An Analysis of Corporate Insider Trading and Earnings Announcements in India

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Abstract:

Corporate insiders have at least two major avenues to influence the perceptions of investors in stock markets. Firstly, they file mandated reports that convey key information, including accounting earnings. Secondly, corporate insiders can trade in their own stocks and thus reveal private information. We document the extent and some cross-sectional properties of insider trading in India, using a large sample of trades and announcements from 2008-2014. We show that insider trades are profitable; they can predict subsequent stock returns for up to one year. We show that a portion of these profits arise from trades both before an earnings announcement, from foreknowledge of earnings news, and after an earnings announcement, from exploiting the under-reaction to the news. We then document that the market reacts to both insider trades and earnings news, and that, overall, these two signals are perceived neither as information substitutes nor as complements. However, for the case where both signals indicate bad news, we find evidence that they are substitutes.

1. Introduction

Corporate insiders have potentially at least two major avenues to influence the perceptions of investors in the market. Firstly, they report mandated financial statements that convey key information, including accounting earnings. Secondly, corporate insiders can also trade in their own stocks and thus reveal private information. Our objective in this paper is to examine the relation between insider trading and information released during corporate earnings announcements. We examine this relationship in three ways. First, we assess if insider trades *before* earnings announcements are in the same direction as unexpected earnings at the time of the announcement. Second, we examine if insider trades *during and after earnings announcements* are related to unexpected earnings. Third, we study if the market reaction *at the time of* the announcement is related to insider trading and if the latter influences how markets value unexpected earnings. The first two tests allow us to answer the question of whether insiders' trades are motivated by their desire to profit from earnings signals. The third test attempts to deepen our understanding of whether and how markets use information on insider trades to modify their valuation of unexpected earnings.

The literature on insider trading, including papers that study both insider trading and earnings announcements, is vast. But most prior research studies U.S. markets, or some other developed market. Studies involving emerging markets have been limited because of paucity of data. Large insider trading data sets for India have become available only recently. India presents a unique case where there is a long history of a large and active financial market in a developing economy. While insider trading has been hard to prosecute everywhere, India's especially lax regulatory environment has made enforcement rare.

We study a fairly large sample that consists of over 18,000 quarterly earnings announcements and 35,000 insider trades from 2008-2014. Our key findings are as follows. First, in India, insiders tend to reduce their trading activity in the weeks before the earnings

announcement. Interestingly, we observe a sharp increase in trading during and immediately after the earnings announcement. Because insider trading law explicitly prohibits trading around earnings announcements, our evidence points to some laxity in the enforcement of the law. Second, we document that insider trades predict subsequent stock returns for up to one year following the trade; that is insiders profit from their trades. Most of these profits accrue from insider sales, that is, insiders time their sales prior to declining stock prices.

Third, we find modest evidence that pre-announcement trading is in the same direction as the subsequent earnings surprises. Additionally, pre-announcement trading is positively related to earnings announcement returns. This suggests that a portion of the profits that insiders make in the year following the trade is concentrated around earnings announcements.

Fourth, we find that while insider trading during the earnings announcement is unrelated to unexpected earnings, post-announcement trading is positively related to unexpected earnings. We interpret this evidence as suggesting that Indian insiders profit by exploiting the post-earnings announcement drift (PEAD) anomaly (Bernard and Thomas (1989)). This findings contrasts with evidence in Core, Guay, Richardson, and Verdi (2006) for U.S. firms; they find that insiders do not appear to exploit the PEAD anomaly.

Our fifth set of findings relate to the how investors react to information in unexpected earnings and prior insider trades. We confirm what several prior studies have found: unexpected earnings are positively correlated with earnings announcement returns in Indian markets. This begs the question: when two signals, insider trades and earnings announcements, are both available to the market, how does it respond?[1]

[1] Corporate earnings announcements can be cheap talk: costless, i.e. no significant out of pocket costs; non-binding, i.e. strategies are not restricted; and unverifiable, i.e. unverifiable to a third party like a court). When a manager can lie with impunity, it may take something else to make the announcement credible. Sometimes (see Bhattacharya and Krishnan (1999)) this additional ingredient is the market discipline imposed by an independent group of traders with access to costly private information. Trading by insiders can also lead to a

Consistent with Gonedes (1978) and Allen and Ramanan (1990) we note that two signals are perfect substitutes if the availability of one makes the other redundant. They are perfect complements if neither signal is useful if the other is also not available. They are independent signals if the availability of one makes no difference to how much the other is relied upon. While both papers note that in practice we are more likely to see intermediate cases – imperfect substitutes or imperfect complements – they do not develop a way to distinguish between information substitutes and information complements, but limit themselves to documenting some information content.

Intuitively, if the reliance on one signal increases (decreases) as the other is available, the two signals are information complements (substitutes). If an insider trading ahead of news causes market participants to take the news more seriously, then we will see these two signals as information complements. If his buying ahead of good news only means that some information in the news has leaked to the market early, and the news is weighted less, then the two signals are information substitutes. There is also the possibility that the weight on news is unaffected by prior insider trades, in which case they are independent signals. In each case the sign of the coefficient on the interaction term between the news, and the indicator that both signals point in the same direction, helps us distinguish between these different cases. Our test results indicate that pre-announcement insider trades and earnings announcements are overall neither strong substitutes nor complements. But for the case where both signals are negative, our evidence suggests they are information substitutes.

We contribute to the literature on insider trading in two broad ways. First, we examine a hitherto unexplored market – India, and document new evidence on the profitability of insiders' trades and whether it relates to their strategic use of information about unexpected earnings. Because enforcement of insider trading law is ostensibly weak,

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similar outcome. Their trades can help lend credibility to the subsequent announcement. In the absence of this signal from the insider's trade, the earnings announcement may not be relied upon as much.

our evidence complements prior work that focuses on legal environments where such enforcement is stronger. Second, our results on the relation between earnings announcement returns and multiple information signals, where we test for the presence of complementarity or substitutability between insider trading and unexpected earnings, suggest a more nuanced view of how investors perceive information.

The rest of the paper is organized as follows. In section 2 we describe the law on Insider trading in India and its enforcement. In section 3, we provide a brief review of prior literature that relates to our research. Section 4 describes the sample selection process and the variable definitions. In section 5, we discuss our results and in section 6, we present our conclusions.

2. India's Insider Trading Law and its Enforcement

2.1 India's Insider Trading Law

Unlike the U.S., which has had an insider trading law since 1934 (and case law on the subject prior to 1934), an insider trading law was enacted in India only in 1992: the Securities and Exchange Board of India (Prohibition of Insider Trading) Regulations, 1992. It has since been amended several times.[2] While, the SEBI Regulations share much in common with the insider trading laws of most countries, certain differences do exist. Below, we provide an overview of the similarities and differences between the Indian law and, mainly, U.S. law. We focus on three aspects of the law: the definition of an insider, the treatment of price sensitive information, and the periods when trades are allowed.

[2] Recently, in January 2015, the 1992 Regulation was superseded by an entirely new Act; this act is effective from 15th May 2015 onward. An important feature of the act is that insiders are required to file a trading plan at least six months in advance of a trade. Further, that plan is to be regarded as a cast-iron commitment. Our sample is from a period that precedes the Act's effective date.

In India, the term "insider" in India is intended to include not only promoters, directors, and senior executives who work inside the firm, but also a wide variety of "connected persons." This list has been expanded over time since 1992. For example, family members and members of a Hindu Undivided Family (an organization type unique to Indian law) are also recognized as insiders.[3]

While the Indian law defines who an insider is, the paucity of case law renders the interpretation of the term "insider" very difficult. In contrast, U.S. case law has narrowed the definition by requiring that an insider be someone who is charged with a fiduciary duty towards the source of his information. In the U.K., a receiver of inside information can be charged with market abuse even if it is clear that he had no fiduciary duty towards the giver of information.[4]

In the U.S., shareholders who hold at least ten percent of the firm's voting rights are deemed insiders who are required to disclose trades. In India, those who hold at least five percent of shares or voting rights must make an initial disclosure. Further, any trading activity that causes a change in holdings that exceeds ₹500,000 in value or 25,000 shares or one percent of the total shareholdings or voting rights, whichever is lower, must be reported in continuing disclosures.

Indian law, like other similar laws, essentially prohibits trading on the basis of unpublished price-sensitive information (UPSI). The regulations specify examples of information that would be automatically deemed price-sensitive such as financial statement information and information about major mergers and acquisitions. Additionally, based on the facts of a case, an insider or a compliance officer in the firm can deem that some other piece of information is price-sensitive, even when not covered by the law.

[3] The U.S. law offers a strange exception for members of Congress, who are exempted from ever being described as insiders. In contrast, this type of exception does not exist in Indian law.
[4] See Roberts, Sturc, and Tran (2012) for a discussion of the very different perspectives on how insiders are defined in the U.S. and in the U.K.

While U.S. law is based on a disclose-or-abstain philosophy which allows an insider to trade after making his inside information public, under Indian law, in some periods (for example, around an earnings announcement) there is a strict prohibition on trading, as these are deemed to be periods with substantial UPSI. In addition, insiders and compliance officer are given discretion to determine whether a certain period is characterized by UPSI, even if not covered by the regulation. Outside of these periods an insider can trade, but must report his trades to the firm's compliance officer soon after they are made. The compliance officer, in turn, has to file a report with the exchange on which the transaction took place, and SEBI. Electronic filing is allowed, but not required.

2.2 Enforcement of the insider trading law

Insider trading law has proved notoriously difficult to enforce throughout the world. This is despite evidence in Bhattacharya and Daouk (2002) that enforcement, to the extent of obtaining even one criminal conviction, significantly improves the cost of capital. That paper noted that of the 107 countries with functioning exchanges, and 86 with insider trading laws, only 37 jurisdictions had even one criminal conviction.

In every country where there is a regulator, there is a natural incentive for the firms subjected to regulation to try and capture the regulator. Consequently, enforcement becomes weak or ineffective. Bozanic, Dirsmith, and Huddart (2012) document how in the U.S., firms successfully lobbied to incorporate an affirmative defense based on "planned trades." In India, the idea of regulatory capture seems even more plausible. In the Indian context, Mehta (2011) notes that it took the regulator, SEBI, seventeen years after the 1992 Act to even recognize that the term "insider" includes those connected to officially designated insiders. Simple checking of consistency between different filings (for example, between quarterly reports on shareholding patterns and insider trade compliance filings) is conspicuous by its

absence. While there is a clear prohibition of trading around an earnings announcement window, in our sample we notice numerous instances of insider trading even on the announcement date. Chauhan, Kotha, and Marisetty (2012) note that even after reports of how wiretapping evidence helped prosecute insiders in the Galleon case in the US, SEBI showed no enthusiasm to even ask for similar powers. Further, a large number of cases have been lost by SEBI on "technical grounds."

In general, regulators are often reluctant to bring criminal action to prosecute an insider and prefer "administrative actions" to criminal prosecution. Despite this tendency, there have been some criminal prosecutions in the U.S. Beny and Seyhun (2012) report that in 2007, 66 individuals were charged with insider trading, and 57 were convicted. They also noted that over the years 1993 to 2009, the chances of a prison sentence, given a conviction, went up from less than five percent to about fifty percent. In contrast, in India, successful criminal prosecutions for insider trading are nil. On its website SEBI reports that in the period from 2006-2007 to 2013-2014, the number of "completed" insider trading actions (i.e. regardless of whether they were unsuccessful or successful, that lead to criminal or civil penalties) averages about fifteen a year. In the U.S., occasionally a judge disallows a settlement between the SEC and a party guilty of market abuse, on the grounds that it is unfair to others. In India, there is as yet not a single report of such a judicial ruling. While in principle, even plaintiffs other than the regulator could pursue an insider trading legal action, in India, as in most other jurisdictions, there is hardly any report of such action.

In a few instances, a reading of SEBI's Orders and Appellate Tribunal rulings indicate that (a) alleged offenders are given substantial opportunities to defend themselves and (b) these defendants avail of expensive legal advice to develop creative defenses. In these cases, SEBI has been able to address these arguments and respond with a well-reasoned ruling, often upholding the initial insider trading allegation (see for example, SEBI vs. Satyam

Compliance Officer (2010) and SEBI vs. Jhunjhunwalla (2013)). However, post-judgment imposition of penalties has been weak. While the law permits SEBI to levy even treble damages, in practice there has been barely a slap on the wrist. Mehta (2011) notes several cases where SEBI showed clear reluctance to levy anything close to a serious penalty. In one case involving insider trading at Reliance, she notes that while it would have been well within its powers to levy a penalty exceeding ₹1,500 Crores (about US$250 million), the actual penalty was only about US$500,000.

Overall, enforcement of insider trading law has been very weak in India. Thus, it is unlikely that the law and its enforcement deter insiders from trading to exploit their access to privileged information. This contrasts with the U.S. setting where criminal prosecutions and imposition of penalties are on the rise. We believe that a study of insider trading in a low enforcement regime would enrich our understanding of what motivates insiders to trade and how markets interpret these trades.

3. Literature Review

Our study provides evidence related to three sets of papers that relate insider trading to earnings announcements. First, several papers have examined if insiders exploit their private information advantage to buy (sell) before good (bad) earnings news. Second, some researchers have examined if post-announcement trading by insiders is related to prior earnings news. Third, a small group of studies has examined how the price reaction to an earnings surprise is modified by pre-announcement insider trading. In this section, we summarize the findings from these studies.

3.1 Do insiders trade in the same direction as future earnings news?

Early studies found no evidence that insiders buy/sell in the same direction as subsequent earnings news. Elliott, Morse, and Richardson (1984) find that the likelihood of insider buying in the twelve months before an earnings announcement is not significantly related to the earnings change on that announcement. Givoly and Palmon (1985) are unable to find a significant relation between insiders trading in the 4-5 months before earnings news stories in the Wall Street Journal and the sign of the news. Seyhun (1992) investigates the effect of increased legal sanctions on insider trading that occurred during the 1980s. He reports that, in response to these sanctions, insiders became more reluctant to trade in the same direction as subsequent earnings surprises. Allen and Ramanan (1990; 1995) find that trading early in the year is not a good predictor of that year's unexpected earnings. Sivakumar and Waymire (1994) find that insider trading in the quarter before an earnings announcement is not related to earnings forecast errors for that quarter.

In contrast to research up until the mid 1990s, subsequent research has found evidence consistent with insiders exploiting their information advantage to trade in the same direction as subsequent news. Lustgarten and Mande (1995) document that quarterly earnings forecast errors are positively related to pre-announcement insider buying. Ke, Huddart, and Petroni (2003) examine insider trading before a bad news earnings surprise that occurs after a series of positive earnings surprises; they label this event as a 'break.' They find an increase in the frequency of net insider sales in the ninth through third quarters before the break. However, they find little evidence of a higher frequency of insider sales in the two quarters immediately before the announcement of a break. They interpret this as evidence that insiders perceive litigation concerns to be low (high) during periods that are sufficiently removed (close) in time relative to bad news earnings announcements.

Wisniewski (2004) reports that for firms on the Warsaw Stock exchange, insiders trades are in the same direction of subsequent earnings surprises. He also reports that trades

are timed strategically well before earnings announcements to minimize expected legal costs. Cheng, Szeto, and Leung (2005) find no significant association between insider trading and subsequent annual earnings changes for a sample of Hong Kong firms. However, Cheng and Leung (2008) for a similar sample of Hong Kong firms find a positive relation between earnings announcement abnormal returns and pre-event net-insider-buying activity for firms announcing good news.

Piotroski and Roulstone (2005) find that insider purchases are positively related to future earnings performance, positively related to book-to-market ratios and inversely related to past returns. Huddart, Ke, and Shi (2007) find that insider trades before earnings announcements are relatively infrequent and occur when the magnitude of the earnings announcement abnormal return is small.

Cheng, Nagar, and Rajan (2007) examine form 5 filings of U.S. insider trades, as opposed to form 4 filings that had been the focus of prior literature. Form 5 filings, in contrast to form 4 filings, are made after a considerable lag relative to the trade date (only once annually); further form 5 trades tend to be private, non open-market trades. They find that form 5 sales are significantly associated with subsequent EPS declines and stock returns; they interpret this as indicating that form 5 filings providing a more attractive vehicle than form 4 filings for insiders to exploit their private information advantage.

Piotroski and Roulstone (2008) show that insider purchases (sales) are positively (negatively) related to next year's earnings innovation and that this relation is attenuated in the case of extreme positive (negative) innovations. The interpret this non-linear relation as being consistent with the existence of potential legal liability costs for trading in advance of extreme earnings surprises.

Roulstone (2008) shows that insider trades before an earnings announcement is associated with the earnings surprise and stock return at the announcement: decisions to buy

(sell) shares are more likely ahead of positive (negative) announcement returns and earnings surprises. The relations with future information are generally concave and extend up to two announcements (6-8 months) in the future.

Kallunki, Nilsson, and Hellstrom (2009) find that Swedish insiders, in general, avoid selling before bad news earnings announcements. However, among those insiders who actually sell before bad news earnings announcements, insiders who have allocated a greater (smaller) proportion of their wealth to insider stock sell more (less) before bad news earnings disclosures. Furthermore, their results show that insider selling is the most informative for future returns among those insiders who have (a) allocated a relatively large proportion of their wealth to insider stock and (b) the largest insider holdings. These results suggest that insiders having the strongest economic incentives successfully time their selling to maximize their returns.

Shin and Wang (2011) find that managers take advantage of their superior knowledge of future earnings prospects and opportunistically time their trades to exploit information in both current earnings report and future earnings. When current quarter earnings reports contradict future earnings prospects, CFOs buy (sell) more shares after a bad (good) earnings report in anticipation of good (bad) future earnings. When the current earnings report is consistent with future earnings prospects, all managers buy more shares before good earnings news.

Aier (2013) finds that insiders reduce their net stock sales in a monotonic manner before a new loss announcement presumably to avoid improper trading allegations before bad news. This decrease is more pronounced if the new loss is the start of a multiple loss sequence. In contrast, there is no significant change in net trading patterns in the quarters prior to a loss reversal announcement irrespective of whether the loss reversal is the start of a

single profit or multiple profit sequence indicating that insiders seem less concerned about legal implications when trading before good news.

Our overall interpretation of this body of research, most of which is focused on U.S. firms, is that the evidence is mixed. While early studies show no relation between insider trading and future earnings surprises, more recent studies document a positive relation between trading and earnings surprises/ announcement returns. Further, the threat of litigation, especially in the U.S., reduces the likelihood of trading in the direction of the surprise. We examine the relation between insider trading and subsequent earnings surprises in the context of a hitherto unexplored environment – the Indian market. Enforcement and litigation against insiders is infrequent in India, and hence we expect that insiders will profit from their fore-knowledge of earnings news.

3.2. What drives insider trading after earnings announcements?

Sivakumar and Waymire (1994) find that insider trading is relatively high after earnings announcements (compared to before earnings announcements). This is consistent with litigation concerns and corporate restrictions forcing insiders to postpone their trades to after earnings announcements. However, they find evidence of insiders behaving as contrarians; they buy (sell) after negative (positive) earnings news. This suggests that insider trades are motivated by information other than the sign of prior news. Hillier and Marshall (2002) find that, for UK firms, post announcement insider trading is negatively related to the sign of prior earnings surprise. They also show that these contrarian strategies generate abnormal returns for the insiders.

Core, Guay, Richardson, and Verdi (2006) find that insider trades are not consistent with managers exploiting the post-earnings announcement drift anomaly. In fact, in some of their results, managerial trading both before and after the announcement are opposite to what

would be predicted by the PEAD anomaly. Huddart, Ke, and Shi (2007) document that insiders trade relatively heavily after the earnings announcement and these trades are significantly associated with the stock's returns over narrow windows around both the forthcoming 10-K or 10-Q filing and the preceding earnings announcement. They interpret their findings as being consistent with insiders foregoing profits in pre-announcement periods, but making profits when they trade after the earnings announcement (when litigation risk is lower). Kolasinski and Li (2010) report that insiders engage in more net buying after release of good earnings news accompanied by a low price reaction than they do after release of bad earnings news accompanied by a high price reaction. Thus, insiders profit from market under-reaction to earnings news.

Again, the evidence on the direction of insider trades in reaction to past earnings news is mixed. While some studies find that insiders trade in the same direction of past earnings news, others find no relation or a negative relation between trading and past earnings news. Our second objective in this study is to re-examine whether insiders trade to exploit the PEAD anomaly in India. Because, these trades are based on publicly observed news, concerns about litigation are lower.

3.3 Price reaction to earnings surprises are moderated by prior insider trading

A small group of studies examines the market reaction to pre-announcement insider trading. Allen and Ramanan (1990) find that both earnings surprises and insider trading in pre-announcement periods are associated with short-window earnings announcement returns. Further, associations are stronger when the two signals confirm each other and weaker when they contradict each other. Allen and Ramanan (1995) test for similar effects, except that they use long-window returns of 15 months; their results are similar to those of Allen and Ramanan (1990). Udpa (1996) finds that earnings response coefficients for firms with insider

trading prior to an earnings announcement are significantly lower than that for firms without prior insider trading. This suggests that investors incorporate information from pre-announcement insider trades, thus causing earnings announcement price reactions to be attenuated. Roulstone (2008) finds that reaction to earnings announcements (measured by return volatility and abnormal trading volume) decreases in the insider-trading volume preceding the announcement.

We complement prior work on price reaction to prior trades by devising and testing for whether earnings surprises and insider trading are complements or substitutes. Consistent with Gonedes (1978) and Allen and Ramanan (1990) we define two signals as perfect substitutes, if the availability of one makes the other redundant. The signals are perfect complements if neither signal is useful if the other is also not available. Lastly, they are independent if the availability of one makes no difference to how much the other is relied upon. In conducting these tests, we present a more nuanced view of how investors jointly interpret insider trading and earnings news.

4. Data and Variable Definitions

4.1. Sample Selection

We obtain data from two sources: the "financial results" pages of the website of the National Stock Exchange (NSE) and the PROWESS database of the Center for Monitoring the Indian Economy Private Limited. The NSE website reports data on quarterly earnings announcements. Each announcement includes detailed information from quarterly financial statements, some information on ownership structure, and data on investor complaints received and disposed during the quarter. Given our objectives, we capture data on net sales, net profit/loss after tax, basic earnings per share (EPS), and the date and time of the

announcement. While all Indian firms report parent-only unconsolidated financial statements, some of them simultaneously report consolidated financial statements. To maximize sample size, we examine only non-consolidated financial statement data. Appendix 1 provides an example of a quarterly earnings announcement from the NSE website. We obtain daily stock market data, annual financial statement data, quarterly data on ownership structure, and data on insider activity from PROWESS.

Our sample period consists of seven years; it begins in the first quarter of 2008 and ends in the first quarter of 2014. Although PROWESS contains data on insider trades from 2006, our sample period begins only in 2008. The reason for this is as follows. Our measure of unexpected earnings requires EPS data from four quarters before. For several firms, we could not capture earnings announcements for 2006 from the NSE website; consequently, we could not compute their 2007 unexpected earnings. The sample period ends in March 2008 to enable computation of one-year returns following insider trades.

Our initial sample consists of 30, 877 firm-quarters for 1,606 NSE listed firms, yielding an average of close to twenty announcements per firm. We apply several filters to arrive at our final sample; these filters are reported in Panel A of Table 1. We define EPS values of greater than Rs. 3,500 per share as implausible and exclude these. Next, we exclude observations with earnings announcement dates before the fiscal quarter end or after 365 days after the fiscal quarter end. A sizable number of observations do not have data needed to compute unexpected earnings (n = 10,805), and are hence excluded. We then sequentially exclude duplicate observations, firms whose stock symbols based on the NSE website are not found on PROWESS, firm-quarters with missing ownership data, and observations that do not have sufficient data to compute earnings announcement date returns, pre-announcement returns, or post-announcement returns.[5] Our final sample consists of 18,269 quarterly

[5] We describe return computation methods in the next sub-section on "Variable Definitions."

announcements by 1,398 firms. Panel B of Table 1 presents the sample distribution by year. Because of missing data related to some control variables, our regressions (reported in Table 6) are based on slightly smaller sample sizes that range from 18,017 to 18,082.

4.2 Variable Definitions

Our main dependent variable is the earnings announcement return. The earnings announcement period is defined as days -1, 0, and +1 relative to the earnings announcement date. We sum returns over the three days and label this sum as ERET, the dependent variable. If a return was missing on any of the days in the three day period, it was set to zero; however, announcements that had missing returns on all three days were dropped from the analysis.

Our two main independent variables are unexpected earnings (UE) and a measure of insider trading activity before an earnings announcement. Consistent with the prior literature, we define unexpected earnings as the difference between earnings per share in quarter t and its lagged value from four quarters before. We divide this seasonally differenced value by the price per share measured on day -2 relative to the earnings announcement date to obtain UE.

Insider trading data are obtained from PROWESS. For each trade, the database provides the name of firm, a company code, the date of the trade, whether the trade was a buy or a sell, the quantity of shares sold, and the identity of the trader. Our objective is to correlate trading before the earnings announcement with ERET. We define the pre-announcement period as days -64 to -2 (63 trading days or 3 calendar months); this would approximately equal the interval between two earnings announcements. The U.S. evidence on insider trading suggests that insider time their trades several months before an earnings announcement to reduce the risk of litigation.[6] However, given the lower levels of regulatory

[6] For example, Allen and Ramanan (1995) examine annual earnings announcements and insider trading in the first quarter of the year; consequently, trading lags announcements by approximately nine months. Ke, Huddart,

supervision and litigation risk in India, we decided that examining insider trading immediately before earnings announcements is warranted (before turning to longer horizons). We add up number shares bought or sold in the pre-announcement period and divide this net quantity by two alternate deflators, shares outstanding (SHROUT) and shares held by all promoters (PROMSH) at the end of the quarter preceding the quarter of the earnings announcement. We label these two measures as PREIN1 and PREIN2. Data on the two deflators were obtained from the PROWESS quarterly ownership files.[7] In addition to pre-announcement trading, we also measure net insider buying by over the earnings announcement days, deflated by SHROUT and PROMSH, and label the two deflated measures as EAIN1 and EAIN2, respectively.

In our analysis that relates insider trading and unexpected earnings, to earnings announcement returns, we include the following control variables: EPR, LOSSDUM, SGRO, MCAP, MTB, PRERET, and AMLIQ. Easton and Harris (1991) show that both level and changes in earnings have explanatory power for annual stock returns. We include EPS scaled by the closing price on day -2 to measure the effect of the level of earnings. Because negative earnings are less persistent, we expect loss firms to have lower earnings announcement returns (Hayn (1995)). We include LOSSDUM, which equals one of a firm reports a loss, and zero otherwise, to capture the differential pricing of loss firms. Ertimur, Livnat, and Martikainen (2003) show that investors value revenue surprises and expense surprises differentially, with revenue surprises being valued more. We include quarter-over-quarter growth percentage in revenues (SGRO) to account for differential valuation of sales growth.

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and Petroni (2003) examine trading behavior for up to 16 quarters before a break in a string of positive earnings surprises.

[7] The PROWESS insider trading database also provides, for each transaction, the ratio of shares transacted to shares held by the trader, shares held by the trader after the trade, and percent of shares outstanding held by the trader after the trade. Unfortunately, this data is missing for some transactions. The percentages of missing information for these three items are 75.6%, 3.4%, 22.2%, respectively. We expect to incorporate these variables (especially the latter two) in our tests, in future versions of the paper.

Prior research in asset pricing has identified several factors that predict future returns. While the interpretation of this predictability (as risk factors or as evidence of market inefficiency) is still under debate, controlling for these factors is warranted as they are likely related to both insider surprises and insider trading. We identify four factors that feature in several studies on return predictability: size, market-to-book ratio, momentum, and illiquidity. Size is measured as the market capitalization on day -2 (MCAP). The market-to-book ratio (MTB) is obtained by dividing MCAP on day -2 by the book value of equity at the end of the most recent fiscal year before the earnings announcement. To measure momentum, we compute cumulative market-adjusted return over day -64 to -2. Specifically, firm returns are summed over 63 days and a similarly summed market return is subtracted from the former to obtain PRERET. The market return is defined as the return on the CNX Nifty Index. If a return is missing in the cumulation period it is set to equal zero; however, if returns are missing for more than two-thirds of the return-cumulation period (42 days), we drop that observation. Our treatment of missing returns is similar to that of Hung, Li, and Wang (2014). As a fourth risk factor, we include the Amihud illiquidity factor (AMLIQ) which is expected to be positively related to future returns (Amihud (2002)). AMLIQ is measured as the annual average of the ratio of the absolute daily stock return to daily dollar volume. It is measured over the calendar year before each earnings announcement.[8]

In addition to the regression variables, we also report descriptive statistics on post-earnings announcement returns, age relative to the incorporation date, promoter and FII ownership. As with PRERET, we measure post-announcement abnormal returns by summing

[8] Size has shown to be negatively related to insider trading - insiders are more likely to buy in small firms (Lakonishok and Lee (2001); Seyhun (1986). Because insiders tend to buy value firms (high BTM), insider trading is likely negatively related to BTM (Rozeff and Zaman (1998)). Insiders tend to be contrarians (Lakonishok and Lee (2001)), buying after declining prices and selling after price rises. Hence, insider trading is likely negatively related to prior returns. Lastly, insiders may avoid transacting in stocks that are illiquid to minimize price impacts on execution.

returns over a 63 day period beginning on day +2 and subtracting a similarly summed market return. Age and ownership data are obtained from PROWESS.

5. Results

5.1 Descriptive Statistics and Univariate Analysis

Table 2 reports descriptive statistics for the earnings announcement sample, with firm-quarters being the unit of analysis. All variables (except dummy variables) are winsorized at 1% and 99% levels. The mean value of the dependent variable ERET is -0.5%; additionally, it has a slight negative skewness with 57% of the sample having negative values. Mean unexpected earnings (UE) is also negative at -1.8%. Thus, our sample firms' performance has been marginally poor at earnings announcement dates. Turning to insider trading, we focus on the measures where quantity of net trading is scaled by promoter shareholdings (PREIN2 and EAIN2). Mean insider trading during both periods is 0.00%; this reflects the fact a majority of the firms' insiders do not trade and the buys and sells balance out in magnitudes. In terms of frequencies, buys dominate sells, both before and during announcements. While 20.8% of the firm-quarters have net insider buying in the pre-announcement period, only 9.8% of the firm-quarters have net insider selling. Overall, about thirty percent of the firm-quarters have some insider activity. During earnings announcements, what is of note is the fact that 4.2% of the firm-quarters have some insider activity in days -1 to +1. 3.1% of the firm-quarters have net buying and 1.1% have net selling during earnings announcements. Because SEBI regulations explicitly prohibit trading during the announcement of financial results, a closer examination of the exact timing of these trades would be of interest.

Next, we briefly discuss control variables. Our sample firms are on average profitable with a mean EPS of INR 3.30. Further, 81.1% (18.9%) of the firm quarters report profits (loses). Mean sales growth is 15.1% with 67.7% of the SGRO observations being positive. Our sample firms have a mean age of about 32 years. Further, ownership structure is dominated by promoters who own 54%, on average. A prominent category of outside investors, the foreign institutional investors (FIIs) own 6.3% of the firms' shares, on average.

Table 3 presents descriptive statistics for insider trades, with the trading-day being the unit of analysis. Specifically, we aggregate all trades within a day by different insiders. The presence of a few large outliers causes the means to be significantly different from medians for all the trading variables; hence, we discuss only the median. Our sample includes 32,576 trading days. Of these 22,035 (68.7%) are buying days and 9,926 (30.5%) are selling days. "Zero" trading days where insiders buy and sell from each other occur relatively infrequently – 795 trading-days (0.8%). The median trade size is 20,000 shares and the median value of an insider trade is ₹1.8 million. When trades are compared to shares outstanding and promoter shareholdings, their magnitudes are miniscule. The median trade size divided by shares outstanding is 0.03% and that for trade size divide by promoter share holdings is 0.07%.

Table 4 presents calendar time quarterly data for a variety of insider trading metrics. The most pertinent observation is the insider buying activity decreased in 2009 and 2010. For example, column (4) indicates that the percentage of trades that were buys ranged from 43% to 58% between the second quarter of 2009 and the fourth quarter of 2010. Subsequently, while displaying some volatility, the series has not since returned to 2009-2010 levels. In our regression analysis, we account for time variation in insider activity by including a dummy variable for 24 of the 25 quarters in the sample period.

In Figure 1, we plot the number of buys and sells relative to earnings announcement date. The number of buys increases from 228 on day -65 to 383 on day -45. Thereafter, it

decreases till it reaches its lowest point of 117 trades on day -4. Buying activity increases significantly over days -3 to +3, peaking at 388 on day +3. Thereafter, the number of buys decreases steadily. In general, insiders engage in fewer sells than buys on all dates between -65 and +65. However, the trends in selling activity display a roughly similar pattern in event-time, with minor differences in peaks and troughs. The decline in trading activity before earnings announcements is consistent with the SEBI requirement that insiders not trade when they have potentially price-sensitive information. However, the non-zero and sharp increase in trading immediately around the earnings announcements suggests that, at least some insiders are not complying with SEBI regulations.

Park, Jang, and Loeb (1995) find that insiders increase their trading activity several weeks before the public release of earnings; but refrain from trading in the period immediately preceding the earnings release. Our evidence is consistent with that of Park et al. Bettis, Coles, and Lemmon (2000) survey 600 over corporations in 1996 and find that 92 percent have trading restrictions in place and 78 percent have explicit blackout periods. The single most common corporate policy disallows trading by insiders at all times except during a trading window that is open during the period three through 12 trading days after the quarterly earnings announcement. Our Indian evidence, contrasts with the findings of Bettis et al: insider activity rises sharply during and immediately after the earnings announcement. This suggests that the law and corporations do not restrict insider trading at least for some firms. Further, it raises the possibility that insiders exploit information during the earnings announcement to make trading profits.

Our first research objective is to shed light on whether insider trading in India is motivated by their desire to make profits. The sources for these profits could arise from at least two sources. First, insiders who possess private information about a future event / outcome can trade in advance of that outcome (for example, knowledge of an order that the

firm has received but yet to announce to the public). In this study, we use the earnings announcement as a future event and test if pre-insider trading is in the same direction as the earnings surprise and the market reaction to the same. Second, insiders' can time their trades to take advantage of a known relation between public information and future returns. We use the post-earnings announcement drift (PEAD) to test if insiders exploit their knowledge of it to make profits. In the next sub-section, we present preliminary tests of these relationships. But before we do that, to set the stage, we present evidence on whether our sample firms exhibit the PEAD anomaly.[9]

We divide sample firms in each quarter into four portfolios based on the distribution of UE in the previous quarter. Recall that UE is defined as the difference between EPS in quarter t and EPS from quarter t-4, divided by closing price on day -2. Using last quarter's UE ensures that the UE distribution is public knowledge on the date from which returns are cumulated. Next, for each firm-quarter, we compute the cumulative return over the 63 days following the earnings announcement date; that is, from day +2 to day +64. Averaging cumulative returns over firms in event-time produces an average cumulative return (CR). The cumulative abnormal return (CAR) is defined as the difference between the firm-level CR and the market-level CR. Figure 2 presents the CAR plots for the four UE portfolios. Consistent with prior research, the highest UE portfolio earns higher abnormal returns (0.7%) than the lowest UE portfolio (-6.6%). Thus, the evidence supports the presence of the post-earnings announcement drift in India.

In Table 5, we tabulate the evidence on the post-announcement drift. Columns (1) and (2) contain the mean and median values of UE for the four quartiles. The mean (median) UE spread is 18.4% (6.0%) and is statistically significant at conventional levels based on a t-test

[9] Sen (2009) is the only study that we are aware of that documents the PEAD in India. His sample consists of 582 Mumbai Stock Exchange (BSE) firms for the years 2001-2006. He reports a hedge portfolio return of 10.05% from a trading strategy that buys (sells) stocks in the highest (lowest) quintile of unexpected earnings. Return performance is measured up to the next earnings announcement (approximately three months).

(Wilcoxon Z test). Columns (7) and (8) indicate that the mean (median) hedge portfolio return of 7.3% (6.2%) is statistically significant. Table 5 also reports information on the average pre- and during-announcement abnormal returns for the four UE quartiles. Consistent with prior research, pre-announcement CARs are significantly higher for the high UE quartile compared to the low UE quartile. This supports the idea that markets anticipate the sign of future earnings surprises; that is prices lead earnings. UE is also positively correlated with earnings announcement returns; the spread between the high and low UE quartiles is 3.3%. Overall, our Indian sample exhibits behavior consistent with three stylized facts related to earnings announcements: markets anticipate the sign of future unexpected earnings, earnings announcement returns are positively correlated with unexpected earnings, and markets under-react to information on unexpected earnings.

5.2 Results

Several previous studies based on U.S. data document the insiders are better informed then outsiders and earn abnormal returns from their trades (Jaffe (1974), Seyhun (1986); Rozeff and Zaman (1988), and Lakonishok and Lee (2001)). We expect that this evidence obtains in India as well, given the relatively lax enforcement environment. To provide evidence of the profitability of insider trades, we compute CARs over different horizons from day +2 relative to the insider trade date. Our chosen horizons are 1 month, 3 months, 6 months, and 1 year. These horizons are similar to those used in the study by Lakonishok and Lee (2001), possibly the most comprehensive analysis of insider profits.

Panel A of Table 6 compares mean CARs following buys and sells and the difference between the two means. We report t-statistics to test significance of these differences, but hesitate to emphasize these given that there is considerable cross-sectional dependence in the data; trades are clustered in time. As discussed earlier, our sample includes 32,576 trading

days – of these 22,035 (68.7%) are buying days and 9,926 (30.5%) are selling days. For the one-month horizon, buys generate a mean CAR of -0.20% and sells a mean CAR of -0.48%. The difference is a meager 0.28%. As the horizon increases, however, the magnitude of the differences increases from 1.53% for 3 months to 8.22% for one year. A preliminary conclusion from this evidence is that insider trades are profitable, especially when we consider a one-year horizon.

While not the focus of the paper, we report the relation between insider trades and prior returns in the last row of Panel A of Table 6. Lakonishok and Lee (2001) show that insiders tend to follow a contrarian strategy: they buy after price declines and sell after price rises. Our Indian evidence is consistent with this strategy. The mean 3-month CAR before buys is -3.87% and that before sells is +2.39%. Additionally, because insiders are *not* buying (selling) after price increases (declines), our evidence suggests that they are not foregoing trading profits.

Next, we turn to identify the sources of the insiders' profits. Given our focus, we examine if (a) insider trades are related to their knowledge of future unexpected earnings and/or (b) their ability to exploit the post-earnings announcement drift strategy.

Panel B of Table 6 presents results of the test of whether pre-announcement insider trading (net buying over days -64 to -2) scaled by either shares outstanding (PREIN1) or promoter shareholdings (PREIN2) anticipates the unexpected earnings (UE) for the quarter. Our panel regressions control for firm and year effects (not reported) and standard errors are adjusted for clustering by firm and year. The results in column (1) indicate that net insider buying is positively related to subsequent unexpected earnings when insider buying is scaled by shares outstanding. The t- statistic is 2.30 and it has p-value of 0.02. In column (2), we estimate a similar regression with insider buying scaled by promoter shareholdings. The coefficient remains positive; however, the t-statistic drops to 1.46. In columns (3) and (4), we

report regressions that include controls for pre-announcement returns (PRERET), market capitalization (MCAP), and market-to-book ratio (MTB). The conclusions from columns (1) and (2) are not affected by this change. Overall, we find modest evidence of insiders trading in the same direction as subsequent unexpected earnings.[10] Whether this translates to trading profits at earnings announcement dates is a subject that we return to later in the paper.

Next, we examine if insiders trade to take advantage of the post-earnings announcement drift that we document in Figure 2 and Table 5. If insiders are better informed than outsiders that their stock is mispriced because of PEAD, they are likely to trade to exploit the drift. In particular, they are likely to buy stocks with positive unexpected earnings and sell stocks with negative unexpected earnings. Because, it is unclear, when insiders would trade to exploit the drift, we measure their net trading both during the announcement period (-1 to +1) – EAIN, and in the post-announcement period (+2, +64) – POSTIN. We estimate panel regressions of insider trading on unexpected earnings. To conserve space, we tabulate results for promoter-shareholding deflated insider variables; results based on shares-outstanding deflation are very similar to the tabulated results.

Column (1) of Panel C of Table 6 presents the regressions of EAIN2 on UE. The two variables are unrelated; the t-statistic for UE is 0.42 (p-value = 0.67). When we include additional control variables in Column (2), the results are unchanged. The control variables that we include are pre-announcement insider trading (PREIN2), pre-announcement abnormal returns (PRERET), size (MCAP), and market to book ratio (MTB). Insider trading during earnings announcements is positively correlated with prior trading. Further, the univariate evidence on contrarian behavior of insiders with respect to past returns obtains in the multiple regression as well. EAIN2 is significantly negatively correlated with pre-announcement

[10] We also estimate regressions of UE on lagged 6 month insider net buying and find that the relation between UE and lagged insider buying remains positive and statistically significant. In fact, the t-statistics for both PREIN1 and PREIN2 are larger for the 6 month variables compared to the 3 month variables.

returns. Overall, insider trades during earnings announcements are not consistent with insidrs attempting to exploit the PEAD.

In columns (3) and (4) we examine if post-announcement insider trading is correlated with the earnings surprise. Interestingly, the coefficient on UE is positive and significant at conventional levels. For example, in the regression that includes control variables, the t-statistic on UE is 1.73 (p-value = 0.08). Thus, the post-announcement trading is consistent with insiders exploiting the PEAD anomaly. A surprising and intriguing result is that POST_IN2 is negatively related to PRE_IN2. This suggests that insiders reverse the direction of their pre-announcement trades in the post-announcement periods. Because the results are based on aggregate insider trading, as opposed to trades by individual insiders, it would be too early to conclude that insiders are making round-trip profits. A more detailed analysis of this result is deferred to the future.

To summarize, in India, insiders tend to reduce their trading activity in the weeks before the earnings announcement. Interestingly, we observe a sharp increase in trading during and immediately after the earnings announcement. We find modest evidence that pre-announcement trading is in the same direction as the subsequent earnings surprise. While trading during the earnings announcement is unrelated to the earnings surprise, post-announcement trading is positively related to the surprise. This suggests that Indian insiders trade to exploit the PEAD anomaly.

Our last set of tests examines the earnings announcement market reaction to unexpected earnings and pre-announcement insider trading. In particular, we present evidence on whether and how the two signals are *jointly* evaluated by investors. Table 7 reports results from a regression of earnings announcement returns (ERET) on unexpected earnings (UE), insider trading and control variables. Again, all regressions include firm and quarter effects and standard errors are adjusted for clustering by firm and quarter.

In column (1), we report a regression of ERET on the related market return (MRET) and UE. Consistent with a sizable body of prior research, unexpected earnings are positively and significantly related to earnings announcement returns. An increase in UE by one percent is associated with thee 0.04 percent increase in ERET. The magnitude of the earnings response coefficient is similar to that reported by Imhoff and Lobo (1992) for U.S. data for a very similar specification.

Column (2) expands the first regression by adding insider trading measured over days -64 to -2 (PREIN) as well as insider trading during the announcement period (EAIN). To conserve space, we report results only for when aggregate trading is divided by lagged promoter shareholdings; when we use total shares outstanding as a deflator, similar results are obtained. Both PREIN2 and EAIN2 are positively and significantly related to ERET. The positive coefficient on EAIN2 suggests that the market views as a credible signal about future prospects. The positive coefficient on PREIN2 suggests that insiders profit from their pre-announcement trades. This supplements our earlier evidence that pre-announcement insider trading is positively related to the subsequent earnings surprise. Additionally, it also implies that the market reacts to information on insider trading with a lag – earnings announcements being a focal point trigger information gathering about previous insider trades and cause revisions in pricing related to those trades.

In column (3), we augment the regression with several control variables that we expect to influence both earnings announcement returns and insider trading. The results indicate that both PREIN2 and EAIN2 remain positive and significant; in fact, their t-statistics increase from 2.13 to 2.67 and 2.49 to 2.64, respectively. The signs of the coefficients on the control variables are mostly in the expected direction. LOSSDUM is negative and significant suggesting that losses are valued more negatively than profits. Sales growth (SGRO) is valued positively with a coefficient of 0.01 (t-statistic = 6.13). Of the risk

factors, size (MCAP) and market-to-book ratio (MTB) are negatively related to returns, and illiquidity (AMLIQ) is positively related to returns.

As discussed in the introductory section, Allen and Ramanan (1990), following Gonedes (1978), note that two signals are perfect substitutes if the availability of one makes the other redundant. They are perfect complements if neither signal is useful if the other is also not available. They are independent signals if the availability of one makes no difference to how much the other is relied upon.

Intuitively, if investor reliance on one signal increases (decreases) as the other is available, the two signals are information complements (substitutes).[11] To assess if PREIN and UE are complements or substitutes, we first define three dummy variables: BOTH SAME, BOTHPOS, and BOTHNEG. The three variables take the value 1 when the two signals have the same sign (positive or negative), are both positive, or are both negative, respectively, and 0 otherwise. We then define interaction variables between each of these and unexpected earnings (UE). When the coefficient on this interaction term is positive, we can conclude that the two signals are complements. The weight on UE increases as the other signal indicates the same, suggesting a credibility-increasing effect. When this coefficient is negative they are substitutes, and when zero, the two signals are independent.

In column (4) of Table 7 we report the regression that includes BOTHSAME and its interaction with UE as additional regressors. The coefficient on BOTHSAME is positive and significant; on average the market values firm upward when the two signals have the same sign. The coefficient on UE × BOTHSAME is not significant at conventional levels; its t-statistic is 1.34 (p-value = 0.18). This suggests that pre-announcement insider trading and earnings news are viewed by investors as independent pieces of information; they are neither information substitutes nor complements.

[11] The practical difficulty in distinguishing between these two cases arises when the signals do not match. In that case, we cannot tell whether the change in the weight placed on one signal is due to its being a substitute or a complement for the other, or due to unobservable differences in signal quality.

In the last column we report results when we include BOTHPOS and BOTHNEG instead of BOTHSAME, along with their interactions with UE. While BOTHPOS is positive and significant (t-statistic = 6.52), BOTHNEG is negative and significant (t-statistic = -2.70). Thus, the market values firms with two pieces of positive information upward, and firms with two pieces of negative information downward. Turning to the coefficient on UE × BOTHPOS, the results indicate that when both signals are positive they are viewed as independent signals by the market (t-statistic = 0.62, p-value = 0.54). Interestingly, the coefficient on UE × BOTHNEG is negative and significant (t-statistic = -3.21), implying that insider trading and earnings surprises are viewed as information substitutes when they are both negative. The reaction to bad earnings news is mitigated by bad news from insider trades. Whether further refinement in the sample will yield cases where the two signals are complements needs to be explored further.

6. Conclusions

Corporate insiders have potentially at least two major avenues to influence the perceptions of investors in the market. Firstly, they file mandated reports that convey key information, including accounting earnings. Secondly, corporate insiders can also trade in their own stocks and thus reveal private information. We document the extent and some cross-sectional properties of insider trading in India, using a large sample of trades and announcements from 2008-2014. We show that insider trades are profitably and can predict stock returns for up to one year. We show that a portion of these profits arise from trades both before an earnings announcement, from foreknowledge of earnings news, and after an earnings announcement, from exploiting the under-reaction to the news. We then document that the market reacts to both insider trades and earnings news, and that, overall, these two signals are perceived neither as information substitutes nor as complements. However, for the case where both signals indicate bad news, we find evidence that they are substitutes.

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Appendix 1

Example of a quarterly announcement available on the NSE Website

Symbol	EICHERMOT	Company	Eicher Motors Limited
Industry	-	Audited / Un-Audited	Unaudited
Cumulative / Non-Cumulative	Non-Cumulative	Consolidated / Non-Consolidated	Non-Consolidated
Period	Quarterly	Relating to	First Quarter
Financial Year	01-Jan-2015 To 31-Mar-2016	Broadcast Date/Time	12-May-2015 15:17

Description	Amount(Rs. in lakhs)
Part I	
Income from operations	
(a) Net sales/income from operations (Net of excise duty)	95670.00
(b) Other operating income	446.00
Total income from operations (net) (a + b)	96116.00
Expenses	
(a) Cost of materials consumed	56167.00
(b) Purchases of stock-in-trade	1184.00
(c) Changes in inventories of finished goods, work-in-progress and stock-in-trade	-2515.00
(d) Employee benefits expense	5060.00
(e) Depreciation and amortisation expense	1909.00
(f) Other expenses(Any item exceeding 10% of the total expenses relating to continuing operations to be shown separately)	11100.00
Total expenses	72905.00
Profit / (Loss) from operations before other income, finance costs and exceptional items	23211.00
Other income	6491.00
Profit / (Loss) from ordinary activities before finance costs and exceptional items	29702.00
Finance costs	55.00
Profit / (Loss) from ordinary activities after finance costs but before exceptional items	29647.00
Exceptional items	0.00
Profit / (Loss) from ordinary activities before tax	29647.00
Tax expense	8302.00
Net Profit / (Loss) from ordinary activities after tax	21345.00
Extraordinary items	0.00
Net Profit / (Loss) for the period	21345.00

Net Profit / (Loss) after taxes, minority interest and share of profit / (loss) of associates	21345
Face Value (in Rs.)	10.00
Paid-up equity share capital	2711.00
Reserve excluding Revaluation Reserves as per balance sheet of previous accounting year	0.00
Earnings per share (before extraordinary items) (not annualised):	
(a) Basic	78.75
(b) Diluted	78.35
Earnings per share (after extraordinary items) (not annualised):	
(a) Basic	78.75
(b) Diluted	78.35
Part II	
PARTICULARS OF SHAREHOLDING	
Public shareholding	
- Number of shares	12204253.00
- Percentage of shareholding	45.02
Promoters and Promoter Group Shareholding	
a) Pledged / Encumbered	
- Number of shares	-
- Percentage of shares (as a % of the total shareholding of promoter and promoter group)	0.00
- Percentage of shares (as a % of the total share capital of the company)	0
b) Non - encumbered	
- Number of shares	14903030.00
- Percentage of shares (as a % of the total shareholding of the Promoter and Promoter group)	100.00
- Percentage of shares (as a % of the total share capital of the company)	54.98
INVESTOR COMPLAINTS	
Pending beginning of Quarter	0.00
Received during the Quarter	94.00
Disposed during the Quarter	94.00
Remaining Unresolved Quarter End	0.00
Notes To Accounts	Click here

Figure 1

Insider Trading around Earnings Announcements
(Number of Buys / Sells)

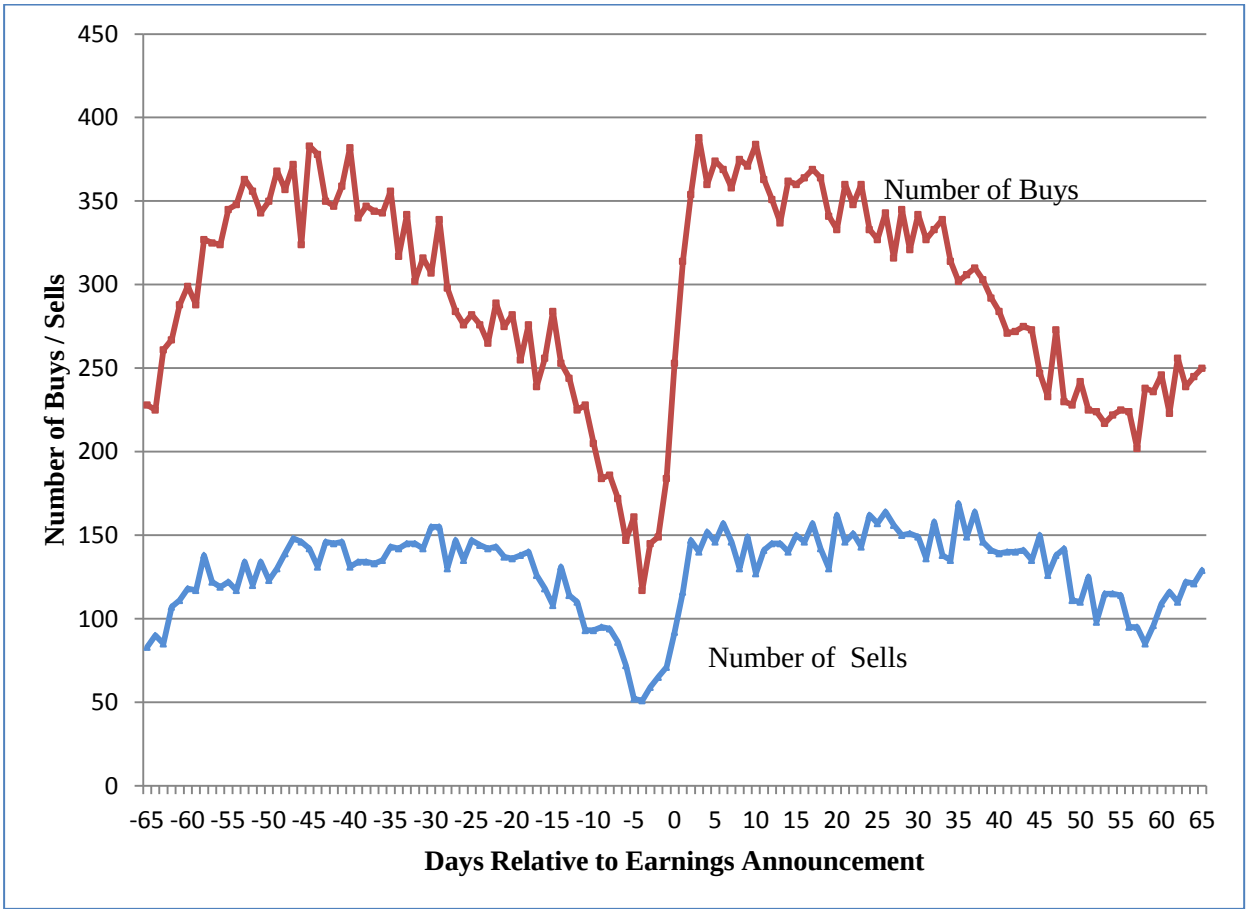

Figure 2

Cumulative Abnormal Returns around Earnings Announcements for Earnings Surprise Quartiles

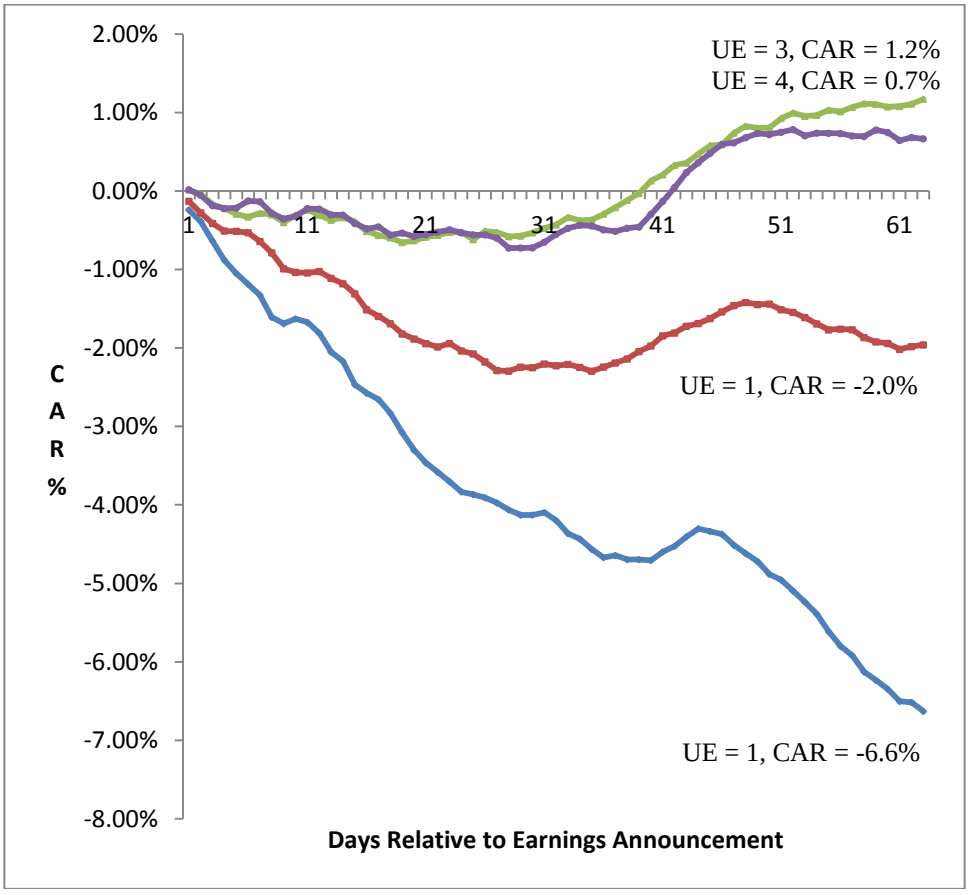

Table 1

Sample Selection

Panel A: Sample Selection		
	Firm-quarters	Firms
Initial Sample (March 2008 – March 2014):	30,877	1,606
Exclude:		
Implausible earnings announcement dates	54	
Implausible values for earnings per share	139	
Missing data on earnings surprise	10,805	
Duplicate observations	89	
Tickers not found on Prowess	111	
Missing quarterly ownership data	176	
Missing stock return data	1,234	
Final sample:	18,269	1,398

Panel B: Distribution by Year		
Year	# of obs.	Percent
2008	1,375	7.53
2009	2,727	14.93
2010	2,549	13.95
2011	2,777	15.20
2012	3,768	20.63
2013	3,921	21.46
2014	1,152	6.31

Table 2

Descriptive Statistics – Earnings Announcement Sample

	# obs.	% of obs. < 0	# of obs. > 0	Mean	Median	Std. Dev.	Q1	Q3
ERET	18,269	56.7	42.2	-0.5%	-0.7%	6.4%	-4.1%	2.7%
UE	18,082	49.13	50.2	-1.8%	0.0%	14.1%	-2.0%	1.1%
PREIN1	18,269	9.8%	20.8%	0.00%	-0.01%	2.26%	-0.49%	0.09%
PREIN2	18,266	9.8%	20.9%	0.00%	-0.03%	5.07%	-1.03%	0.16%
EAIN1	18,269	1.0%	3.1%	0.00%	0.00%	0.02%	0.00%	0.00%
EAIN2	18,266	1.1%	3.1%	0.00%	0.00%	0.05%	0.00%	0.00%
EPS: Earnings per Share (basic)	18,269	18.9%	80.6%	3.30	1.55	7.51	0.16	4.92
EPR %	18,082	18.5%	81.0%	0.00%	0.00%	11.45%	-1.05%	1.81%
LOSSDUM	18,269	18.9%	81.1%	0.19	0.00	0.39	0	0
Net Sales (million INR)	18,269	0.00%	100.0%	5912.88	1530.80	15993.40	547.20	4198.45
SGRO	18,224	32.3%	67.7%	15.1%	10.8%	49.1%	-6.1%	27.5%
MCAP (million INR)	18,082	0.00%	100.0%	34862.04	3484.89	109330.50	1003.20	16034.97
Net Worth (million INR)	18,269	2.5%	97.5%	14370.35	3036.20	40354.48	1224.30	8747.90
MTB	18,082	2.5%	97.5%	1.95	1.08	2.58	0.56	2.26
PRERET	18,269	48.6%	51.4%	1.3%	0.7%	27.9%	-13.5%	16.5%
AMLIQ	18,251	0.00%	100.00%	5.66	0.02	80.98	0.00	0.21
POSTRET	18,269	45.5%	54.5%	3.2%	2.2%	24.8%	-11.0%	17.3%
Age of Firm	18,269	0.00%	100.00%	32.19	26.00	20.45	19.00	40.00
Promoter Ownership	18,269	0.00%	99.98%	54.0%	54.5%	16.1%	43.5%	66.1%
FII Ownership	18,269	0.00%	75.41%	6.3%	2.0%	8.8%	0.0%	9.9%

Table 3

Insider Trading – Descriptive Statistics and Performance

	# obs.	Mean	Median	Std. Dev.	Q1	Q3
Trade size per transaction (# of shares):						
All	32,756	673,088	20,000	2,968,970	4,000	105,285
Buys	22,035	524,396	22,986	2,066,947	5,305	100,990
Sells	9,926	-476,724	-15,500	1,318,371	-160,000	-2,720
Trade value per transaction (million INR)						
All	32,667	83.2	1.8	398.0	0.4	10.0
Buys	21,957	56.8	1.6	239.5	0.4	8.6
Sells	9,920	-61.7	-2.9	-180.5	-16.5	-0.8
Trade Quantity / Shares Outstanding						
All	32,756	0.64%	0.03%	2.32%	0.01%	0.16%
Buys	22,035	0.60%	0.04%	2.14%	0.01%	0.15%
Sells	9,926	-0.53%	-0.02%	-1.25%	-0.22%	-0.00%
Trade Quantity / Shares held by Promoters						
All	32,755	1.48%	0.07%	5.41%	0.01%	0.35%
Buys	22,034	1.36%	0.08%	4.97%	0.02%	0.32%
Sells	9,926	-1.24%	-0.04%	-2.99%	-0.51%	-0.01%

Table 4

Calendar-Time Insider Trading Frequencies and Averages

Year-quarter	Number of firm-quarters	% of firms with at least one trade	Number of transactions	% of trades that are buys	Net Shares Traded / Shares Outstanding		Net Shares Traded / Shares held by Promoters	
					Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(6)	(7)	(8)	(9)
2008.01	7	14%	1	100%	0.03%	0.03%	0.07%	0.07%
2008.02	99	23%	56	77%	0.86%	0.05%	2.03%	0.12%
2008.03	598	23%	369	75%	0.75%	0.05%	1.73%	0.11%
2008.04	671	30%	860	88%	0.42%	0.03%	1.09%	0.06%
2009.01	557	44%	892	84%	0.54%	0.04%	0.91%	0.08%
2009.02	600	36%	764	58%	0.07%	0.01%	-0.57%	0.02%
2009.03	791	30%	864	51%	0.38%	0.00%	0.81%	0.00%
2009.04	779	34%	877	52%	0.55%	0.00%	0.97%	0.00%
2010.01	562	52%	887	54%	1.42%	0.00%	2.92%	0.01%
2010.02	556	40%	763	51%	0.45%	0.00%	1.30%	0.00%
2010.03	718	35%	899	43%	0.25%	0.00%	0.29%	0.00%
2010.04	713	35%	915	56%	1.10%	0.00%	3.17%	0.01%
2011.01	590	44%	1,120	74%	0.70%	0.02%	1.34%	0.03%
2011.02	591	31%	571	61%	0.81%	0.01%	1.67%	0.01%
2011.03	785	37%	1,347	76%	0.34%	0.01%	0.74%	0.03%
2011.04	811	40%	1,694	82%	0.36%	0.02%	0.88%	0.04%
2012.01	810	43%	1,591	68%	0.49%	0.01%	1.11%	0.02%
2012.02	859	34%	1,414	74%	0.24%	0.01%	0.56%	0.03%
2012.03	1,080	32%	1,878	69%	0.19%	0.01%	0.66%	0.02%
2012.04	1,019	35%	1,554	61%	0.85%	0.01%	1.86%	0.01%
2013.01	946	45%	2,113	75%	0.23%	0.02%	0.57%	0.04%
2013.02	988	40%	2,158	81%	0.18%	0.02%	0.43%	0.04%
2013.03	969	42%	2,399	80%	0.54%	0.02%	1.07%	0.03%
2013.04	1,018	37%	1,800	63%	0.36%	0.01%	0.82%	0.01%
2014.01	1,152	35%	2,113	65%	0.32%	0.01%	0.83%	0.01%
Average	**731**	**36%**	**1,196**	**69%**	**0.50%**		**1.09%**	

Table 5

Average Stock Returns around Earnings Announcements, by earnings surprise quintile

Panel A: Returns around Earnings Announcements

Portfolio	# of obs.	Earnings Surprise/Price		Pre-Announcement Abnormal Return (-64, -2)		Earnings Announcement Abnormal Return (-1, 0,+1)		Post- Announcement Abnormal Return (+2, +64)	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 (Low)	4764	-12.0%	-3.9%	-8.7%	-8.5%	-1.9%	-1.8%	-6.6%	-5.9%
2	4357	-2.1%	-0.6%	-3.5%	-3.9%	-1.0%	-1.1%	-2.0%	-2.8%
3	4414	0.8%	0.4%	2.5%	1.3%	0.5%	0.0%	1.2%	0.6%
4 (High)	4734	6.3%	2.1%	3.4%	2.3%	1.4%	0.6%	0.7%	-0.3%
(4) – (1)		18.4%	6.0%	12.3%	10.8%	3.3%	2.4%	7.3%	6.2%
t-test		54.3		26.4		26.0		15.80	
(p-value)		(0.00)		(0.00)		(0.00)		(0.00)	
Wilcoxon Z			80.0		26.6		25.3		15.9
(p-value)			(0.00)		(0.00)		(0.00)		(0.00)

Table 6

Insider Trading and Future Earnings Surprises and Stock Returns

Panel A: Cumulative Market Adjusted Returns following Insider Trades

	BUYS		SELLS		BUY - SELL	
	# of obs	Mean CAR	# of obs.	Mean CAR	Mean CAR	t-test (p-value)
1-month return (+2, +22)	22,035	-0.20%	9,927	-0.48%	0.28%	1.94 (0.05)
3-month return (+2, +64)	22,035	-0.48%	9,926	-1.39%	1.53%	3.43 (0.00)
6-month return (+2, +127)	21,979	-0.82%	9,929	-4.22%	5.04%	8.12 (0.00)
12-month return (+2, +253)	21,415	-0.90%	9,182	-7.32%	8.22%	10.16 (0.00)
3-month return (-64, -2)	22,035	-3.87%	9,926	2.39%	-6.25%	-22.40 (0.00)

Panel B: Dependent variable: Unexpected Earnings Scaled by Price

	(1)		(2)		(3)		(4)	
	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)
Intercept	-0.00	-0.00 (1.00)	-0.00	-0.00 (1.00)	0.00	-0.01 (1.00)	0.00	-0.01 (1.00)
PREIN1	0.09	2.29 (0.02)			0.09	2.33 (0.02)		
PREIN2			0.03	1.46 (0.14)			0.03	1.53 (0.13)
PRERET					0.06	3.99 (0.00)	0.06	3.98 (0.00)
MCAP					-0.00	-0.67 (0.50)	0.00	-0.67 (0.50)
MTB					0.00	3.61 (0.00)	0.00	3.63 (0.00)
# of obs.		18,082		18,079		18,082		18,079
Adjusted R^2		0.02%		0.01%		1.80%		1.80%

Panel C: Dependent variable: Net Insider Trading during earnings announcements / post announcement periods

	Insider Trading during Earnings Announcements (-1,+1): EAIN2				Insider Trading in the post-announcement period (+2,+64): POSTIN2			
	(1)		(2)		(3)		(4)	
	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)
Intercept	0.00	0.05 (0.96)	0.00	0.06 (0.95)	-0.00	-0.04 (0.97)	-0.00	-0.04 (0.97)
UE	0.00	0.42 (0.67)	0.00	0.56 (0.58)	0.01	1.79 (0.07)	0.01	1.73 (0.08)
PREIN			0.00	2.25 (0.02)			-0.03	-2.38 (0.02)
PRERET			-0.00	-1.73 (0.08)			-0.00	-0.18 (0.86)
MCAP			0.00	1.08 (0.28)			0.00	0.28 (0.78)
MTB			0.00	1.48 (0.14)			0.00	0.66
# of obs.		18,079		18,079		18,079		18,079
Adjusted R^2		0.00%		0.10%		0.03%		0.11%

In all panels, standard errors are adjusted for clustering by firm and year to control for cross-sectional and time-series correlation. Firm effects and year effects are included in all regressions, but not reported to conserve space. All variables are winsorized at 1% and 99% levels.

Table 7

Explaining Earnings Announcement Returns with Earnings Surprises and Insider Trading

	(1)		(2)		(3)		(4)		(5)	
	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)	Coef.	t-stat (p-value)
Intercept	0.02	18.77 (0.00)	0.02	18.67 (0.00)	0.02	9.70 (0.00)	0.02	9.24 (0.00)	0.02	9.27 (0.00)
MRET	0.78	12.12 (0.00)	0.78	12.13 (0.00)	0.77	12.04 (0.00)	0.77	12.03 (0.00)	0.77	12.09 (0.00)
UE	0.04	6.36 (0.00)	0.04	6.37 (0.00)	0.03	5.40 (0.00)	0.03	4.83 (0.00)	0.03	4.68 (0.00)
PREIN2			0.02	2.13 (0.03)	0.03	2.67 (0.01)	0.02	2.09 (0.04)	0.01	0.71 (0.48)
EAIN2			2.55	2.49 (0.01)	2.60	2.64 (0.01)	2.44	2.45 (0.01)	2.37	2.41 (0.02)
EPR					0.01	0.60 (0.55)	0.01	0.64 (0.052)	0.01	0.81 (0.42)
LOSSDUM					-0.01	-4.50 (0.00)	-0.01	-4.33 (0.00)	-0.01	-4.06 (0.00)
SGRO					0.01	6.13 (0.00)	0.01	6.00 (0.00)	0.01	5.87 (0.00)
MCAP					-0.00	-3.92 (0.00)	0.00	-3.99 (0.00)	0.00	-4.04 (0.00)
MTB					0.00	-3.47 (0.00)	0.00	-3.50 (0.00)	0.00	-3.49 (0.00)
PRERET					-0.01	-1.25 (0.21)	-0.01	-1.27 (0.20)	-0.01	-1.35 (0.18)
AMLIQ					0.00	3.42 (0.00)	0.00	3.35 (0.00)	0.00	3.42 (0.00)
BOTHSAME							0.01	5.95 (0.00)		
UE × BOTHSAME							0.01	1.34		

					(0.18)	
BOTHPOS					0.01	6.52 (0.00)
UE × BOTHPOS					0.01	0.62 (0.54)
BOTHNEG					-0.01	-2.70 (0.01)
UE × BOTHNEG					-0.02	-3.21 (0.00)
# of obs.	18,082	18,079	18,079	18,017		18,017
Adjusted R^2	16.65%	16.71%	17.91%	18.01%		18.18%

The dependent variable is the earnings announcement return summed over day (-1 to +1). Standard errors are adjusted for clustering by firm and year to control for cross-sectional and time-series correlation. Firm effects and year effects are included in all regressions, but not reported to conserve space. All variables are winsorized at 1% and 99% levels.