 5]. Across all the three panels we observe that CAR [-3, 5] is significantly higher than CAR [0, 5]. Kerl and Walter (2007) also found similar results for value stocks which implies that journalists and analysts identify undervalued stocks

From Table 5, during the period CAR [-1,1], there is a 2.27% difference in CARs, which implies that market reacts more positively to Journalists (Panel A) Buy recommendations than Buy recommendations (Panel B and Panel C) of brokerage houses.. Buy recommendations from Journalists (Panel A) have PD effect of 2.84% whereas analysts (Panel B and C) have 0.57%. The difference between the two is 2.27%, hence supporting the hypothesis that the impact to brokerage house recommendations on the publication day, irrespective of its kind, will be lower than recommendations from journalists (Liden 2004). Similarly, In the short term post Buy recommendation periods, CAR [5, 10] is found to be negative across all the panels supporting Hypothesis that the If the recommendations contain new information, stock prices should react to this information exclusively on the publication day (Liden 2004). The results are found to be consistent with Liden (2004).

This clearly indicates stocks being recommended by the journalists could be different from brokerage houses. In all the three panels, number of significant positive returns have decreased gradually till one day post the recommendation period and have increased thereafter till 3 months holding period (Table 8).

Price Pressure and Information Hypothesis: The price-pressure hypothesis (PPH) assumes that investors must be compensated for transaction costs and portfolio risks when they agree to immediately buy or sell securities which they otherwise would not trade. Hence, this compensation is provided by a temporary price increase (decline) for large quantities of stocks offered for purchase (sale). In the context of our study, the PPH states that an initial price reaction to *buy* recommendations is solely driven by temporary buying-pressure from naıve investors, which should be reversed afterwards. Second, the information hypothesis (IH), which we evaluate in our study as well, assumes that abnormal returns are caused by new, relevant information, leading to a permanent revaluation of the security.

 The Price Pressure Hypothesis poses that recommendations causes temporary buying pressure by naïve investors, which leads to abnormal returns that reverse quickly. Price pressure effects will be temporary as the abnormal returns will diminish as initial buying pressure dissipates. On the other hand Information Hypothesis states that recommendation discloses relevant information to the market, resulting in abnormal returns that do not reverse and resulting in a permanent revaluation of the firm's stock.

We examine our sample to determine how much of the price reaction is due to new information in buy recommendations and what fraction is due to temporary price- pressure. In Panels B and

C, we observe CAR [0, 7], CAR [-3, 11] reflects Price reversal effect and permanent information effect respectively, whereas, in Panel A CAR [5, 10] reflect Price reversal effect similar window of CAR [-3, 11] and permanent information effect. With respect to information effect, we observe a significant increase in stock prices of 2.57% in Panel A and a slight increase in Panel C (0.04 %) and decline in stock prices in Panel B (-0.49%) for the period [-3, +11]. The price pressure reversal effect accounts for Panel A (-0.6%), Panel B (-0.2%) and Panel C (-0.33%) respectively. So we may assume that the stock prices increase by these percentages in respective panels due to price-pressure itself around the event. In Panel B and Panel C, total price reaction CAR [-2, 2] is split between IE and PPE, in Panel A we find price reaction CAR [-3, 3] is split between IE and PPE in their respective periods. Similar to Kerl and Walter (2007) our results also show the evidence of price reversal and permanent information effect but the respective cumulative abnormal return window periods are different.

Sell Recommendations and Abnormal Returns

Sell recommendations abnormal returns are expected to be negative post recommendation. Supporting the price hypothesis r the number of Sell recommendations issued by different analysts is far lower than buy recommendations (Table 6). To understand the behavior of investors over a sell recommendation we calculated abnormal returns prior and post the date of recommendation in different time periods. In Panel B, returns prior to the recommendation are mostly negative indicating the information has been already factored in stock price , continuing this trend in post recommendation periods, these negative returns have widened and reached to -18.8% clearly giving an indication that post recommendation as expected the sell recommendations average abnormal returns are negative . In Panel A, we see a similar trend time prior to the date of recommendation and long term returns are negative with a maximum negative abnormal return of -10.05% . This supports the hypothesis that sell recommendation is more informative compared to a buy recommendation (Francis and Soffer (1997)). Panel C being the subscribed (or paid) recommendations, we observe proportionately more number of sell recommendations (31% of total recommendations are sell, see Table 1) indicating the brokerage house is sending the early warning signals of stock fall. Thus, in contrary to Panels A and B, in panel C, a very less negative returns are seen prior to the date of recommendation and these negative returns are effective only 7 days post the date of recommendation. The returns are significantly positive and an increasing trend hereafter a maximum of 9.7% one year post recommendation date. This unique behavior in Panel C might be due to early warning of analyst's stock recommendations to their clients or it could be the brokerage house must have discontinued offering recommendation on that probably declining return stock. Interestingly, the anomalous behavior is one year post sell recommendation mean abnormal return is (+9.7%) is more than a buy recommendation. Long term abnormal returns followed by sell recommendations are significant at 5% level in all the three panels. Liden (2004) found that journalists are informative when stocks are down and uninformative when stocks are up. Implying the sell recommendations from Journalists are more informative in character. They also believe that analysts publish recommendations which are more useful for themselves and to their clients. They also take an advantage of handing the information to their client's before publishing in any dailies or magazines.

In all the three panels, the cumulative abnormal returns for medium holding periods are consistently negative following the announcement of sell recommendations (Table 7). It looks that the investor's action is very quick to sell recommendation to arrest further fall in stock price. Significant sell recommendations have a similar trend as observed in buy recommendations gradually decreased till one day post recommendation holding period and increase gradually from there. In Panel B, a maximum of 46.29% negative significant returns are observed in holding periods prior to the date of recommendation and 59.3% during post recommendation holding periods. Panel A, a similar trend but a slight increase in significant sell recommendations was observed during post and prior recommendation periods. As expected Panel C, has very less significant sell recommendations compared to others which is expected because mean abnormal returns in post recommendation periods are positive in long term and sell recommendations are not very pessimistic.

We find cumulative abnormal returns and holding period returns positive and significant in Panel A and C compared to A because those recommendations are first source of information to their clients unlike Panel B recommendations which have recommendations from various brokerage houses who give first privilege to their own clients and then release it to the general public or media.

It is clear that effect is permanent and sell recommendations support IH. Our results are consistent with the. Liden (2004) who also found that when the recommendations are categorized as those from analysts and journalists, initially analysts' recommendations (Panel C) showed negative drift. However after 15 days these recommendations experienced increasing stock prices. On the other hand, journalists' recommendations (Panel A) have a real value, as we can see a permanent change in stock prices post PD time period.

Panel Regression results:

Table 9 presents' panel regression results for each Panel A, B and C. Model-1 presents 3 day abnormal return as dependent variable and Model-II specific period CARs for 9 days, 7 days and 15days respectively for Panels A, B and C.

Valuation Multiples: We find positive relationship between cumulative abnormal returns and P/E ratio, that both journalists and brokerage houses give more importance to stocks having higher PE ratio as expected companies with higher PE ratio gives better returns. Similarly Sales also considered as an important variable in selection of stocks where cumulative abnormal returns are positively associated with P/S multiple; whereas PCF is not showing any significant and consistent relation across all the models. Journalists (Panel A) are recommending companies with low PB companies which indicates that they issue recommendations with long term prospect; we find a significant negative relation between PB and dependent variable. Low PB companies are value stocks which yield higher returns compared to growth stocks (High PB

companies). Contrary to this brokerage house are recommending high PB ratio and in the case of Panel B model 2 it is significant also. Brokerage houses are recommending high Dividend yield companies whereas journalists prefer low Dividend Yield companies which are also significant.

Size: Our sample is biased towards small and mid-cap companies, which is very much reflected in the SIZE coefficient (Table 9). Abnormal returns are negatively associated with market Capitalization. Trahan and Bolster (1995) found that abnormal returns are inversely proportional to size, which is consistent with price pressure hypothesis since smaller more thinly traded firms are likely to have demand curves that are less elastic than larger firms. Barber and Loffler (1993) find evidence consistent with information hypothesis. Value firms are likely to be neglected by analysts in general and information content of a recommendation published will increase with decrease in size, which results in higher abnormal returns for value firms compared to growth stocks.

Momentum and Volatility: Highly traded stocks are preferred by both journalists and brokers and we can also imply that journalists are not biased to low volume stocks. Journalists prefer low volatile stocks while the results are significant also. Interestingly, paid brokerage houses also recommending low volatile stocks and results are significant. Interestingly, volatility has a positive relationship across all three panels for both 30 and 360 day abnormal returns. However, in most cases, in the long run returns, these variables are found to be insignificant

Ownership: Generally, low promoter ownership is considered as good governance. Journalists (Panel A) are considering companies with low promoter ownership which is an implication that they give importance to corporate governance while issuing recommendations.

Information leakage: In model II, across all the panels we see CAR [-2,-10] is positive and highly significant implying that there is a possible information leakage prior to the recommendation periods. We expect a negative relationship between information leakage and future returns. Holding period returns are significantly positively influencing the CAR in different panels across all the models; implying that abnormal returns post recommendation influence the cumulative returns surrounding the date of recommendation.

On the over all, journalists are selecting high P/E, low P/B stocks, low promoter ownership or better governed companies and recommending low volatility stocks; these specific characteristics are different from brokerage houses or paid recommendations.

The cumulative abnormal returns recommended by brokerage houses are negatively correlated with market capitalization whereas a mixed result is observed in the case of journalist recommendation. In case of ownership, the brokerage houses have negative co-relation while journalist analysts have positive co-relation. In the long run, for abnormal returns of one year period across all panels, price to book multiple is negative while for a 30 day abnormal return across all three panels, it is positive.

Our plausible reasons for mixed results in all the three panels for panel regression may be due to differences in motivations and incentives to issue recommendations. Recommendations provided

by journalists(or desk research) may not be incentive driven their main objective is to increase readership and viewership by providing various services and hence they might not spend too much resources, time and money for issuing recommendations as it is an additional service provided. It may add less value compared to recommendations issued by Panel C, whose main objective as a brokerage firm is to provide their clients/ subscribers with value information and recommend firms which create abnormal returns in future. Brokerage firms have huge teams who continuously follow firms and keep changing their valuation models for better forecast ability. They spend huge money, resources and time to obtain value information regarding firms, since it is their prime objective they have many benefits and incentives in doing so. We find consistent results in Panel A and Panel C but in Panel B results are not consistent with other panels because unlike Panel A and Panel C where certain team is reporting recommendations, in Panel B recommendations from different brokerage houses are published and different brokerage houses have different holding period targets, valuation models, optimism in specific sectors and assumptions. So no significant pattern is found in Panel B, as recommendations are coming from different sources have different perspective and incentive structure.

6.   Conclusion:

Retail or specifically individual investors depend on investment advice from financial experts like brokerage houses, investment newsletters, 'Financial gurus' and journalists. In the Indian context the two widely available analyst recommendations to the retail investors without much incremental cost is brokerage house recommendations' reported in newspapers and journalist recommendations offered by the business daily-*The Business Line.* We have analysed the investment value of these two divergent sources of recommendations available to retail investors. To facilitate the comparison between free and costly information, we have also considered another set of leading brokerage firm recommendations available to the subscribed users (costly information). Our empirical study shows that, the journalist recommendations offer abnormal returns three days post recommendation but thereafter it disappears. In the long run for a period of 30day or 360 day holding periods these stocks do not offer any investment value. However, the investment value of journalist recommendations is much better than brokerage house recommendations published in the financial daily. On the other hand if investors prefer to go for costly information by subscribing to brokerage house recommendations, the abnormal returns of paid brokerage house recommendations are significantly higher and sustainable till 15 day post recommendations. Journalist analysts specifically prefer to recommend the low value stocks and the abnormal returns of stocks recommended by them are negatively correlated with volatility. Although the number of sell recommendations offered by desk research analysts is just 22% of total recommendations, the investment value of sell recommendations is consistent and for a longer period the abnormal returns are negative. Our paper also supports the Price Pressure Hypothesis and Information Hypothesis in the Indian context.

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Table 1: Structure of Analyst Recommendations

	Total recommendations	Unique companies	Unique Brokers	Recommendations	Stocks
Panel A	1553	564	1	471	94
Panel B	4074	645	120	882	121
Panel C	1154	148	1	1154	44

Panel A

Year	Total Recommendations	Buy	Sell
2007-08	178	133	45
2008-09	187	145	42
2009-10	381	278	103
2010-11	175	145	30
2012-13	231	200	31
2013-14	228	183	45
2014-15	186	141	45
Total	1566	1225	341

Panel B

Year	Total Recommendations	Buy	Sell	Active Brokers
2007-08	277	229	48	32
2008-09	102	69	33	35
2009-10	786	673	113	65
2010-11	971	926	45	47
2011-12	681	627	54	32
2012-13	157	146	11	28
2013-14	651	386	182	7
2014-15	481	373	68	5
Total	4106	3429	554	251

Panel C

Year	Total Recommendations	Buy	Sell
2010-11	163	120	43
2011-12	184	132	52
2012-13	67	48	19
2013-14	227	147	80
2014-15	511	348	163
Total	1152	795	357

Table 2

Transition Matrix

This Table represents the transition matrix of changes in recommendations within 6 month period in our entire sample period of March 2007 to March 2015 of all the three panels A, B and C. Old rating denotes the previous stock rating and new rating the current rating of the stock by analysts. We have also reported mean ratio of buys to sells to measure the frequency of sell recommendations across panels. We observe that Panel C gives more frequent sell recommendations and upgrades/downgrades a recommendation more frequently compared to other panels.

Panel A

Old Rating	New Rating			
	Buy	**Sell**	**Total**	**Total (%)**
Buy	315	43	358	23.05
Sell	43	24	67	4.3
Total	358	67	425	27.37

Mean Ratio of Buys to sells= 4.4:1

Panel B

Old Rating	New Rating			
	Buy	**Sell**	**Total**	**Total (%)**
Buy	766	21	787	19.3
Sell	25	127	152	3.7
Total	791	148	939	23.05

Mean Ratio of Buys to sells= 5.4:1

Panel C

Old Rating	New Rating			
	Buy	**Sell**	**Total**	**Total (%)**
Buy	613	29	642	55.63
Sell	26	265	291	25.22
Total	639	294	933	80.85

Mean Ratio of Buys to sells=2.3:1

Table 3
Descriptive Statistics of Financial parameters

Descriptive statistics; how the nature of companies selected by the analysts are different from the general market portfolio. Analysts give importance to certain financial parameters like valuation multiples, growth indicators, size, momentum and trading volume and other fundamental indicators like corporate governance variables, CAPEX and DVD_YIELD while issuing recommendations. Panel A, Panel B, Panel C reports statistical information of recommendations financial parameters in, Business Line Economic Times and Online respectively.

Panel A

	PE	PB	PCF	PS	DVD_YIELD	SIZE	LEVER	OWNER	INSTI	VOLU	VOLA	CAPEX
Mean	21.75	1.68	25.70	1.07	1.57	23.04	3.77	48.99	19.44	17.00	0.52	20.79
Median	11.33	1.20	9.51	0.57	1.16	23.11	2.31	48.31	16.88	17.07	0.51	20.64
Stdev	34.82	1.49	49.19	1.37	1.63	1.15	4.94	16.04	12.80	1.53	0.17	1.57
Minimum	0.70	0.21	0.32	0.06	0.00	19.54	1.17	9.52	0.03	12.77	0.00	16.96
Maximum	275.72	8.36	387.48	7.93	14.19	26.73	36.71	93.56	67.17	20.54	1.83	25.46
Count	277	251	301	295	404	438	91	339	339	438	438	94

Panel B

	PE	PB	PCF	PS	DVD_YIELD	SIZE	LEVER	OWNER	INSTI	VOLU	VOLA	CAPEX
Mean	32.45	2.45	25.54	1.49	1.22	23.82	4.09	48.44	28.12	17.49	0.53	21.02
Median	13.71	1.99	12.15	1.11	0.88	23.87	2.58	50.10	25.86	17.47	0.52	20.95
Stdev	130.45	1.65	53.32	1.29	1.21	1.21	4.09	18.51	15.09	1.61	0.21	1.57
Minimum	2.20	0.24	0.67	0.10	0.00	16.44	1.11	0.00	0.01	12.47	0.00	16.33
Maximum	1609.86	13.03	615.69	8.86	10.26	27.37	21.93	93.56	100.00	22.21	1.37	25.83
Count	581	439	550	581	784	828	172	746	750	821	830	187

Panel C

	PE	PB	PCF	PS	DVD_YIELD	SIZE	LEVER	OWNER	INSTI	VOLU	VOLA	CAPEX
Mean	24.05	3.27	27.99	1.81	1.46	23.77	3.52	52.14	26.11	16.47	0.39	20.24
Median	17.26	2.03	12.58	1.14	1.02	23.86	2.19	54.99	24.48	16.71	0.38	20.47
Stdev	36.25	3.43	63.53	1.93	1.41	1.08	4.01	16.93	16.13	1.54	0.11	2.02
Minimum	2.50	0.24	0.13	0.07	0.00	20.85	1.15	16.22	0.01	11.84	0.00	14.85
Maximum	472.21	21.38	695.76	14.45	8.56	26.53	21.71	78.12	67.93	20.14	0.73	24.82
Count	1009	999	853	1033	1106	1150	328	1122	1122	1150	1152	225

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Table 4
Buy and Hold Abnormal Return

Buy and Hold Abnormal returns (BHAR) in the window periods of -30 days, -15 days, -7 days, -3 days, and -1 day are reported to find out the behavior of the stock prior to the date of recommendation. Buy and Hold Abnormal returns in the window periods of +1 day, +3 day, +7 day , +15 day, +1 Month, +3 Month, +6 Month and +12 Month are considered to understand the holding period abnormal returns of the analysts' recommendations post the date of recommendation. These different window periods post the date of recommendation are classified as Short term BHAR and Long term BHAR. For each specific BHAR period t-statistic is reported along with p-statistic to understand the significance of these returns in their respective periods.

Panel A

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	2.16	2.17	2.82	2.70	0.79	0.27	0.41	0.00	0.02	-0.44	-1.01	-2.12	-5.07
Median	2.61	2.71	3.28	2.93	0.58	-0.05	-0.20	-0.59	-1.00	-1.08	-2.68	-3.31	-5.94
Stdev	14.95	12.72	7.02	5.93	3.78	5.03	5.74	7.03	10.45	13.46	24.27	38.23	59.29
Minimum	-100.24	-145.03	-24.83	-27.99	-14.54	-64.16	-16.52	-23.68	-39.45	-44.20	-83.28	-138.06	-194.21
Maximum	52.71	56.42	34.41	28.35	18.00	19.05	29.25	24.24	51.17	57.29	95.54	107.07	184.96
t-Value	70.04	82.06	108.70	105.98	30.04	84.02	136.30	182.29	268.58	362.81	673.75	-118.25	1664.02
p-Value	7.33	9.45	11.52	13.48	19.65	26.62	19.09	14.56	9.91	7.37	4.66	2.26	1.93
Count	377	377	377	377	377	377	376	376	376	376	376	362	347

Panel B

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	1.96	1.57	1.33	1.13	0.64	-0.23	-0.18	-0.19	-0.63	-0.51	-2.52	-8.77	-23.90
Median	1.99	0.88	0.83	0.71	0.42	-0.38	-0.34	-0.37	-0.89	-0.88	-1.93	-7.45	-21.35
Stdev	10.52	7.95	5.48	4.22	2.40	2.41	4.20	5.14	7.61	11.11	21.51	33.15	50.81
Minimum	-45.32	-38.10	-20.51	-16.18	-9.28	-17.48	-25.24	-28.53	-35.67	-71.00	-141.26	-158.95	-218.33
Maximum	49.64	33.07	27.55	33.55	11.10	16.50	16.75	21.28	52.64	69.20	68.06	93.74	129.85
t-Value	72.22	62.92	51.20	43.29	25.51	-7.01	-6.51	-7.83	-32.47	-35.06	-141.92	-444.91	-1006.59
p-Value	8.89	12.39	16.72	20.30	28.31	29.24	20.77	17.89	13.10	9.68	5.30	3.15	1.46
Count	776	776	776	776	776	776	776	776	776	776	776	776	767

Panel C

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	1.39	1.32	0.88	0.62	0.33	0.13	0.06	0.23	0.51	1.65	3.98	5.36	4.13
Median	1.11	1.08	0.34	0.26	-0.03	-0.04	-0.10	-0.19	-0.12	0.46	2.49	5.29	7.68
Stdev	13.60	10.13	7.66	5.64	3.76	2.88	5.59	7.22	14.03	30.39	24.64	37.89	53.15
Minimum	-88.35	-69.24	-34.75	-44.57	-45.86	-15.20	-53.23	-74.89	-66.99	-64.36	-158.67	-172.68	-186.39
Maximum	71.73	61.67	64.97	28.18	18.53	14.98	34.58	36.62	300.65	771.91	204.79	197.57	146.02
t-Value	54.22	50.73	32.27	24.53	11.76	4.10	1.08	5.22	18.29	33.78	170.48	282.26	327.48
p-Value	8.70	11.47	16.27	19.68	26.69	27.54	19.97	16.03	11.14	8.46	5.31	3.72	2.49
Count	793	793	793	793	793	793	793	793	793	782	722	620	495

Table 5
Buy Recommendation Cumulative Abnormal Return (CAR)

Cumulative abnormal returns surrounding the date of recommendation in different periods are reported to understand the behavior of the investors to a buy recommendation given by various analysts from 3 different panels. CAR (Cumulative Abnormal Return) are reported in the tables are calculated by compounding daily abnormal returns of the stock in a particular time interval. CAR (-1, 1) is calculated by compounding abnormal returns of -1, 0 and +1 days. We have considered CAR in different time periods and are reported in the Table as percentages.

Panel A										
	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	2.84	2.72	3.11	1.54	2.96	2.72	1.50	-0.60	2.57	-0.15
Median	2.37	2.33	2.40	0.27	2.17	1.87	0.55	-0.80	0.89	-0.75
Stdev	7.70	9.01	9.76	8.13	9.55	10.14	8.91	8.09	13.24	10.74
Minimum	-77.12	-77.41	-72.90	-27.14	-77.14	-51.16	-24.98	-27.47	-62.91	-79.94
Maximum	30.10	53.60	46.55	32.86	51.82	44.38	28.82	50.07	76.50	76.93
Count	377	377	377	377	377	377	377	377	377	377
Panel B										
	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	0.57	0.64	0.62	0.11	0.64	0.41	-0.20	-0.89	-0.49	-0.03
Median	0.26	0.21	0.11	-0.17	0.18	0.14	-0.46	-1.18	-1.11	-0.61
Stdev	4.01	5.51	6.54	5.59	6.00	6.99	6.45	5.99	9.13	7.52
Minimum	-22.98	-33.23	-33.01	-27.23	-34.43	-27.75	-24.20	-31.28	-42.36	-33.97
Maximum	18.56	36.94	28.75	25.42	36.01	31.41	28.75	55.17	65.34	37.71
Count	776	776	776	776	776	776	776	776	776	776
Panel C										
	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	0.57	0.37	0.47	-0.11	0.31	0.18	-0.33	-0.67	0.04	-0.43
Median	0.08	0.11	-0.05	-0.55	0.09	-0.20	-0.30	-0.88	-1.03	-0.35
Stdev	5.37	7.41	9.01	12.52	8.25	13.68	12.97	8.69	20.80	13.04
Minimum	-48.97	-66.37	-60.19	-256.97	-60.15	-255.06	-255.64	-160.82	-254.96	-262.37
Maximum	25.95	27.15	47.98	48.25	37.14	50.96	44.04	31.49	412.65	63.60
Count	795	795	795	795	795	795	795	795	795	795

Table 6
Sell Recommendation Holding period Abnormal Returns (in %)

Abnormal returns in the window periods of -30 days, -15 days, -7 days, -3 days, and -1 day are reported to find out the behavior of the stock prior to the sell recommendation. Sell recommendation abnormal returns in the window periods of +1 day, +3 day, +7 day, +15 day, +1 Month, +3 Month, +6 Month and +12 Month are considered to understand the holding period abnormal returns of the analysts' recommendations post the sell recommendation. These different window periods post the date of recommendation are classified as Short term and Long term returns. Holding periods till 30 days post recommendation we have considered as short term and all the periods above this as long term. Cost of issuing sell recommendation is costlier compared to a buy recommendation and hence are considered to be more informative. For each specific AR period t-statistic is reported along with p-statistic to understand the significance of these returns in their respective periods. All the abnormal returns reported in the table are in percentages.

Panel A

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	-2.44	-1.36	1.61	-1.36	-0.94	-0.06	0.13	0.05	-2.25	-2.19	-0.45	-1.32	-10.06
Median	-2.53	-1.55	-0.49	-1.62	-0.70	-0.30	-0.56	-0.84	-1.83	-3.55	-2.18	-4.71	-12.58
Stdev	19.10	13.82	21.64	6.33	3.52	3.08	5.15	6.40	9.96	13.42	23.45	34.23	49.51
Minimum	-60.26	-41.49	-26.03	-22.97	-12.15	-8.37	-12.22	-11.20	-35.37	-50.18	-60.29	-70.75	-140.65
Maximum	40.53	34.10	155.89	22.91	8.34	9.15	13.65	19.53	20.97	26.81	58.98	105.49	151.76
t-Value	-145.33	-91.20	-36.31	-58.85	-25.71	70.00	131.93	179.58	259.44	341.96	654.50	-172.06	1505.22
p-Value	5.68	7.91	16.48	18.63	24.88	27.85	18.09	14.13	12.66	6.12	3.26	1.96	0.76
Count	61	61	61	61	61	61	61	61	61	61	61	60	58

Panel B

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	-0.37	-1.22	-1.11	-1.63	0.10	0.16	0.51	0.57	-0.32	-0.23	-3.72	-3.27	-18.82
Median	-1.46	-2.01	-1.22	-1.92	-0.20	0.13	1.20	1.05	1.10	-2.05	-1.46	-0.60	-10.69
Stdev	15.35	11.03	7.79	4.83	2.69	2.10	5.46	7.02	7.21	13.30	21.90	31.09	52.05
Minimum	-46.43	-32.94	-21.89	-12.62	-4.00	-4.09	-21.22	-23.40	-26.75	-23.82	-60.20	-59.25	-143.29
Maximum	61.11	49.15	33.21	9.83	8.45	5.98	12.59	18.31	11.88	32.91	54.90	84.41	94.71
t-value	-46.73	-50.17	-50.06	-51.25	-1.55	1.67	20.09	23.57	2.62	-23.61	-172.97	-187.37	-741.70
p-Value	9.40	10.90	14.53	19.95	31.14	32.74	22.51	17.01	14.84	6.64	7.08	4.05	3.86
Count	54	54	54	54	54	54	54	54	54	54	54	54	54

Panel C

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
Mean	0.03	-0.61	-0.73	-0.29	-0.38	-0.31	-0.21	-0.31	0.10	0.56	2.53	2.80	9.71
Median	0.09	-0.10	-0.25	-0.21	-0.23	-0.28	-0.32	-0.41	-0.72	-0.84	2.39	6.44	9.88
Stdev	17.82	14.04	10.22	4.83	3.23	2.17	3.73	6.03	11.28	16.78	21.29	32.47	39.98
Minimum	-161.74	-155.23	-156.52	-22.73	-16.00	-10.31	-10.83	-63.87	-20.63	-37.32	-70.41	-183.74	-139.31
Maximum	149.82	27.56	18.69	17.37	15.09	9.02	15.39	18.04	169.64	162.34	147.87	107.89	100.63
t-Value	17.56	3.31	-15.89	-12.89	-18.84	-12.11	-5.22	-11.93	-11.69	1.68	105.23	151.83	498.73
p-Value	8.05	10.59	14.57	18.38	25.29	28.66	20.23	15.55	11.85	7.11	3.77	1.73	1.26
Count	357	357	357	357	357	357	357	357	357	354	330	297	216

Table 7
Sell Recommendation Cumulative Abnormal Return

Cumulative Abnormal return (CAR) of analysts sell recommendations in different sub-samples from 3 different panels are reported in the tables. These will help in analyzing and understanding the psychology of retail investors to a sell recommendation. CAR abnormal returns of sell recommendation surrounding the date of recommendation are reported in the table in percentages.

Panel A

	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	-1.80	-1.26	1.55	-0.81	-1.24	1.54	-1.46	-0.80	-0.39	-4.29
Median	-1.70	-1.05	-1.50	-2.08	-1.40	-1.56	-2.98	-1.08	-4.13	-2.29
Stdev	5.21	7.31	18.92	6.77	7.62	18.44	8.10	6.76	20.72	39.27
Minimum	-12.53	-17.70	-16.88	-12.75	-20.05	-14.66	-22.32	-17.52	-28.94	-290.95
Maximum	16.65	25.88	130.20	13.80	29.62	122.06	17.38	17.54	133.39	36.56
Count	61	61	61	61	61	61	61	61	61	61

Panel B

	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	-0.75	-1.07	-0.83	0.77	-1.09	-0.66	0.72	-0.33	-1.53	0.34
Median	-0.97	-1.22	-1.05	1.06	-1.19	-0.33	1.33	-0.50	-1.19	-1.32
Stdev	4.59	7.01	8.11	7.22	7.94	9.63	7.39	6.61	9.08	11.64
Minimum	-13.45	-20.88	-22.74	-16.56	-23.72	-25.77	-17.80	-9.44	-21.47	-22.88
Maximum	14.90	18.72	17.39	30.83	16.69	35.49	26.94	32.80	27.90	57.69
Count	54	54	54	54	54	54	54	54	54	54

Panel C

	CAR(-1,1)	CAR(-2,2)	CAR(-3,3)	CAR(0,5)	CAR(-2,3)	CAR(-3,5)	CAR(0,7)	CAR(5,10)	CAR(-3,11)	CAR(-2,-10)
Mean	-0.68	-0.62	-0.70	-0.78	-0.58	-0.91	-1.07	0.19	-0.71	-0.65
Median	-0.36	-0.79	-0.72	-0.79	-0.75	-0.83	-0.99	-0.62	-1.98	-0.43
Stdev	4.64	5.88	7.02	6.87	6.34	8.28	7.34	12.12	14.38	13.75
Minimum	-21.60	-21.38	-28.46	-64.56	-23.96	-63.39	-65.44	-64.51	-41.20	-157.39
Maximum	14.96	18.60	26.38	19.25	25.20	23.58	23.64	197.53	210.02	29.45
Count	357	357	357	357	357	357	357	357	357	357

Table 8
Significant Buy Recommendations

Below table reports number of significant positive and negative abnormal returns post buy and sell recommendation respectively from various analysts in 3 different panels. Significance of a recommendation are calculated using t-test and p-test on the previously calculated abnormal returns in different time periods. This helps in answering an important research question "Whether Analysts add investment Value?" Below tables gives a clear understanding of number of positive and significant holding period abnormal returns for all the buy recommendations and similarly number of negative and significant abnormal returns for sell recommendations respectively. Significance of the abnormal returns are tested at 10%, 5% and 1% levels and their respective numbers are reported in the table.

Panel A

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	176	172	177	172	84	49	76	95	113	125	141	154	147
5%	163	156	153	145	61	36	62	84	102	116	132	153	145
1%	141	129	106	98	36	16	39	57	77	95	123	145	139

Panel B

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	326	290	232	180	94	50	121	158	187	230	285	256	225
5%	294	260	191	147	60	30	96	123	156	205	271	244	219
1%	247	208	134	83	25	13	53	79	113	158	244	232	204

Panel C

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	330	285	230	176	104	91	149	192	254	290	352	327	263
5%	298	251	191	146	71	57	125	157	223	258	341	321	259
1%	251	206	126	98	30	17	67	106	168	211	320	304	252

Significant Sell Recommendations

Panel A

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	30	27	21	17	8	3	10	16	27	26	25	31	35
5%	28	24	18	14	4	3	8	12	22	22	25	30	34
1%	27	22	14	6	2	0	4	7	16	18	23	29	34

Panel B

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	23	25	19	13	3	1	7	11	13	22	25	26	32
5%	21	21	15	11	1	0	6	8	10	20	25	26	31
1%	14	15	8	6	0	0	3	3	6	16	24	25	28

Panel C

	AR(-30)	AR(-15)	AR(-7)	AR(-3)	AR(-1)	AR(+1)	AR(+3)	AR(+7)	AR(+15)	AR(+30)	AR(+90)	AR(+180)	AR(+360)
10%	135	118	98	86	47	30	72	95	117	147	130	117	78
5%	124	105	92	76	34	16	52	73	102	129	125	111	76
1%	98	77	63	42	23	5	29	40	77	110	117	101	75

Table 9

Panel Regression

Model I in each panel has CAR (t-1, t+1) as dependent variable following Womack (1996) and Stickel (1995) and holding period abnormal return +1 day as one of the independent variable. We have considered different sub sample time periods during CAR calculations and have reported only those periods which good significance and Adj R2. Model II considers CAR (-3, 3), CAR (-3, 5) and CAR (-3, 11) as dependent variable in their regression equation for panels A, B and C respectively. This table reports panel regression results of different panel data models used like Pooled OLS, fixed and random effects model and their respective estimators are used to observe the consistency and efficiency of these models. To choose between these models we used Breusch-Pagan LM and Hausman test. We report the standard errors and their respective t-statistic across each dependent variable along with their significance levels. We test the significance of these variables at 10%, 5% and 1% level using p-statistic and are denoted by *,** and *** respectively

	Panel A		Panel B		Panel C	
	I	II	I	II	I	II
PE	0.0001	5.25E-05	-1.44E-06	4.01E-05	9.16E-05	1.63E-04
	0.67	0.15	-0.089	1.64	1.34	1.77*
PB	-0.0069	-6.03E-02	2.28E-03	4.93E-03	1.24E-03	-1.03E-03
	-1.42	-2.71***	1.31	1.87*	1.57	-0.53
PCF	-0.0001	1.26E-03	1.07E-04	2.35E-04	-6.60E-06	-4.77E-05
	-0.81	1.57	1.05	1.53	1.2	-0.77
PS	0.003	6.07E-03	1.02E-03	2.16E-03	-1.11E-03	9.17E-04
	0.95	0.88	0.44	0.62	-0.19	0.27
SIZE	-0.00002	3.20E-02	-7.50E-03	-6.28E-03	-4.20E-03	-3.73E-03
	-0.004	0.99	-1.93*	-1.07	-0.61**	-0.83
DVD_YIELD	-0.0044	4.72E-03	2.97E-03	1.04E-03	1.05E-03	7.32E-03
	-2.004**	0.8	1.26	0.29	-1.93	1.98**
VOLU	-0.001	3.54E-02	9.49E-04	-2.98E-03	2.04E-03	5.86E-03
	-0.23	2.46**	0.39	-0.82	0.52	2.38**
OWNER	-0.0001	-2.06E-03	4.53E-05	-4.71E-05	-7.87E-05	2.03E-04
	-0.59	-2.34**	0.27	-0.19	1.29	0.62
VOLA	-0.052	-2.26E-01	1.84E-02	1.43E-02	-2.01E-02	-5.54E-02
	-1.32	-1.97*	0.99	0.52	-1.37	-3.05***
CAR10	-0.0023	2.96E-01	-8.38E-02	1.81E-01	8.45E-03	1.75E-01
	-0.04	2.69***	-2.41**	3.48***	0.38	5.54***
AR6	1.19		4.87E-01		7.75E-01	
	8.80E+00***		4.38***		10.56***	
AR7		1.22		2.21E-01		
		6.33***		2.39**		
AR9						9.50E-01
						28.57***
Adj R2	0.46	0.28	0.12	0.12	0.2	0.64
F-value	10.02***	6.7***	3.02***	3.17***	11.35***	83.44***

Appendix

Variable Name	Abbreviation	Definition/Measurement
Price to earnings ratio	PE	Price to earnings ratio
Price to book value	PB	Price to book value
Price to cash flow ratio	PCF	Price to cash flow ratio
Price to sales ratio	PS	Price to sales ratio
Company Size	SIZE	Logarithm of Market capitalization
Volume	VOLU	Total number of shares of a security traded in a given period of time.
Volatility	VOLA	Standard deviation of daily log of individual stocks
Leverage	LEVER	Ratio of total debt and total asset
Promoter Ownership	OWNER	Percentage of promoter ownership in the firm
Public Institutional Holding	INSTI	Ratio of ownership of public institutional investors and outstanding shares in that quarter
Capital Expenditure	CAPEX	Funds used by company to upgrade or acquire a physical asset
Abnormal Return	AR(+-X)	Holding period abnormal return post/prior X days from the date of recommendation.
Cumulative Abnormal Returns	CAR(a, b)	Cumulative abnormal returns in the window period a to b surrounding the date of recommendation