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Anchoring in Mergers and Acquisitions: Does the Regulatory Environment Matter?

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Abstract: Anchoring to target's 52-week high price is ubiquitous while determining the offer premium in mergers and acquisitions. Unlike other jurisdictions, Indian takeover regulation mandates a minimum offer price that includes targets' peak market prices, i.e. 26-week (or 2-week), and 60-day high price. This allows testing the salience of the popular 52-week anchoring effect while controlling for regulatory induced anchors in India. Using 169 tender offer deals, our results provide support for persistence in anchoring to 52-week price over and above regulation-induced anchors. Regulatory interventions in 2011, to accommodate a recent market price, does not change the anchoring effect. The inference is that acquirers are willing to pay more (higher premium) while anchoring to the 52-week high price, even when the regulator is mandating a lower reference price of 26-weeks/60-days market price. We also find saliency of most regulatory prices as anchors themselves especially during their periods of regulation.

Keywords: Keywords: 52-week high price, Offer price, Reference Point, Tender offer, Regulation

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Anchoring in Mergers and Acquisitions: Does the Regulatory Environment Matter?

1. Introduction

Peak stock market historical prices of target firms are of incremental importance to the offer price decision in mergers and acquisitions (Baker, Pan and Wurgler, 2012). The authors argue that indeterminacy¹ in merger and acquisition (M&A) negotiations causes fixation of offer premium to be driven by anchors and reference points. In particular, the target's 52-week high price is an influential anchor while negotiating offer price and success of the deal. The motivation is rooted in psychology that explains a common human tendency to rely on a salient piece of information, known as anchor or reference point, and then adjust until an acceptable value is reached (Tversky and Kahneman, 1974; Kahneman, 1992; Chapman and Johnson, 2002). The saliency of the 52-week high price as an influential anchor is due to its wide publicity and availability in popular media and press. Bidders and targets justify such valuations because they expect prospective synergies to surpass previous stock market highs.

The 52-week anchoring phenomenon is ubiquitous in various M&A markets around the world; U.S. takeovers (Baker et al., 2012; Chira and Madura, 2015), European M&A deals (Niinivaara, 2010), Japanese (Nielsen, 2013) and Australian M&A deals (Bugeja, da Silva Rosa and Redko, 2015). Unlike most other jurisdictions, the Indian takeover regulation mandates a regulatory price, which differs from the popular 52-week high price. More specifically, the Securities and Exchange Board of India (SEBI) takeover regulation, Substantial Acquisition of Shares and Takeovers (SAST) 1997², with amendments in 2002 and 2011, mandates a minimum offer price or floor price³, which among other factors is function of the target's 26-week (or 2-week) high price (SAST 2002) and 60-day average market price (SAST 2011). Therefore, the SEBI SAST regulation itself provides an alternative regulatory

¹Standard finance theory suggests offer price negotiations in M&A to be result of expected operational and financial synergies (Walkling and Edmister, 1985). Studies justify increased takeover premiums based on various factors, such as, larger managerial ownership (Song and Walkling, 1993; Hubbard and Palia, 1995), private manager benefits (Wulf, 2004; Hartzell, Ofek and Yermack, 2004), corporate board structures (Cotter, Shivdasani, and Zenner, 1997), and product market dependence (Ahern, 2012). One could assume classical theory rationalises relative bargaining power as the cause for unjustified offer premiums. Behavioral finance documents other takeover motives like empire building (Rhoades, 1983), hubris (Roll, 1986), winner's curse (Varaiya and Ferris, 1987), stock market misvaluations (Shleifer and Vishny, 2003) resulting in bidding firms to overpay. These theories reveals complex considerations that occur during M&A negotiations between bidder and target firms, severed with indeterminacy in fixing the offer price.

²See sub-regulation (1) of SEBI (SAST) (Second Amendment) Regulations, 2002 and sub-regulation (2) of SEBI (SAST) Regulations, 2011 for details on offer price.

³The SEBI perspective of setting a floor/minimum offer price as a function of recent market price is that it can protect interests of minority shareholders, and provide a fair exit route to investors (Bhagwati Committee Report on Takeovers, 1997).

anchor while determining the offer price. Hence, India offers a unique and natural setting to examine if the 52-week anchoring effect in M&A exists in the presence of alternative regulatory anchors.

Given this context, testing the 52-week anchoring effect in the light of mandated regulation in India is interesting for two specific reasons: First, due to the introduction of minimum offer price into the setting, there are multiple anchors in determining the offer price of the target, i.e., mandated regulatory prices and the popular 52-week high price. Moreover, the 26-weeks and 60-day prices mentioned in regulation are sub-sets of the 52-week high price widely cited in literature. This regulatory design makes it interesting to explore if saliency of the 52-week anchoring phenomenon in India, is over and above the regulatory induced anchors. In other words, this setting allows us to test, whether investors are driven towards 52-week high price when the regulator explicitly guides them with reference prices that is lower than (or equal to) the 52-week high price. Second, an exogenous change by amending SAST in 2011 to a recent market price i.e. 60-day high price, helps to establish a causal relationship with reference pricing. It also allows to test whether the 52-week anchoring effect is reduced with regulatory intervention.

Furthermore, the Indian setting allows investigating the saliency of regulatory prices as anchors themselves since it is explicitly laid down as part of regulation, unlike the widely discussed 52-week high price. The test of regulatory prowess during the period of regulation, as well as pre and post regulatory periods, would establish the impact of being specified as a regulatory benchmark. For example, does 26-week (or 2-week) high price prove to be significant regulatory anchors during its period of regulation (2002-2011), as well as extends to period of non-regulation in 2011-2014? This analysis is intriguing because SAST 2011 was amended to accommodate a recent 60-day high market price. However, anchoring to 26-week high price in a 60-day high price regime would clearly establish its saliency in non-regulatory period. Similarly, we test the saliency of the 60-day high price in its own period of regulation (2011-2014), as well as in the pre-regulatory period of 2002-2011 (taking into account that 60-day is a subset of the 26-week high price).

Finally, to establish the saliency of 52-week high price in the presence of various regulatory anchors, we compute *extent of anchoring*. We define *Extent* in many ways, such as, the difference between target's 52-week high price and its' respective regulatory prices i.e., 26-week high price until 2011 and 60-day high prices until 2014. In this manner, we document the magnitude of anchoring as well as the distinct effect of the 52-week high price over and above

other regulatory induced anchors. This investigation is necessary and possible since some⁴ of the regulatory prices are sub-sets of the 52-week high price under study. We also compute *extent of anchoring* over various regulatory periods, pre SAST (2002-2011) and post SAST (2011-2014), where certain regulatory prices are mandated (or not mandated). Such analysis would establish the extent of regulatory prowess as well.

Our paper adds to the extant literature on the 52-week anchoring effect in M&A deals documented in markets around the world. More recently, Bae, Bhattacharya, Kang, and Rhee (2015) use the context of nominal stock price fixation across 38 countries, and find that anchoring being a common human trait is a global phenomenon. However, the scope of this study goes beyond simply testing the efficacy of 52-week anchoring effect in M&A as a global phenomenon. The paper provides robust evidence of the 52-week high reference effect since we establish extent of anchoring in the presence of other regulatory induced anchors. In this sense, the study is both topical and unique since we are the first to test the saliency of the 52-week reference price as a psychological anchor while controlling for regulatory induced anchors unique to acquisition deals in India. Our study also contributes to the literature on behavioral corporate finance, since we also investigate whether regulatory interventions reduce the 52-week anchoring phenomenon that is documented globally.

Our results are as follows. First, we show positive and significant relation between the target's 52-week high price and offer premium, after controlling for the minimum offer price mandated by the SEBI SAST Regulation 2002 and 2011. We find the reference effect to be specifically significant for deals when the offer price exceeds the 52-week high price. This result supports the argument that if the bidders identify the importance of the 52-week high price as a reference price, they would probably decide to bid higher than the influential anchor to ensure deal success. Baker et al. (2012) discuss that firm's probability of success increases when the offer prices are higher relative to its' 52-week high than when lower. Moreover, our findings complement various other studies in behavioural finance that establish 52-week high to be an influential anchor in other investor decisions (Grinblatt and Kelaharju, 2001; Barberis and Xiong, 2009; Huddart, Lang, and Yetman, 2009).

Second, we account for regulatory factors unique to the Indian setting. We find the regulatory price mandated by SEBI (known as regulatory proxy) is positive and significant, implying effects of regulation on the offer price. The incremental effect of 52-week high price

⁴The 2-week high price as part of the SAST 2002 regulation is not a sub-set of the 52-week high price as defined in the study.

on offer price continues to be significant even in the presence of regulation. Amendment in the SEBI SAST regulation in 2011 to accommodate a more recent market price does not change the 52-week anchoring effect. This specifically implies regulatory intervention has not reduced the 52-week anchoring effect. Additionally, when the regulatory price is a market price, offer premium decreases. That is, if market prices reduce information asymmetry and uncertainty (Healy and Palepu, 2001), bargain acquisitions may be possible. Furthermore, the 52-week reference price impact is higher when the regulatory proxy is a market price.

Third, we investigate the saliency of regulatory prices as anchors themselves, during their own period of regulation, as well as in pre and post regulatory periods. We find positive and significant effect of various regulatory peak prices, i.e., 26-week, 2-week and 60-day high prices, on offer premium during their respective periods of regulation. This effect is pronounced specifically when the offer price is greater than the regulatory peak prices. We are unable to document that the prowess of 26-week (or 2-week) high price as a regulatory anchor extends to non-regulatory 2011-2014 period. Although a sub-sample analysis of firms for 26 week greater than 60-day high price, shows significance of 26-week high price in 2011-2014, nonetheless we are unable to comment due to fewer firms in the sample analysis. The 60-day high price appears significant in pre-regulatory 2002-2011 period, however not in its own regulatory period (2011-2014) perhaps due to small sample issues.

Next, we investigate the distinct and individual effect of 52-week high price over and above various regulatory anchors that are sub-sets of the 52-week high price. The results show persistence of 52-week anchoring effect over and above alternative regulatory anchors, specifically when the target's 52-week high price exceeds various regulatory peak prices. This finding serves as a contribution over Baker et al. (2012) study since the key issue is whether regulation makes a difference. Moreover, we are able to establish the magnitude or extent of the 52-week anchoring phenomenon while controlling for regulatory factors unique in the Indian setting. The inference is that acquirers are willing to pay more (higher premium) while anchoring to the 52-week high price, even when the regulator is mandating a lower reference price of 26-weeks/60-days market price.

Finally, we find a significant increase in offer premium when the targets' current stock price is distant from its' 52-week reference price. Chira and Madura (2015) establish that targets negotiate for larger premiums when they perceive themselves as undervalued (that is when firm's current stock price is lower than its' 52-week high price). Hence, targets with low stock prices relative to their 52-week reference points resist bids unless the premiums are sufficiently large to offset the low market values. Consistent with this rationale, we find that

when targets current stock price is lower and farther away than its' 52-week high price, they negotiate for larger premiums.

The rest of the paper is organized as follows. Section 2 briefly discusses the relevance of the SEBI Regulation, Substantial Acquisition of Shares and Takeovers (SAST), 1997 (with amendments in 2002 and 2011). Section 3 presents the relevant literature and develops testable hypothesis. Section 4 discusses the data sources used in the study, and describes the methodology. Section 5 presents the empirical results and robustness checks, and section 6 concludes with directions for future research.

2. Regulatory Framework

The Securities and Exchange Board of India (SEBI) Regulation on Takeovers⁵, Substantial Acquisition of Shares and Takeovers (SAST) 1997, has stipulation about pricing of the offer in tender offer deals. SEBI mandates a minimum offer price to be paid by the acquirer while taking into account various relevant market as well as non-market factors. In our study, we refer to the SEBI SAST Regulations, 1997, with a second amendment in 2002 and a further amendment in 2011, due to data availability for the period 2002-2014. To elaborate, the SEBI (SAST) Regulation second amendment in 2002, w.e.f. 9-9-2002, states the minimum offer price to be a function of:

The average of the weekly high and low of the closing prices of the shares of the target company as quoted on the stock exchange where the shares of the company are most frequently traded during the 26-weeks or the average of the daily high and low prices of the shares as quoted on the stock exchange where the shares of the company are most frequently traded during the 2-weeks, preceding the date of public announcement, whichever is higher.

In case of SEBI (SAST) amendment in 2011, w.e.f. 01-11-2011, the minimum offer price is a function of:

The volume-weighted average market price of such shares for a period of 60 trading days immediately preceding the date of the public announcement as traded on the stock exchange where the maximum volume of trading in the shares of the target company are recorded during such period, provided such shares are frequently traded.

⁵Takeovers and substantial acquisition of shares of a listed company falls under the purview of the SEBI (SAST) Regulations, while mergers and amalgamations are outside its' scope. For detailed explanation on different legal connotations on mergers and acquisitions in India, see Barai and Mohanty, 2010.

[Insert Table 1 about here]

We comprehend the SEBI (SAST) Regulation 2002 and 2011 as follows and present complete particulars in Table 1. First, the regulation specifies the minimum offer price to be paid by an acquirer to whom the offer is being made. Justice P. N. Bhagwati Committee Report on Takeovers, 1997, states, “*Laying down this minimum level of offer price is necessary to protect the interest of investors and not discordant with the free pricing regime*”. Therefore, the rationale for mandating a minimum offer price in India is that it provides a fair exit option to minority shareholders⁶. Second, the minimum price is a function of, the higher of the weekly (daily) highs and lows of the closing prices during the 26-weeks (or 2-weeks) for SEBI (SAST) 2002, or the volume-weighted average market price for a period of 60 trading days in case of SEBI (SAST) 2011, preceding the date of public announcement. The Regulation implies that among other (non-market) prices, historical market price is also relevant while determining the minimum offer price in order to cover the events and market functions prior to the public announcement for frequently traded stocks. Among non-market factors, the minimum price includes the price paid by the acquirer in the negotiated transactions. Third, if the shares of the target company are infrequently traded⁷, the price would have to be approved by SEBI. These regulatory prices include peak stock market prices that the target has achieved over various horizons. Moreover, the amendment in 2011 indicates a shift to a more recent market price, i.e. 60-day price, than the 26-week price in 2002. The rationale behind the regulatory intervention by SEBI in 2011 is to make the minimum offer price a function of the target’s recent market price. A recent market price reflects the status of the target’s current management and business practices, and therefore protects shareholder value. Taking into consideration this regulatory framework in India, analyzing the 52-week high anchoring effect is both topical and relevant. Given this regulatory architecture, we specifically attempt to analyze whether anchoring to the 52-week high price is prevalent after controlling for the price set through SEBI SAST Regulations. This research question gets interesting since the regulatory prices, 26-weeks and 60-day high prices are sub-sets of the 52-week reference price under study.

⁶Discussion with Indian regulators gave an interesting insight for a minimum offer price: if the acquirer is a relative of the promoter then they may decide on a low offer price at the expense of the minority shareholder. This is one such insight for fixing a minimum offer price as a function of recent market prices.

⁷Shares are deemed to be infrequently traded if the annualized trading turnover during the preceding 6 calendar months prior to the month in which the Public announcement is made is less than 5% (by number of shares) of the listed shares.

3. Literature Review and Hypothesis Development

In financial markets, specific price levels serve as influential anchors or reference points. For instance, Heath, Huddart and Lang (1999) and Core and Guay (2001) find strong and robust evidence that option exercises are greater (less) when the firm's stock price hits 52-week highs (lows). Farrell, Krische, and Sedatole (2011) report that employees evaluate the value of their stock options using current stock price as a simple anchor. Several studies report that past price extremes influence investor trading decisions (Grinblatt and Keloharju, 2001; Barber and Odean, 2008; Barberis and Xiong, 2009). Huddart, Lang, and Yetman (2009) document that trading volume increases significantly whenever prices exceed the 52-week high and low prices. George and Hwang (2004) observe that investors use the 52-week high as an anchor to evaluate their profits from momentum, and Li and Yu (2012) show that predictability of the Dow index is based on nearness to the index 52-week high price. Chang, Luo, and Ren (2014) observe that cum-day prices are dominating anchors for ex-day stock valuation. George, Hwang and Li (2014) find that significant post earnings announcement drift (PEAD) depends strongly on whether stocks' prices are near (far from) their 52-week highs when positive (negative) earnings surprises arrive. Driessen, Lin, and Hemert (2013) document that option-implied volatilities (IVs) and stock betas change when stock prices approach or break through their 52-week high or lows.

These studies inform the decision maker's tendency to set anchor or reference points with respect to stock price highs and lows. The motivation for establishing a reference point is drawn from the belief-formation process known as the anchoring-and-adjustment heuristic (Tversky and Kahneman, 1974). While estimating unknown quantities, the strategy is to start with the information that one does know (an anchor or a reference point) and then adjust until an acceptable value is reached. The role of anchors and reference points in decision-making and its implications for negotiations have been documented in various other studies (Neale and Bazerman, 1992; Kahneman, 1992; Kristensen and Garling, 1997). Although negotiators generally appraise an offer based on multiple characteristics, Orr and Guthrie (2005) show that focus on a single aspect as an anchor has a significant influence on the estimated value of the object. Baucells, Weber and Welfens, (2011) find that agents use recent, salient, concrete, and personally relevant information as a basis for forming and updating their reference point. Köszegi and Rabin (2006, 2007) argue that expectations about the future form the most natural reference point for valuing realised outcomes.

Motivated by this literature, we evaluate whether offer prices are significantly influenced by the target's 52-week high stock price in tender offer deals. We examine this hypothesis while taking into consideration implications of asymmetric anchoring, that is, when 52-week high price is greater than the offer price, than when it is lower. As Baker et al. (2012) suggest, if bidders identify the importance of the 52-week high price as a reference point, they might as well decide to bid slightly higher than the 52-week high price to ensure deal completion. We hypothesize ex-ante that the reference effect would be stronger for cases where the offer price is higher than the 52-week high price than in cases where the offer price is lower than the 52-week high price.

Furthermore, testing the 52-week anchoring phenomenon in M&A is unique in the Indian context due to regulatory requirements mandated in SEBI (SAST) takeover regulations. First, the Indian regulation mandates a minimum offer price unlike other markets around the world. In case of India, the rationale of a minimum offer price as a function of a more recent market price is to protect minority shareholders and facilitate a fair exit route. Second, the minimum offer price is a function of various historical market prices, i.e. 26-weeks (or 2-weeks) and 60-days, as well as other non-market prices that is relevant to the deal. Moreover, the amendment in SEBI (SAST) regulation in 2011 implies a shift from the 26-week market price to a recent 60-day market price (in 2011). Such regulatory interventions is associated to strategies reported in literature designed to achieve improved decision-making (Jolls and Sunstein, 2006; Avgouleas, 2008). Therefore, we examine the first hypothesis that target's 52-week high price has positive effect on offer premium while considering effects of asymmetric anchoring as well as controlling for regulatory structure unique in the Indian setting:

***Hypothesis 1:** The target's 52-week high price has a positive effect on the offer premium for deals when the offer price is greater than the 52-week high price as compared to cases when the offer price is lower than the 52-week high price. We examine this 52-week anchoring effect after controlling for regulatory requirements in India, i.e., minimum offer price and change in SAST 2011 regulation.*

The M&A setting in India has anchors induced by regulation itself, the 26-week (or 2-week) high price during 2002-2011, and the 60-day high price during 2011-2014. Hence, interesting to investigate the prowess of regulatory prices as anchors themselves, since it is explicitly stated and mandated in regulation, unlike the more popular 52-week high price. However, testing the saliency of anchors during their period of regulation is not sufficient in itself, while its incremental impact can be suggestive if the significance of regulatory anchors

extends to periods of non-regulation. Moreover, we have periods of pre and post regulatory changes that allow us to examine if the salience of the regulatory anchors varies between 2002-2011 and 2011-2014 periods. That is, whether the salience of 26-week (and 2-week) high price extends to periods of post-regulation in 2011-2014, and 60-day high price is salient in pre-regulatory period of 2002-2011, where in both these periods these prices are non-mandatory. We account for the fact that 60-day is a subset of the 26-week high price. This discussion leads to our second hypothesis that would establish the impact of being specified as a regulatory anchor.

***Hypothesis 2a:** Regulatory induced anchors, 26-week, 2-week and 60-day high prices, mentioned in the SEBI SAST regulation, 2002 and 2011, have a positive effect on the offer premium, during their mandated period of regulation.*

***Hypothesis 2b:** Regulatory induced anchors, 26-week, 2-week and 60-day high prices, mentioned in the SEBI SAST regulation, 2002 and 2011, have a positive effect on the offer premium, during pre and post SAST regulatory periods, where these prices are non-mandated.*

It needs to be noted that the regulatory anchors, the 26-week and 60-day prices, are regulatory anchors themselves where anchoring to 52-week high price can confound subset of the 52-week high price, resulting in a scenario. Hence, we specifically investigate if anchoring to the 52-week high price persists when the 52-week high price is greater than various regulatory peak prices that are specifically subset of 52-week high price, i.e. 26-weeks and 60-days. To remove the confounding effects of the regulatory prices, and establish the individual effect of 52-week high price as an influential anchor, we subtract the price of regulatory anchors from the 52-week high price, and describe it as extent of anchoring in this study. We calculate extent of anchoring for different periods of SAST regulation. Extending this argument, we formulate our third hypothesis as follows:

***Hypothesis 3:** Offer premium is positively related to extent of anchoring when 52-week high price exceeds various regulatory anchors that are particularly subset of the 52-week high price under study, i.e. 26-week and 60-day high price, for different periods of SAST regulation.*

Targets with current stock prices more distant from their reference point are likely to negotiate for larger premiums since they perceive themselves as undervalued (Baker et al.,

2012; Chira and Madura, 2015). When target's current stock price is close to its' 52-week high reference price, it would mean market valuation is appropriate (not undervalued) leading to lower offer premiums. Chira and Madura (2015) find that bidder's tendency to submit bids and offer success increases if target's prevailing stock price is closer to its 52-week high since they expect to pay lower offer premiums. Therefore, for completed deals, if the target's current stock price is distant from its' 52-week reference point, premiums have to be sufficiently large to offset the low market values. This discussion leads to our final hypothesis.

***Hypothesis 4:** Offer premium is positively related to distance that determines the difference between target's 52-week high price and its' current market price.*

4. Data and Methods

4.1 Sample

The data source for this study is the takeover database of the Securities and Exchange Board of India (www.sebi.gov.in) and Prowess Database maintained by the Centre for Monitoring Indian Economy Private Limited (CMIE). Our dataset primarily comprises of variables related to the target firms, namely, the open offer and its characteristics, the regulatory prices from SEBI SAST regulations, the stock market prices and financial characteristics of the target firms, and the data related to the market index. The takeover database on the SEBI website provides data on open offers from April 1997. However, information on the justification of the minimum offer price, i.e. regulatory prices, can be inferred only from offer documents uploaded on the SEBI website that includes letter of offers (LOF)⁸ filed by the acquirers with SEBI. These documents are available on the SEBI website only from April 2002⁹; therefore, we restrict our dataset to the period September 2002 to March 2014 for analysis. Moreover, the SEBI SAST Regulations, 1997, underwent major amendments in 2002 and 2011 pertaining to the offer price. Therefore, we hand collect data pertaining to the regulatory prices from letter of offers filed with SEBI.

Information on tender offers include names of the acquiring company and the target company, the public announcement date and the offer date, the offer price, the offer size, the

⁸Letter of offer is available on the SEBI website for every acquisition deal, and contains detailed information on how the minimum offer price is established in accordance to the SEBI (SAST) regulations 1997, and further amendments. The challenge of collecting such information is the unstructured data style and non-standard methods of reporting information in the LOF by merchant bankers.

⁹SEBI officers confirm data unavailability for the period 1997-2002 with respect to SEBI (SAST) Regulations 1997 as well as pre-1997 period. Prior to 1997, takeovers were governed by SEBI (SAST) Regulations 1994 and Clause 40 (A and B) of the listing agreement.

equity percentage, the total price, the objective of the offer, and the information about the merchant banker and registrar. Given this discussion, the total number of open offers in the data set results in 885 firms.

We use the Prowess database maintained by CMIE as our primary source for historical market prices and financial characteristics of target firms. As Siegel and Choudhury (2012) observe, data from Prowess has been used in several studies in the finance and strategy literature and is generally accepted as the most reliable database for Indian companies. We first match the firm names obtained from the SEBI website with the firm names in the Prowess database to get market data for those firms. In the dataset, we include only those firms for which the names in the SEBI website match the deal names in Prowess. One characteristic of the SEBI data is that it gives names of target companies that were acquired by the same or different acquirers at different points of time. However, in CMIE Prowess, the target's name is often changed to the acquired firm's name after acquisition. Hence, it is difficult to ascertain the name of the original target firm prior to the acquisition. Therefore, we include only those firms which have been acquired once and for which the name of the target firm match the name in CMIE Prowess database. This specification leads to an intermediary sample of 280 firms. Since most of the firms in the sample are listed on Bombay Stock Exchange (BSE) during 2002–2014, we restrict the sample to market prices from BSE. Further, the study required liquid firms and availability of traded prices to establish various market prices. These criteria resulted in an unavoidable reduction in the final sample size to 169 target companies for the period 2002–2014. Due to the careful consideration given to selecting the sample, we are confident that the final sample consists of those target firms that are liquidly traded and have all of the necessary financial data to conduct the analysis. Given the context, this forms the universe or population for such a study in India. The specific sample for the regression analysis varies with the hypothesis being tested, as well as other controls used in the analysis.

4.2 Characteristics of Tender Offers

We present distribution of the open offers during the sample period 2002–2014 in Figure 1. We find that the announcement of deals is on average higher for the period 2005–2008, corresponding to the SAST Regulation period 2002–2011, with a peak in 2008. Post 2011, announcement of open offers peak at 2012, though lesser than 2008. The acquirers of the

deal involve individuals and private firms as well as multiple acquirers referred to as persons acting in concert (hereafter, PAC)¹⁰.

[Insert Figure 1 about here]

The acquisition of shares through open offer involves transfer of shares and voting rights. Hence, objectives of an offer are divided into three categories, namely, change in control, substantial acquisition and consolidation of holdings. Change in control involves change in voting rights such that the control or decision-making power goes to new shareholders. As per the SEBI SAST Regulations, 1997, control includes the right to appoint the majority of the directors and/or to control the management or policy decisions. Substantial acquisition involves the acquisition of a substantial quantity of shares or voting rights of the company, which in SAST 1997 is defined as 15 percent or more voting rights in the target company, increased to 25 percent of more voting rights in SEBI takeover code 2011. Consolidation applies to persons holding substantial stake and would like to acquire further shares beyond a limit. The acquirer who holds the shares or voting rights between 55 percent and 75 percent, and who is desirous of consolidating his shareholding can do so by making an open offer.

The dataset shows that among the 169 deals that are considered for final analysis, 50 deals correspond to the objective of consolidation, 34 deals with the objective of substantial acquisition, and 85 deals involve change of control. Although substantial acquisitions leading to consolidation would mean partial acquisition of minority stake, we include them in the analysis along with change in control. Moreover, in cases that involve PACs as the acquirers, the total number of shares acquired by them is equivalent to the number leading to change in control. However, each individual or entity would be unable to exercise such control. Hence, we assume that as far as determination of the offer price is concerned, the case for substantial acquisitions and change in control would be similar. The inclusion of consolidation of holdings is mainly to avoid further loss of data given the smallness of our sample. Therefore, we include and exclude deals with consolidation of holdings to analyse its effect on the results.

An important characteristic of the deal is the medium of exchange. Empirical evidence suggests that takeovers which use cash receive higher premium compared to the use of stock due to market timing and differences in accounting treatments, tax consequences, shareholder

¹⁰According to the SEBI SAST Regulations, 1997, PACs are defined as individuals, companies, or legal entities acting in concert with the purpose or objective of acquiring shares, voting rights, or exercising control through an understanding or agreement.

control (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004; Schwert, 2000; de La Bruslerie, 2013). However, in our dataset information about the mode of payment is available only from April 2007 and for all these deals the mode of payment is cash. Therefore, we do not consider mode of payment as a determinant in our analysis. Another characteristic of an offer is successful completion of the deal. According to Baker et al. (2012) and Chira and Madura (2015), the variable deal success implies perception of targets and bidders towards bids, leading to completion/success of the deals. In our sample, we have information about the deal completion for 109 deals because post 2010 the SEBI website has stopped giving information on success status of the deals. Out of 109 deals, there are only 5 deals, which are not completed. Due to non-availability of information on deal completion for the entire sample, we are unable to consider this as an independent variable in our analysis.

5. Methods

In this section, we describe the independent and dependent variables used in the regression specifications. We first present variable definitions in Table 2 and descriptive statistics of variables used in this study in Table 3. Our descriptive statistics data shows that the dependent variable i.e. *offerpremium*, and some of the independent variables, such as *52weekhighprice* and other regulatory induced prices, are positively skewed. A similar trend in descriptive statistics is observable in case of *Extent* variables. Therefore, we divide the data into positive and negative premium sample, and carry out the regression models discussed below. Further, the descriptive statistics corresponding to the *RegulatoryProxy* shows higher values, i.e. above the third quartile. The number of cases with *RegulatoryProxy* that equals *MarketPrice* is higher. The measure *Distance* shows the median values to be close to the mean.

[Insert Table 2 about here]

[Insert Table 3 about here]

The baseline regression model used to determine the association between the target's 52-week high price and offer premium is:

$$\ln(\text{Offerpremium}_{it}) = \ln(a) + b\ln(52\text{weekhighprice}_{it}) + \varepsilon_{it} \quad (1)$$

Where *Offerpremium* is the dependent variable and *52weekhighprice* is the variable of interest, defined in detail in Table 2. Henceforth, in variable subscripts, *i* denotes the target firm and *t* denotes time.

We ascertain the 52-week high price from CMIE Prowess database that provides targets' closing prices as well as adjusted closing prices. Since SEBI SAST regulation mentions regulatory prices as closing prices (unadjusted), we use the 52-week high closing price for our

main results. One could argue that perhaps these prices are not adjusted for other corporate actions, thus rendering the analysis as lacking. However, we reason for unadjusted closing prices due to the following: a) regulatory prices in SEBI SAST regulation are defined as closing prices (unadjusted), therefore, analysis with the 52-week adjusted closing prices is perhaps incomparable; b) Newspapers and popular media report 52-week high closing prices, rather than adjusted closing prices. Therefore, a behavioural argument would be that investors anchor to closing prices reported in press, rather than the more rational adjusted closing prices. Nevertheless, as part of robustness checks we run the analysis using adjusted closing prices also.

Following prior studies, we use the 30-day lagged market price as a potential date for controlling rumours (Keown and Pinkerton, 1981; McPhee and Heckler, 1953; Agrawal and Nasser, 2012; Baker et al., 2012) as well as the scaling factor for potential heteroscedasticity. However, we may not be able to make a similar claim in developing markets where liquidity and price discovery are matters of concern (Bekaert, Harvey and Lundblad, 2007). Therefore, for robustness, we conduct the analysis by also including a scaling factor based on a period less than 30 days i.e. 2-weeks¹¹ lagged market price, assuming information flow is much slower in emerging markets.

In the augmented models discussed below, we introduce various control variables, regulatory prices and factors that are important while determining the offer premium in India.

$$\begin{aligned} \ln(\text{Offerpremium}_{it}) = & \ln(a) + b\ln(52\text{weekhighprice}_{it}) + c52\text{WHPremium} + \\ & d\text{Interaction}_{52} + e\text{Objsubstantial} + f\text{Objconsolidation} + g\ln(\text{MarketCap}) + \\ & h\text{PE} + i\text{PB} + j\text{Sensex} + k\text{RegulatoryProxy} + l\text{MarketPrice} + \\ & m\text{RegulatoryInteraction} + n\text{SAST2011} + \varepsilon_{it} \end{aligned} \quad (2)$$

Using the following regression model in equation 2, we test the first hypothesis of asymmetric anchoring effects on offer premium while controlling for regulatory structure unique in the Indian setting. We introduce a dummy variable *52WHPremium* that takes the value 0 if the offer price exceeds the 52-week high price and the value of 1 if offer price is less than 52-week high price. However, to establish whether anchoring is stronger when offer price exceeds the 52-week reference price, we introduce *Interaction* where the *52WHPremium* dummy is interacted with the 52-week high price. The dummy and its interaction may lead to endogeneity issues since it is based on the offer price itself. Therefore, we divide the dataset

¹¹ For the two week lagged market price, we consider the highest price between two weeks prior to the date of public announcement.

into positive and negative premium samples, and present results. We also perform robustness checks using mean centered values of the premium dummy and the interaction term to account for high collinearity between the variables (see Table 4).

We further include regulatory prices and other factors that determine the impact of SEBI (SAST) regulation on the 52-week high anchoring phenomenon. First, we include a regulatory proxy which is the minimum offer price mandated in the SEBI (SAST) Regulation 2002 and 2011. Since mandated price is a function of market as well as non-market prices, next we introduce a dummy variable to investigate the effects of regulatory proxy being a market price. However, to establish the effect of the regulatory proxy being the market price on the offer premium, we introduce *RegulatoryInteraction*, where the regulatory proxy is interacted with the market price. Further, we include a time dummy to capture the impact of change in SEBI (SAST) regulation in October 2011.

There is compelling evidence regarding negative relation between target size and takeover premiums (Alexandridis et al., 2013). Acquirers pay significantly lower premia in large deals resulting in gains to acquiring companies (Moeller, Schlingemann, and Stulz, 2004). Moreover, studies prove inverse relation between targetiveness (probability of being targeted) and firm size (Vijh and Yang, 2013). Therefore, to control for size of target firms, we include the logarithm of market capitalisation for target firms in the analysis. In takeover activity, Dong et al., (2006) report Price to Book (PB) ratio as a proxy for firm ability to generate high returns on its investments, and Price to Earnings (PE) as an indicator for mispricing. Following prior studies, we control for firm specific effects by including PE and PB estimates of the target firm in the regression analysis. To control for market specific effects, we include Sensex returns for 30-day lagged period prior to the public announcement date. The 30-day lagged period is to ease any upward rumours or the effect of new information on market index.

$$\begin{aligned} \ln(\text{Offerpremium}_{it}) = & \ln(a) + b\ln(26\text{weekhighprice}_{it}/60\text{dayhighprice}_{it}/ \\ & 2\text{weekhighprice}_{it}) + c26\text{WHPremium} + d\text{Interaction}_{26} + e\text{Objsubstantial} + \\ & f\text{Objconsolidation} + g\ln(\text{MarketCap}) + h\text{PE} + i\text{PB} + j\text{Sensex} + \\ & k\text{RegulatoryProxy} + l\text{MarketPrice} + m\text{RegulatoryInteraction} + n\text{SAST2011} + \\ & \varepsilon_{it} \end{aligned} \quad (3)$$

To test for regulation induced anchoring and its effect on offer premium as per our second hypothesis, we replace the 52-week high price with the other regulatory peak prices, i.e. *26weekhighprice/60dayhighprice/2weekhighprice* in equation 3. Please note that we

introduce the regulatory peak prices independently in regression analysis. The SEBI-mandated minimum offer price is a function of various other peak prices, i.e. average of the weekly (daily) high and low of the closing prices during the 26-weeks (2-weeks) preceding the date of public announcement (whichever is higher) in SEBI (SAST) 2002, and the volume-weighted average market price for a period of 60 trading days immediately preceding the date of the public announcement, in SEBI (SAST) 2011. These market prices could serve as preliminary anchors that is induced by the regulator while deciding the offer price. In the analysis, we also test the salience of these regulatory prices during their mandated periods of regulation, as well as pre and post SAST regulation.

$$\begin{aligned} \ln(\text{Offerpremium}_{it}) = & \ln(a) + b\ln(\text{Extent}_{it}) + c52WHPremium + \\ & d\text{Interaction} + e\text{Objsubstantial} + f\text{Objconsolidation} + g\ln(\text{MarketCap}) + \\ & hPE + iPB + j\text{Sensex} + k\text{RegulatoryProxy} + l\text{MarketPrice} + \\ & m\text{RegulatoryInteraction} + n\text{SAST2011} + \varepsilon_{it} \end{aligned} \quad (4)$$

The regulatory prices mentioned in the SEBI (SAST) regulation 2002 and 2011 are subset of the 52-week high price under study. To examine if the anchoring effect persists over and above other regulatory induced anchors mentioned in the SEBI (SAST) regulations that are particularly subset of the 52-week high price, i.e. 26-weeks and 60-days, we introduce extent of anchoring in equation 4. We consider 3 variants of Extent_{it} (as shown in Table 2), namely, Extent_{Full} , Extent_{26WHP} , Extent_{60DHP} , defined as, percentage difference of the target's 30-day lagged 52-week high price compared to its' regulatory anchors, i.e., 26-week (or 60 day) high price, respectively, over different periods of regulation.

$$\begin{aligned} \ln(\text{Offerpremium}_{it}) = & \ln(a) + b\ln(\text{distance}_{it}) + c52WHPremium + \\ & d\text{Interaction} + e\text{Objsubstantial} + f\text{Objconsolidation} + g\ln(\text{MarketCap}) + \\ & hPE + iPB + j\text{Sensex} + k\text{RegulatoryProxy} + l\text{MarketPrice} + m\text{SAST2011} + \\ & n52whpdummy + \varepsilon_{it} \end{aligned} \quad (5)$$

Another independent variable of interest in this study is the distance between the target's 52-week high price and its recent market price. Therefore, in equation 5 we replace the independent variable, 52-week high closing price, with the distance factor (difference between target's 52-week high price and its current market price) to test for its' effect on offer premium. Following Chira and Madura (2015), we define distance factor as percentage difference of

target's 30-day lagged closing prior to public announcement compared with its' 52-week high reference point.

6. Results

In this section, we first graphically establish the relation between offer price and stock market peak prices in sub-section 6.1, and further present the results of regression analysis in sub-section 6.2.

6.1 Anchoring to Peak Prices

We present the frequency distribution of offer prices relative to the targets' stock market peak prices for 52-weeks, 26-weeks and 60-days. It may be useful to make comparisons among other regulatory peak prices, which are subset of the 52-week high price under study. The dataset for plotting the histogram comes from 169 firms explained in the data section above. Due to change in SAST regulation in 2011, we present histograms for two periods; April 2002 to October 2011, and November 2011 to March 2014. Figure 2, Panel A illustrates the histogram for target's 52-week high price for periods 2002–2011, and 2011–2014, while Panel B represents the histogram for the 26-week high price for period 2002–2011, and the 60-day high price for period 2011–2014 (for brevity, we focus on regulatory anchors only for their respective periods of regulation).

[Insert Figure 2 Panel A about here]

[Insert Figure 2 Panel B about here]

In the histograms, the horizontal axis represents the percentage difference, and vertical axis records frequencies (percentage) for each class, where the value 0 signifies that offer price equals the peak price. The distribution graphically confirms a high level of anchoring around various peak prices, especially 52-week high price and 26-week high price. One could reason anchoring to 26-week high price due to SEBI SAST Regulations 2002. However, it is not apparent for the 60-day high price that has smaller data sample (37 observations). The histograms show that around 44 percent of the offer prices are almost equal to the 52-week high price for the period ranging from 2002–2014, 60 percent of the offer prices are equal to the 26-week high price for the period 2002–2011, while 22 percent of the offer price equals the 60-day high price for the period 2011–2014.

[Insert Table 5 Panel A about here]

Table 5 gives the descriptive statistics of the histograms for 52-week high price, 26-week high price and 60-day high price as shown in Figure 2, Panel A and B, respectively. There are 38 percent of firms with offer price above 52-week high price, and 18 percent with offer

price below 52-week high price, while 44 percent of firms the offer price almost equals to 52-week high peak price. Around 58 percent of firms the offer price exceeds 26-week high price during 2002-2011 period, similarly for 59 percent of firms the offer price exceeds 60-day high price during 2011-2014 period. Further, the statistics indicate that for 61 percent of the data, the 52-week high price equals the 26-week high price, specifying a strong subset of 26-week high prices in the set of 52-week high prices. The subset of firms where 52-week high price equals the 60-day high price is 27 percent. This description sensitizes the fact that the 52-week high price could be masked by the regulatory prices, which could be an important insight to test the anchoring effect in India. We also compare the regulatory proxy, which is the minimum offer price stated in SEBI SAST regulations, with 26-week and 60-day high prices. For obvious reasons the prices do not match, however we would like to highlight that for 77 percent (73 percent) of firms, the market-based regulatory proxy is greater than the 52-week (26-week) high price.

[Insert Table 5 Panel B about here]

In Table 5 Panel B, we conduct two-sample t-test for comparing means between various sub-samples. We first divide the data into positive and negative premium sub-samples and test for the difference in means. The means for positive and negative premium sub-samples are significantly different in all cases, except the 2-week high price. Hence, we treat these sub-samples separately for subsequent regression analysis. We further divide the data according to regulatory periods, pre SAST 2011 regulation that spans from 2002-2011, and post SAST 2011 regulation (2011-2014). The results show that the mean across the two periods are significantly different for 26-week high price at 5% level of significance and 2-week high price at 10% level of significance. The means for 26-week high price (and 2-week high price) is significantly higher during its own regulatory period, 2002-2011, than during 2011-2014 when these prices are not mandated. In case of the 60-day high price, there is no significant difference between the average prices during the two periods, because 60-day is a subset of the 26-week high price and in effect becomes a part of the regulatory mandate during the pre SAST 2011 period even though it is not explicitly mentioned in the regulation. The means of *Extent_Full* and *Extent_26WHP* variables are significantly different across both periods, implying that the extent of anchoring is stronger in the pre SAST 2011 period when 26-week high price is mandated by regulation. Incidentally, the mean of 52-week high price is not significantly different in both periods suggesting that the change in SAST regulation in 2011 does not have an impact on the 52-week anchoring effect.

6.2 52-Week Anchoring Effect

The discussion in the previous section establishes the importance of the 52-week high price as an influential anchor while determining offer premium, taking into account regulatory framework unique to India. In this section, we discuss regression analysis that is used to quantify the association between target's 52-week high price and offer premium.

6.2.1 Salience of 52-week High Price, Asymmetric Anchoring and Regulatory Effects

Our first hypothesis predicts positive and significant relation between offer premium and target's 52-week high price, consistent with Baker et al. (2012), while controlling for asymmetric anchoring and regulatory effects. We present the regression results in Table 6.

[Insert Table 6 about here]

The findings in column 1 of Table 6 suggest that the 52-week high price has a positive and significant effect on the offer premium. The premium dummy is negative and significant, suggesting offer premium is higher when the offer price is greater than the 52-week high price than when it is lower. This may not be surprising since higher the offer price, higher is the offer premium. However, to test the prediction of whether anchoring is stronger when the offer price is above the reference price; we add an interaction term between the 52-week high price and the premium dummy in column 2. The interaction term turns out to be positive and significant, implying that anchoring is stronger when the offer price is greater than the 52-week high price, thus consistent with hypothesis 1. We reason that, if bidders identify the importance of the 52-week high price as a reference price or anchor, they might as well decide to bid slightly higher than the 52-week high price to ensure offer success, thus consistent with Baker et al. (2012).

Next, we empirically validate the effects of SEBI (SAST) regulation on the 52-week anchoring effect by introducing various regulatory factors. The results in Table 6 column 3 find the regulatory proxy (minimum offer price requirements mandated by SEBI) is positive and significant, implying effects of regulation on offer price. The 52-week high price is still significant suggesting that even in the presence of a regulatory proxy there is prevalence of anchoring to the 52-week high price. The dummy variable, *MarketPrice* that captures whether the regulatory proxy is based on market or non-market price, appears negative and significant. That is, when the regulatory proxy is a market price, it reduces offer premium. It could be because market related prices reduce information asymmetry and uncertainty, and hence price offered in a corporate takeover is lower than for non-market prices. However, related studies argue in contradiction, that market price serves as an objective measure of market value and

liquidity, and thus commands a relatively higher offer premium (Walking and Edmister, 1985; Capron and Shen, 2006). To establish the impact of 52-week high price on offer premium when the regulatory proxy is a market price, we introduce *RegulatoryInteraction*. The findings suggest higher 52-week anchoring impact when the regulatory proxy is a market price. Further, amendment in the SEBI SAST regulation in 2011 to 60-day high price does not change the 52-week anchoring effect on offer premium. This specifically implies that the regulatory intervention in 2011 to accommodate a more recent market price does not reduce the anchoring effects. The above findings provide support for our first hypothesis that the 52-week anchoring effect prevails even after controlling for regulatory requirements specific to Indian acquisitions.

We augment the regression with various firm-specific and market-specific controls. The results suggest that the offer premium is significantly higher when the objective for acquisition is change in control. Stulz (1988) show that increase in the fraction of voting rights, increases the premium offered if a tender offer is made. Among firm specific characteristics of the target firm, we find the offer premium significantly reduces with increase in PE values. Walkling and Edmister (1985) discuss similar results implying that firms with higher PE are perceived to be overvalued by the acquirer. The market capitalization and PB do not seem to have any significant effect on the offer premium. With respect to market specific characteristics, the results suggest that offer premium is less as returns on Sensex increases.

6.2.2 Endogeneity Issues

Endogenous effects could drive the relation between offer premium and the 52-week high price because the premium dummy and its interaction is derived from offer premium itself. Therefore, we split the sample into two sub samples, based on whether the offer price is higher or lower than the 52-week high price, and refer to them as positive premium sample and negative premium sample respectively. Though the sub-sample analysis is a viable solution to the endogeneity problem in the model, the sample size of firms in positive and negative premium samples reduces considerably. Nonetheless, the effort is indicative to explain whether anchoring to the 52-week high price is specifically positive and significant, when the offer price is higher than the reference price. Results indicate that in case of positive premium sub sample (Table 6, column 4); the 52-week high price is positive and significant. In case of negative premium sub sample (Table 6, column 5); the 52-week high price although positive is not significant. In subsequent analysis, we present results for the complete sample (that includes interaction term), as well as positive and negative premium sub-samples.

6.2.3 Saliency of Regulatory Anchors - Pre and Post periods of Regulation

The regulatory prices in the Indian M&A setting may appear as anchors themselves. This maybe because they are peak prices over various time horizons as mentioned in Baker et al. (2012), or due to the fact that these prices are mentioned in regulation. Hence, interesting to investigate the prowess of regulatory peak prices as anchors themselves. We test the regulatory prowess in various ways¹²; we investigate whether the saliency of 26-week high price is apparent during its' period of regulation (2002-2011), as well as extends to post non-regulatory period (2011-2014), taking into account that 60-day high price is a sub-set of the 26-week high price. Similarly, the saliency of 60-day high price during its own regulatory 2011-2014 period, as well as during period of pre-regulation (2002-2011) where such a price was not mentioned.

[Insert Table 7 about here]

The results in Table 7a clearly show positive and significant effect of regulatory peak prices on offer premium especially when the offer price is greater than the regulatory peak prices (positive premium sub sample results presented in column 2, column 5 and column 8 of Table 7a corresponding to 26-week, 60-day and 2-week high prices respectively). *RegulatoryProxy* comes out significant in most cases, and *RegulatoryInteraction* indicates greater impact of the regulatory proxy on offer premium, when the regulatory proxy is a market price. Results in Table 7b establish the prowess of 26-week price during its regulatory period (2002-2011) when offer price is greater than the 26-week high price (positive premium sub-sample in column 2), however unable to document the prowess of 26-week high price in the post regulatory 2011-2014 period¹³ (column 3). The 60-day high price comes out significant during pre-regulatory 2002-2011 period because 60-day is a subset of 26-week (column 4). However, the analysis is unable to establish the 60-day prowess during its own period of regulation in 2011-2014 (column 6). This could be attributed to fewer numbers of observations in 2011-2014 period. Small sample severely reduces our ability to make inference about hypothesis 2b that is based on saliency of regulation-induced prices in post SAST 2011 period.

¹²We would like to thank an anonymous reviewer for this comment on testing whether the prowess of regulatory anchors is existent in pre and post regulatory phases. Such an analysis improved the limitation of this study since we do not have data for a period without SAST regulation, which could have formed control group to study if anchoring to the 52-week high price existed in the first place.

¹³Additionally, we ran analysis for cases when 26-week > 60-day high price, since 60-day is a subset of 26-weeks especially during 2011-2014 when the 60-day high price is mandated. The results emerge significant; however, we would like to interpret with caution due to very small sample size of firms in this analysis (only 13 cases). We do not run similar analysis for 2-week high price since 2-week is not a subset of 60-day high price in this study.

An important caveat to be noted here is that the above results pertain to those regulatory prices that are subset of the 52-week high price. We extend the regulatory prowess analysis to the 2-week high price, which by definition in this study is not part of the 52-week high price. Interestingly, the 2-week price is very close to the announcement date and best reflects the current state of the firm. At the same time, it might be contaminated by the information effect of the announcement, which may or may not result in higher offer prices, depending on how the market perceives the acquisition. The results find anchoring to the 2-week high price for the full sample (columns 7 of Table 7b) and during its own period of regulation (2002 – 2011). However, anchoring is not significant during 2011– 2014 period when 2-week high price is not part of regulation, again due to fewer observations in the analysis (24 firms). As mentioned in descriptive statistics, 75% of the sample corresponds to the pre SAST 2011 period.

6.2.4 Regulatory Prices as sub-sets of the 52-Week High Price

The SEBI-mandated minimum offer price is a function of various other peak prices, i.e. 26-weeks and 60-days, which are sub-set of the 52-week high price under study. The data shows that out of 169 observations, there are 105 cases when the 52-week high price is either equal to 26-week high price (97 cases) or the 60-day high price (8 cases). Therefore, the natural question is whether anchoring to the 52-week high price is due to regulation-induced anchoring? Therefore, we examine if the 52-week anchoring effect persists when the 52-week high price is greater than various regulatory peak prices, i.e. 26-weeks and 60-days that are sub-set of the 52-week reference price under study. To separate and establish the individual effect of 52-week high price as an influential anchor, amidst other regulatory induced anchors in India, we compute *Extent of anchoring*. We define $Extent_{it}$ in various ways (Table 2), such as $Extent_{Full}$, $Extent_{26WHP}$, $Extent_{60DHP}$, basically defined as percentage difference of the target's 30-day lagged 52-week high price compared to its' regulatory anchors, i.e., 26-week and 60-days, over different periods of regulation.

[Insert Table 8 about here]

The results in Table 8 column 1 reinstate the efficacy of 52-week high price as an influential anchor, over and above the regulatory induced anchors, 26-week and 60-day high price, during their respective periods of regulation. The inference of such a result is that acquirer is willing to pay more (offer premium is higher) while anchoring to the 52-week high price, even when the regulator is mandating a lower reference price of 26-weeks/60-days market price. This finding serves as a contribution over Baker et al. (2012) study since we are

able to document the magnitude of anchoring as well as prowess of 52-week high price as a psychological anchor, over and above the regulatory benchmark anchor unique to Indian tender offer deals.

We also compute extent of anchoring over various regulatory periods, pre SAST (2002-2011) and post SAST (2011-2014), where certain regulatory prices are mandated (or not mandated). Such analysis would test the efficacy of 52-week high price as an influential anchor in the presence of regulatory benchmarks. We find *Extent_26WHP* (defined as 52-week high price minus 26-week high price) to be significant during 2002-2011 when 26-week high price was mandated regulatory price, however results do not support for post regulation (2011-2014) because sample of firms is just 24. Incidentally, *Extent_26WHP* is significant for cases when 26-week is greater than 60-day high price (column 4) for the entire period of study (2002-2014). To some extent, such a result establishes the prowess of 52-week high price to be a significant anchor in the presence of regulation mandated prices. Consistent with results in Table 7b, *Extent_60DHP* (defined as 52-week high price minus 60-day high price) is significant is 2002-2011 due to the fact that 60-day price is a subset of 26-weeks, however not significant in its own regulatory period (2011-2014), again due to small sample issues.

6.2.5. Distance from the Reference Price

We investigate the impact of target's distance from the reference point on offer premium to test our final hypothesis.

[Insert Table 9 about here]

The results shown in Table 9 indicate that the *Distance* co-efficient is positive and significant, implying that distant the target's current market price from its 52-week high price, the offer premium is higher, as compared to the case when the 52-week high price is closer to the target's current market price. This is because; acquirers perceive targets with lower stock prices relative to its 52-week high reference price, as undervalued. While, target prices close to its 52-week high reference price would mean market valuation is appropriate. These results are consistent with Baker et al., 2012 and Chira and Madura, 2015. Further, the *Distance* coefficient is positive and significant for both positive and negative premium samples. The regulatory proxy, the dummy capturing whether the regulatory proxy is a market price and change in SAST regulation in 2011, appear non-significant. However, the variable *RegulatoryInteraction* suggests that when the regulatory proxy is a market price, the impact of *Distance* on offer premium is higher. In case of firm specific characteristics, objective consolidation and PE both are significant. We drop the objective consolidation, and find the

results remain unchanged. Sensex return that captures market effect is not significant in this case.

6.3 Robustness Checks

To validate our main findings we perform additional robustness test. First, the main results are reported using unadjusted closing prices in case of market data since SEBI (SAST) regulation mentions plain closing prices for determination of the minimum offer price (see section 4.3 for detailed discussion). However, to control for corporate actions, we repeat the main regression analysis (Tables 6 and 7) using adjusted closing prices. There are 30 firms in the sample, for which the adjusted closing price on the date of 52-week high is different from its respective unadjusted closing price due to various corporate actions. Of these 30 firms, 14 firms are due to corporate actions such as spin-off or splits rendering the price-difference very drastic.

First, we run the regression analysis using adjusted closing prices for all firms, and find that the 52-week high price is not significant. Next, we repeat the analysis excluding the 30 firms as well as the 14 firms mentioned above. The results show that the 52-week high price turns out to be positive and significant for both cases. However, we are unable to run the analysis for negative premium sample, due to insufficient sample size. Further, we perform the analysis for all firms using closing prices adjusted only for dividend announcements. The results show that 52-week high price is significant in all specifications and other results are more or less consistent. These results confirm that investors anchor to unadjusted closing prices reported in popular press and media. The results remain robust when the price differences between adjusted and non-adjusted closing prices are not drastic. Next, under the assumption that information flow is much slower in emerging markets, we check for robustness in results using 2-week lagged market price as a scaling factor. The main results pertaining to the 52-week high price as well as the regulatory proxy appear positive and significant.

Table 4 indicates that the premium dummy and its interaction is significantly correlated with the 52-week high price. Therefore, we use mean-centered values of the premium dummy and the interaction term to control for multicollinearity, and find that main results do not change. Finally, we repeat the main regressions by removing acquisitions whose objective is consolidation of holdings (shown in most Tables) since such an activity implies just increase in stake and no change in control.

7. Conclusion

In this paper, we assess whether offer premium is subject to the 52-week reference price or anchoring effect (Baker et al., 2012), ubiquitous to various takeover markets around the

world. Unlike other jurisdictions, Indian takeover regulation mandates a minimum offer price that includes targets' historical peak market prices, i.e. 26-week (or 2-week), and 60-days, in accordance to SEBI (SAST) 2002 and 2012 regulation respectively. This means, in India we have two anchors in determining the offer price of the target, i.e. the 52-week high price that is widely cited in M&A literature and prices mandated in SEBI (SAST) regulation that happen to be sub-set of the 52-week high price under study. More so, an exogenous amendment in SAST 2011 to accommodate a recent market price i.e. 60-day high price, allows to test whether the 52-week anchoring effect reduces with regulatory intervention.

The findings of the paper support extant literature on anchoring to the target's 52-week high price documented in markets around the world. The results establish salience of the 52-week high price on offer premium, even after controlling for regulatory induced anchors that are unique to Indian takeover deals. We provide evidence that is more robust by computing the *extent of anchoring*, which separates the individual effect of 52-week high price as an influential anchor for cases when the 52-week high price is greater than the regulatory peak prices, i.e. 26-weeks and 60-day high prices. This reference effect is significant for deals when the offer price exceeds the 52-week high price. This result supports Baker et al., (2012) and Chira and Madura (2015) that if the bidders identify the importance of the 52-week high price as a reference price, they would probably decide to bid higher than the influential anchor to ensure deal success. Regulatory amendments in SEBI (SAST) 2011 does not change (reduce) the 52-week high anchoring effect. Finally, consistent with Chira and Madura (2015), we find significant increase in offer premiums when targets' current stock price is distant from its 52-week high price because these targets are perceived as undervalued.

As an important supplement, we investigate the prowess of regulatory prices as anchors themselves, during their own period of regulation, as well as existent in periods of non-regulation. Such an analysis improves upon the limitation of this study since we do not have data for a period without regulation, which could have formed control group to study if anchoring to the 52-week high price existed in the first place. We find significant anchoring effect for regulatory peak prices on offer premium during 2002-2011 period, specifically for the positive premium sub-samples. However, due to a small sample size in the post SAST 2011 period, we are unable to provide claim to the hypotheses.

An interesting extension of the current study would be to analyse the post-acquisition performance of the target firms, which show significant anchoring effect. Such an extension could validate whether the 52-week high price dominates and improves upon the forecasting power of past returns (George and Hwang, 2004).

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Table 1

SEBI SAST 2002 and 2011 Regulation

SEBI SAST 2002	SEBI SAST 2011
<p>The SEBI SAST (Second Amendment) Regulation, 2002, w.e.f. 9-9-2002, mandates that the minimum offer price shall be the highest of the following:</p>	<p>The SEBI (SAST) Amendment in 2011, w.e.f. 01-11-2011 mandates the minimum offer price shall be the highest of the following:</p>
<p>a) the negotiated price under the agreement that triggered the open offer;</p>	<p>a) the highest negotiated price per share of the target company for any acquisition under the agreement attracting the obligation to make a public announcement of an open offer;</p>
<p>b) the highest price paid by the acquirer or persons acting in concert with him/her for acquisition, if any, including by way of allotment in a public, or rights, or preferential issue during the 26-week period prior to the date of public announcement, whichever is higher;</p>	<p>b) the volume-weighted average price paid or payable for acquisitions, whether by the acquirer or by any person acting in concert with him, during the 52-weeks immediately preceding the date of the public announcement;</p>
<p>c) the price paid by the acquirer under a preferential allotment made to him or to persons acting in concert with him at any time during the twelve months period up to the date of closure of the offer;</p>	<p>c) the highest price paid or payable for any acquisition, whether by the acquirer or by any person acting in concert with him, during the 26-weeks immediately preceding the date of the public announcement;</p>
<p>d) the average of the weekly high and low of the closing prices of the shares of the target company as quoted on the stock exchange where the shares of the company are most frequently traded; during the 26-weeks or the average of the daily high and low prices of the shares as quoted on the stock exchange where the shares of the company are most frequently traded during the two weeks, preceding the date of public announcement, whichever is higher;</p>	<p>d) the volume-weighted average market price of such shares for a period of 60 trading days immediately preceding the date of the public announcement as traded on the stock exchange where the maximum volume of trading in the shares of the target company are recorded during such period, provided such shares are frequently traded;</p>
	<p>e) where the shares are not frequently traded, the price determined by the acquirer and the manager to the open offer taking into account valuation parameters including, book value, comparable trading multiples, and such other parameters as are customary for valuation of shares of such companies;</p>

Table 2

Variable Definition & Sources

Variables	Definitions	Mathematical Expressions	Source
<i>Offerpremium</i>	offer price from SEBI data scaled by the target's 30-day (or 15-day) lagged market price prior to the date of public announcement.	$\ln\left(\frac{offerprice_{it}}{Marketprice_{t-30,15}}\right)$	SEBI Website/ CMIE Prowess
<i>52weekhighprice</i>	defined as natural logarithm of target's high closing price for the previous 365 calendar days ending 30 days prior to the public announcement date. The 52-week high price is scaled by the 30-day ¹⁴ (or 2-weeks) lagged target's market price.	$\ln\left(\frac{52weekhighprice_{t-30}}{Marketprice_{t-30,15}}\right)$	CMIE Prowess
<i>26weekhighprice</i>	defined as natural logarithm of target's high closing price for the previous 180 calendar days ending 30 days prior to the public announcement date. The 26-week high price is scaled by the 30-day (or 2-weeks) lagged target's market price.	$\ln\left(\frac{26weekhighprice_{t-30}}{Marketprice_{t-30,15}}\right)$	CMIE Prowess
<i>2weekhighprice</i>	defined as natural logarithm of target's high closing price for the previous 2 weeks prior to the public announcement date. The 2-week high price is scaled by the 30-day lagged target market price.	$\ln\left(\frac{2weekhighprice_{t-30}}{Marketprice_{t-30,15}}\right)$	CMIE Prowess
<i>60dayhighprice</i>	defined as natural logarithm of target's high closing price for the previous 60 calendar days ending 30 days prior to the public announcement date. The 60-day high price is scaled by the 30-day (or 2-weeks) lagged target market price.	$\ln\left(\frac{60dayhighprice_{t-30}}{Marketprice_{t-30,15}}\right)$	CMIE Prowess
<i>52WHPremium</i>	is a dummy variable taking value 0 if offer price > 52-week high price and 1 if offer price < 52-week high price	$0 = offerprice_{it} > 52weekhighprice_{t-30,15}$ $1 = offerprice_{it} < 52weekhighprice_{t-30,15}$	CMIE Prowess
<i>Interaction_52</i>	is multiplication of 52-weekhighprice and 52WHPremium dummy.	$52weekhighprice_{t-30,15} \times 52WHPremium$	CMIE Prowess

¹⁴ In most cases, we use the 30-day lagged market price. However, in cases where we do not find market price on the 30th day, we use available market price from 29th or 31st day to improve our sample size.

<i>26WHPremium</i>	is a dummy variable taking value 0 if offer price > 26-week high price and 1 if offer price < 26-week high price	$0 = offerprice_{it} > 26weekhighprice_{t-30,15}$ $1 = offerprice_{it} < 26weekhighprice_{t-30,15}$	CMIE Prowess
<i>Interaction_26</i>	is multiplication of 26-weekhighprice and 26WHPremium dummy.	$52weekhighprice_{t-30,15} \times 52WHPremium$	CMIE Prowess
<i>2WHPremium</i>	is a dummy variable taking value 0 if offer price > 2-week high price and 1 if offer price < 2-week high price	$0 = offerprice_{it} > 2weekhighprice$ $1 = offerprice_{it} < 2weekhighprice$	CMIE Prowess
<i>Interaction_2</i>	is multiplication of 2-weekhighprice and 2WHPremium dummy.	$2weekhighprice \times 2WHPremium$	CMIE Prowess
<i>60DHPremium</i>	is a dummy variable taking value 0 if offer price > 60-day high price and 1 if offer price < 60-day high price	$0 = offerprice_{it} > 60dayhighprice$ $1 = offerprice_{it} < 60dayhighprice$	CMIE Prowess
<i>Interaction_60</i>	is multiplication of 2-weekhighprice and 2WHPremium dummy.	$60dayhighprice \times 60DHPremium$	CMIE Prowess
<i>RegulatoryProxy</i>	defined as natural logarithm of the minimum offer price mandated in the SEBI (SAST) Regulation 2002 or 2011 as inferred from the SEBI letter of offer. The RegulatoryProxy is scaled by the 30-day (or 2-weeks) lagged target's market price.	$\ln\left(\frac{RegulatoryProxy_{it}}{Marketprice_{t-30,15}}\right)$	SEBI Letter of Offer
<i>MarketPrice</i>	a dummy variable that takes value 1 when regulatory proxy is equal to the market price (as defined in letter of offer) and 0 if not.	$1 = RegulatoryProxy_{it} = Market Price$ $0 = RegulatoryProxy_{it} \neq Market Price$	SEBI Letter of Offer
<i>Regulatory Interaction</i>	is multiplication of Regulatory Proxy and Market Price dummy.	$RegulatoryProxy_{it} \times MarketPrice$	SEBI Letter of Offer
<i>SAST2011</i>	a dummy variable that takes a value 1 if public announcement (PA) of the deal occurs post November 2011 and zero if the public announcement is before November 2011.	$1 = PA_{Nov2011-March2014}$ $0 = PA_{March2002-Nov2011}$	SEBI Letter of Offer

<i>Extent_Full</i>	defined as natural logarithm of percentage difference of the target's 30-day lagged 52-week high price minus its regulatory anchors, i.e., 30-day lagged 26-week high price from 2002–2011, and 30-day lagged 60 day high price from 2011–2014.	$\ln \left(\frac{52weekhighprice_{t-30} - (26weekhighprice_{t-30, 2002-2011} / 60dayhighprice_{t-30, 2011-2014})}{52weekhighprice_{t-30}} \right)$	CMIE Prowess/ SEBI Letter of Offer
<i>Extent_26W HP</i>	defined as natural logarithm of percentage difference of the target's 30-day lagged 52-week high price minus 30-day lagged 26-week high price.	$\ln \left(\frac{52weekhighprice_{t-30} - 26weekhighprice_{t-30}}{52weekhighprice_{t-30}} \right)$	CMIE Prowess/ SEBI Letter of Offer
<i>Extent_60D HP</i>	defined as natural logarithm of percentage difference of the target's 30-day lagged 52-week high price minus 30-day lagged 60-day high price.	$\ln \left(\frac{52weekhighprice_{t-30} - 60dayhighprice_{t-30}}{52weekhighprice_{t-30}} \right)$	CMIE Prowess/ SEBI Letter of Offer
<i>Distance</i>	defined as natural logarithm of percentage difference of the 30-day lagged 52-week high price minus the 30-day lagged market closing price of target firm.	$\ln \left(\frac{52weekhighprice_{t-30} - Marketprice_{t-30}}{52weekhighprice_{t-30}} \right)$	CMIE Prowess
<i>Objconsolidation</i>	a dummy variable taking the value 1 if the objectives of the offer is consolidation and 1 otherwise	1 = <i>Objconsolidation</i> 0 = <i>Objchangeofcontrol or Objsubstantial</i>	SEBI website
<i>Objsubstantial</i>	a dummy variable taking the value 1 if the objectives of the offer is substantial and 0 otherwise.	1 = <i>Objsubstantial</i> 0 = <i>Objchangeofcontrol or Objconsolidation</i>	SEBI website
<i>MarketCap</i>	natural logarithm of market capitalization of target firms for the year of acquisition.	$\ln(Target\ MarketCap_{iy})$	CMIE Prowess
<i>PE</i>	ratio of Price to Earnings of the target firm for the year of acquisition.	<i>Target PE Ratio_{iy}</i>	CMIE Prowess
<i>PB</i>	ratio of Price to Book of the target firm for the year of acquisition.	<i>Target PB Ratio_{iy}</i>	CMIE Prowess
<i>Sensex</i>	defined as natural logarithm of the difference between the Sensex price on the date of public announcement and the 30-day lagged Sensex price.	$\ln \left(\frac{Sensex_{PA} - Sensex_{t-30}}{Sensex_{t-30}} \right)$	CMIE Prowess

<i>Positive Premium Sample</i>	includes sample of firms when offer price is greater than various peak market prices.	<i>Offerprice</i> \geq <i>Peak Market prices</i>	CMIE Prowe ss/ SEBI Letter of Offer
<i>Negative Premium Sample</i>	includes sample of firms when offer price is lesser than various peak market prices.	<i>Offerprice</i> \leq <i>Peak Market prices</i>	CMIE Prowe ss/ SEBI Letter of Offer
<i>Complete Sample</i>	combines positive and negative premium sample.	-	CMIE Prowe ss/ SEBI Letter of Offer

Table 3

Descriptive Statistics of Dependent and Independent Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max	Median	First Quartile	Third Quartile
<i>Offerpremium</i>	169	0.154	0.454	-2.453	2.185	0.125	0.017	0.288
<i>52weekhighprice</i>	169	0.305	0.353	-0.857	1.969	0.217	0.071	0.440
<i>26weekhighprice</i>	169	0.193	0.271	-0.857	1.969	0.127	0.033	0.265
<i>2weekhighprice</i>	169	0.125	0.178	-0.314	0.900	0.014	0.088	0.193
<i>60dayhighprice</i>	169	0.105	0.154	-0.193	0.832	0.061	0.014	0.148
<i>52WHPremium</i>	169	0.621	0.487	0	1	0	0	1
<i>26WHPremium</i>	169	0.539	0.5	0	1	1	0	1
<i>60DHPremium</i>	169	0.391	0.489	0	1	0	0	1
<i>2WHPremium</i>	169	.432	0.497	0	1	0	0	1
<i>Interaction_52</i>	169	-0.150	0.477	-4.556	0.941	-0.017	-0.145	0.002
<i>Interaction_26</i>	169	0.156	0.261	-0.097	1.97	0.030	0	0.222
<i>Interaction_60</i>	169	0.069	0.146	-0.097	0.832	0	0	0.079
<i>Interaction_2</i>	169	0.055	0.133	-0.205	0.900	0	0	0.080
<i>RegulatoryProxy</i>	167	-0.082	0.813	-5.023	2.185	0.040	-0.139	0.194
<i>MarketPrice</i>	169	0.538	0.500	0	1	0	1	1
<i>RegulatoryInteraction</i>	167	-0.014	0.301	-2.314	0.807	0	0	0.028
<i>SAST2011</i>	169	0.219	0.415	0	1	0	0	0
<i>Extent_Full</i>	169	0.113	0.221	-0.890	1.232	0	0	0.161
<i>Extent_26WHP</i>	169	0.111	0.195	0	0.940	0	0	0.143
<i>Extent_60DHP</i>	169	0.200	0.316	-0.890	1.893	0.074	0	0.315
<i>Distance</i>	146	2.357	1.851	-2.996	7.433	2.430	1.176	3.579
<i>Objconsolidation</i>	169	0.296	0.458	0	1	0	0	1
<i>Objsubstantial</i>	169	0.201	0.402	0	1	0	0	0
<i>MarketCap</i>	169	7.177	2.207	1.238	14.026	6.985	5.474	8.762
<i>PE</i>	115	39.652	71.759	0.641	575.667	17.164	11.060	33.859
<i>PB</i>	162	3.188	4.096	0.273	33.468	1.838	1.053	4.008
<i>Sensex</i>	167	9.456	0.532	7.997	9.966	9.719	9.222	9.817

Table 4: Correlation Coefficient of Variables: Panel A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1														
2	0.12	1													
3	0.13	0.84**	1												
4	0.19**	-0.01	-0.02	1											
5	0.02	0.45**	0.4**	-0.11	1										
6	-0.45**	0.42**	0.32**	-0.28**	0.30**	1									
7	0.24**	-0.73**	-0.67**	0.07	-0.23	-0.32**	1								
8	-0.44**	0.31**	0.38**	-0.27**	0.24**	0.84**	-0.29**	1							
9	-0.11	0.75**	0.88**	-0.07	0.33**	0.47**	-0.8**	0.56**	1						
10	-0.45**	-0.04	-0.08	0.01	-0.03	0.39**	-0.11	0.33**	0.08	1					
11	-0.27**	-0.13	-0.14	0.58**	-0.13	0.05	0.06	0.01	-0.08	0.48**	1				
12	-0.51**	0.07	0.1	-0.32**	0.38	0.6	-0.2**	0.64**	0.25**	0.4**	0.02	1			
13	-0.17**	0.27**	0.2**	-0.18**	0.84**	0.37**	-0.2**	0.31**	0.27**	0.19**	-0.03	0.59**	1		
14	0.6**	0.03	0.1	0.01	-0.01	-0.25**	0.13**	-0.17	0.01**	-0.29**	-0.32**	-0.28**	-0.13	1	
15	-0.05	0.09	0.15	-0.12	0.11	0.06	0	0.07	0.07	0.14	-0.01	0.08	0.05	0.08	1
16	0.57**	0.16**	0.14	0.15	0.07	-0.22**	0.06**	-0.23**	0	-0.27**	-0.05	-0.32**	-0.13	0.37**	-0.04
17	-0.01	0.03	-0.14	-0.09	0.03	0	-0.04	-0.06	-0.11	-0.06	-0.11	0.02	0.04	0.07	-0.11
18	0.11	0.69**	0.29**	0.02	0.14	0.31**	-0.38**	0.11	0.2**	-0.05	-0.07	-0.08	0.05	-0.04	0.03
19	0.04	0.65**	0.12	0.02	0.26**	0.32**	-0.4**	0.03	0.13	0.03	-0.03	-0.01	0.21**	-0.08	-0.04
20	0.02	0.89**	0.75**	-0.46**	0.45**	0.5**	-0.68**	0.4**	0.7**	-0.05	-0.37**	0.21**	0.32**	0.03	0.13
21	0.13	0.9	0.74	0.04	0.01	0.33	-0.71	0.23	0.67	-0.04	-0.08	-0.1	-0.11	0.04	0.05
22	0.08	0.38**	0.22**	-0.02	0.23**	0.3**	-0.14	0.21**	0.2**	-0.18**	-0.16	0.03	0.13	0.02	-0.06
23	-0.05	0.01	-0.03	-0.04	-0.01	-0.08	-0.06	-0.15**	-0.04	0.01	-0.02	-0.01	0.01	-0.02	0.13
24	-0.01	-0.05	-0.07	0	-0.04	0.06	0.07	0.02	-0.09	0.1	0.12	0.05	-0.05	0.05	-0.01
25	0.04	-0.17**	-0.14	0.02	-0.12	-0.2**	0.06	-0.19**	-0.17**	-0.12	0.03	-0.16**	-0.07	0.01	-0.03
26	-0.23**	0	0.02	0.07	-0.02	-0.04	-0.05	0.03	0.02	0.07	0	0.06	-0.01	-0.08	0.13
27	-0.36**	-0.15	-0.07	0.25**	-0.05	-0.02	-0.01	0.02	-0.03	0.15	0.32**	0.14	0.04	-0.34**	0
28	-0.23**	0.02	-0.09	-0.16	0.06	0.22**	-0.11	0.17**	0.03	0.13	-0.02	0.14	0.12	-0.14	-0.15

Panel B

	16	17	18	19	20	21	22	23	24	25	26	27	28
16	1												
17	0.03	1											
18	0.14	0.24**	1										
19	0.1	0.25**	0.84**	1									
20	0.08**	0.06	0.61**	0.57**	1								
21	0.1	-0.03	0.33**	0.37**	0.31**	0.36**	1						
22	-0.06	0.13	0	0.06	0.03	0.02	0	1					
23	0.03	0.23**	0.02	0.01	-0.04	-0.04	0	-0.33**	1				
24	0.03	0	-0.06	-0.12	-0.16**	-0.13	0.28**	0.05	0.06	1			
25	-0.27**	-0.11	-0.04	-0.03	-0.04	0	-0.06	-0.04	-0.15	-0.14	1		
26	-0.2	-0.04	-0.16**	-0.16**	-0.25**	-0.14	0.04	-0.04	-0.03	0.26**	0.14	1	
27	0.07	0.36	0.14	0.17**	0.09	0	0.02	-0.02	0.05	-0.02	0.04	0	1

This Table presents the correlation coefficient of the dependent and independent variables. Variable names are in the following order: 1. *Offerpremium*, 2. *52weekhighprice*, 3. *26weekhighprice*, 4. *2weekhighprice*, 5. *60dayhighprice*, 6. *52WHPremium*, 7. *Interaction_52*, 8. *26WHPremium*, 9. *Interaction_26*, 10. *2WHPremium*, 11. *Interaction_2*, 12. *60DHPremium*, 13. *Interaction_60*, 14. *RegulatoryProxy*, 15. *MarketPrice*, 16. *RegulatoryInteraction*, 17. *SAST2011*, 18. *Extent_Full*, 19. *Extent_26WHP*, 20. *Extent_60DHP*, 21. *Distance*, 22. *Objconsolidation*, 23. *Objsubstantial*, 25. *MarketCap*, 26. *PE*, 27. *PB*, 28. *Sensex*.

The definitions are as given in Table 2.

** p < 0.05

Table 5 Panel A

Descriptive Statistics of the Histograms in Figure 2

Particulars	<i>52weekhighprice</i>	<i>26weekhighprice</i>	<i>60dayhighprice</i>
	(2002–2014)	(2002–2011)	(2011–2014)
No. of Firms below peak prices	18%	8%	19%
No. of Firms equal to peak prices	44%	34%	22%
No. of Firms above peak prices	38%	58%	59%
Total Firms	169	132	37
No. of Firms with 52WHP greater than Regulatory 26WHP or 60DHP	-	39% (51 firms)	73% (27 firms)
No. of Firms with 52WHP equal to Regulatory 26WHP or 60DHP	-	61% (81 firms)	27% (10 firms)
No. of Firms with Regulatory Proxy greater than 52WHP/26WHP/60DHP	129 77%	95 firms 73%	10 firms 27%
No. of Firms with Regulatory Proxy less than Peak 52WHP/26WHP/60DHP	38 23%	35 firms 27%	27 firms 73%

Panel A presents summary statistics for firms around 52-week high price for the period 2002–2012, 26-week high price for period 2002–2011, and 60-day high price for period 2011–2014.

Table 5 Panel B

Two-sample t-test for Comparing Means between various sub-samples

Particulars	Positive Premium	Negative Premium	t-stat	2002-2011	2011-2014	t-stat
<i>52weekhighprice</i>	0.114	0.421	-6.758***	0.299	0.324	-0.337
<i>26weekhighprice</i>	0.083	0.26	-5.577***	0.214	0.12	1.91**
<i>60dayhighprice</i>	0.058	0.177	-4.651***	0.102	0.113	-0.314
<i>2weekhighprice</i>	0.123	0.128	-0.185	0.133	0.096	1.280*
<i>Extent_Full</i>	0.026	0.165	-4.652***	0.085	0.211	-2.213**
<i>Extent_26WHP</i>	0.039	0.16	-5.404***	0.085	0.204	-2.693***
<i>Extent_60DHP</i>	0.068	0.28	-5.513***	0.197	0.211	-0.231
<i>Distance</i>	1.58	2.75	-3.463***	2.584	2.254	0.352

Panel B compares means of positive and negative premium sub-samples in the first three columns, and means of sub-samples for pre SAST 2011 (2002-2011) and post SAST 2011 (2011-2014) regulation indicated in the last 3 columns.

Table 6

Salience of 52-week high price, Asymmetric Anchoring and Regulatory Effects

	1	2	3	4	5	6
<i>52weekhighprice</i>	0.354*** (0.111)	1.027*** (0.130)	0.776*** (0.109)	0.844*** (0.247)	0.109 (0.072)	1.148*** (0.130)
<i>52WHPremium</i>	-0.491*** (0.069)	-0.489*** (0.057)	-0.328*** (0.0476)			-0.388*** (0.054)
<i>Interaction_52</i>		0.575*** (0.080)	0.438*** (0.066)			1.016*** (0.175)
<i>RegulatoryProxy</i>			0.121*** (0.028)	0.324*** (0.076)	0.043 (0.030)	0.057* (0.032)
<i>MarketPrice</i>			-0.108*** (0.040)	-0.093 (0.085)	0.016 (0.048)	-0.138*** (0.045)
<i>Regulatory Interaction</i>			0.418*** (0.079)	-0.062 (0.190)	0.716*** (0.097)	0.158 (0.114)
<i>SAST2011</i>			-0.005 (0.053)	0.015 (0.105)	0.022 (0.063)	-0.033 (0.062)
<i>Objconsolidation</i>	-0.202*** (0.069)	-0.166*** (0.057)	-0.097** (0.045)	-0.044 (0.096)	-0.083 (0.054)	
<i>Objsubstantial</i>	-0.111 (0.084)	-0.116* (0.068)	-0.125** (0.054)	-0.117 (0.122)	-0.094 (0.060)	
<i>MarketCap</i>	-0.008 (0.017)	0.007 (0.014)	0.003 (0.011)	-0.028 (0.022)	-0.0003 (0.012)	0.010 (0.012)
<i>PE</i>	-0.002*** (0.0004)	-0.001*** (0.0004)	-0.0007** (0.0003)	-0.0003 (0.0005)	-0.0008 (0.0005)	-0.0003 (0.0003)
<i>PB</i>	-0.011 (0.009)	-0.002 (0.007)	0.005 (0.006)	0.014 (0.010)	-0.006 (0.008)	0.0008 (0.007)
<i>Sensex</i>	-0.104* (0.058)	-0.066 (0.047)	-0.103** (0.042)	-0.118* (0.066)	-0.136** (0.065)	-0.110** (0.046)
Constant	1.586*** (0.550)	0.951** (0.459)	1.302*** (0.399)	1.606** (0.644)	1.399** (0.631)	1.259*** (0.443)
Adj. R ²	0.397	0.596	0.7678	0.609	0.721	0.788
No. of Observation	112	112	111	46	65	72

This table presents regression results in which dependent variable is offer premium for tender offers over the period 2002–2014. Independent variables include the 52-week high price, regulatory factors, and various controls. Variable definition is according to Table 2. Results are presented for complete sample, positive premium and negative premium sample. Column 1 is the basic regression of the offer premium on target's 52-week high price with various controls for complete sample, column 2 includes effects of asymmetric anchoring for complete sample, column 3 includes regulatory factors for complete sample, column 4 presents regression results only for positive premium sample, column 5 presents the regression results only for negative premium sample, and column 6 presents regression results excluding deals with objective as consolidation.

The values within the parentheses represent standard errors.

*p<0.10; **p<0.05; ***p<0.01.

Table 7a

Saliency of Regulatory Anchors for positive and negative premium data

	1	2	3	4	5	6	7	8	9
<i>26weekhighprice</i>	0.767*** (0.236)	1.220*** (0.302)	-0.012 (0.088)						
<i>60dayhighprice</i>				0.738*** (0.346)	1.114*** (0.405)	0.326* (0.191)			
<i>2weekhighprice</i>							0.769*** (0.161)	0.795*** (0.196)	0.304 (0.247)
<i>26WHPremium/ 60DHPremium/ 2WHPremium</i>	-0.205*** (0.057)			-0.268*** (0.065)			-0.151*** (0.057)		
<i>Interaction_26/ Interaction_60 Interaction_2</i>	-0.762*** (0.261)			-0.337 (0.438)			-0.477*** (0.318)		
<i>RegulatoryProxy</i>	0.149*** (0.032)	0.137*** (0.043)	0.134*** (0.046)	0.143*** (0.034)	0.140*** (0.043)	0.083 (0.050)	0.100*** (0.032)	0.101** (0.045)	0.070 (0.055)
<i>MarketPrice</i>	-0.105*** (0.047)	-0.133 (0.079)	-0.055 (0.052)	-0.080* (0.048)	-0.110 (0.067)	0.068 (0.073)	-0.028 (0.046)	-0.030 (0.075)	0.007 (0.068)
<i>Regulatory Interaction</i>	0.494*** (0.091)	0.004 (0.194)	0.667*** (0.101)	0.547*** (0.093)	0.228 (0.184)	0.674*** (0.103)	0.600*** (0.085)	0.389** (0.193)	0.664*** (0.118)
<i>SAST2011</i>	0.013 (0.061)	0.105 (0.099)	-0.057 (0.069)	0.026 (0.064)	0.095 (0.084)	-0.066 (0.089)	0.043 (0.061)	0.071 (0.088)	0.006 (0.089)
<i>Objconsolidation</i>	-0.136*** (0.052)	-0.172* (0.085)	-0.077 (0.057)	-0.079 (0.054)	-0.084 (0.075)	-0.041 (0.058)	-0.072 (0.051)	-0.043 (0.084)	-0.061 (0.069)
<i>Objsubstantial</i>	-0.156*** (0.062)	-0.247** (0.116)	-0.095 (0.062)	-0.156** (0.066)	-0.214** (0.090)	-0.023 (0.077)	-0.125** (0.062)	-0.129 (0.099)	-0.076 (0.082)
<i>MarketCap</i>	-0.005 (0.012)	-0.020 (0.020)	-0.011 (0.013)	-0.009 (0.012)	-0.020 (0.018)	-0.020 (0.015)	-0.006** (0.012)	-0.009 (0.018)	-0.010 (0.017)

<i>PE</i>	-0.001*	-0.00001	-0.0007	-0.001	-0.00009	-0.0009*	-0.001**	0.0003	-0.001*
	(0.000)	(0.0005)	(0.0004)	(0.000)	(0.0005)	(0.006)	(0.000)	(0.0005)	(0.001)
<i>PB</i>	0.002	0.013	0.00003	0.004	0.013	-0.002	-0.001	0.0005	0.002
	(0.007)	(0.010)	(0.008)	(0.007)	(0.010)	(0.008)	(0.007)	(0.010)	(0.009)
<i>Sensex</i>	-0.113**	-0.123*	-0.155**	-0.158***	-0.180***	-0.095	-0.153***	-0.179***	-0.146*
	(0.049)	(0.067)	(0.068)	(0.049)	(0.061)	(0.083)	(0.047)	(0.068)	(0.077)
<i>Constant</i>	1.492***	1.661**	1.719**	1.900***	2.151***	1.038	1.749	1.990***	1.542**
	(0.471)	(0.653)	(0.670)	(0.473)	(0.583)	(0.823)	(0.447)	(0.653)	(0.764)
<i>No. of observations</i>	111	56	55	111	72	39	111	63	48
<i>Adj. R²</i>	0.692	0.523	0.773	0.662	0.416	0.836	0.695	0.497	0.735

This table presents regression results in which dependent variable is offer premium for tender offers over the period 2002–2014. Independent variables include 26-week high price, 60-day high price, 2-week high price, regulatory factors and various controls. Variable definition is according to Table 2. Results are presented for complete sample, positive premium and negative premium sample. Column 1 presents regression of the offer premium on target's 26-week high price with regulatory factors and other controls for complete sample, column 2 presents 26-week high price regression results for positive premium sample, column 3 presents 26-week high price regression results for negative premium sample, column 4 presents regression of the offer premium on target's 60-day high price with regulatory factors and other controls for complete sample, column 5 presents 60-day high price regression results for positive premium sample, column 6 presents 60-day high price regression results for negative premium sample, column 7 presents regression of the offer premium on target's 2-week high price with regulatory factors and other controls for complete sample, column 8 presents 2-week high price regression results for positive premium sample, column 9 presents 2-week high price regression results for negative premium sample

The values within the parentheses represent standard errors.

*p<0.10; **p<0.05; ***p<0.01.

Table 7b

Salience of Regulatory Anchors during, pre and post periods of SEBI (SAST) Regulation

	1	2	3	4	5	6	7	8	9
<i>26weekhighprice</i>	1.049*** (0.315)	1.471*** (0.408)	0.410 (0.310)						
<i>60dayhighprice</i>				0.871** (0.421)	1.167** (0.504)	0.857 0.634			
<i>2weekhighprice</i>							0.694*** (0.205)	0.781*** (0.263)	0.421 (0.304)
<i>26WHPremium/ 60DHPremium/ 2WHPremium</i>	-0.145** (0.074)		-0.102 (0.084)	-0.259*** (0.084)		-0.055 (0.098)	-0.132* (0.073)		-0.130 (0.086)
<i>Interaction_26/ Interaction_60/ Interaction_2</i>	-1.073** (0.341)		-0.524 (0.448)	-0.239 (0.560)		-1.034 (0.711)	-0.458 (0.385)		-0.450 (0.451)
<i>RegulatoryProxy</i>	0.134*** (0.034)	0.128*** (0.047)	0.789 0.120)	0.137*** (0.037)	0.127*** (0.048)	0.787*** (0.161)	0.100*** (0.036)	0.094* (0.052)	0.513*** (0.278)
<i>MarketPrice</i>	-0.131** (0.057)	-0.093 (0.114)	0.121 (0.054)	-0.102* (0.060)	-0.102 (0.090)	0.107 (0.081)	-0.067 (0.059)	-0.047 (0.110)	0.171** (0.058)
<i>Regulatory Interaction</i>	0.513*** (0.101)	-0.025 (0.248)	-0.084 (0.332)	0.558*** (0.104)	0.198 (0.238)	-0.144 (0.374)	0.602*** (0.100)	0.295 (0.280)	0.277 (0.303)
<i>Objconsolidation</i>	-0.143* (0.064)	-0.230* (0.119)	-0.054 (0.052)	-0.102 (0.065)	-0.134 (0.101)	0.034 (0.070)	-0.088 (0.064)	-0.098 (0.120)	0.073 (0.067)
<i>Objsubstantial</i>	-0.154*** (0.079)	-0.257 (0.198)	-0.083 (0.057)	-0.167** (0.085)	-0.240* (0.131)	-0.026 (0.072)	-0.142* (0.081)	-0.128 (0.146)	0.034 (0.075)
<i>MarketCap</i>	-0.004 (0.014)	-0.001 (0.025)	-0.009 (0.014)	-0.005 (0.015)	-0.014 (0.022)	-0.005 (0.019)	-0.011 (0.015)	-0.013 (0.024)	-0.010 (0.015)

<i>PE</i>	-0.001 (0.000)	0.000 (0.001)	0.000 (0.001)	0.000 (0.000)	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.000)	0.0002 (0.001)	-0.001 (0.001)
<i>PB</i>	-0.003 (0.009)	0.006 (0.020)	0.002 (0.006)	-0.003 (0.009)	0.004 (0.016)	0.004 (0.008)	-0.004 (0.009)	-0.009 (0.017)	0.000 (0.007)
<i>Sensex</i>	-0.119** (0.053)	-0.112 (0.074)	0.204 (0.320)	-0.167*** (0.053)	-0.186*** (0.067)	0.164 (0.467)	-0.161*** (0.052)	-0.177** (0.078)	0.053 (0.373)
Constant	1.543*** (0.514)	1.421** (0.727)	-1.760 (3.179)	1.974*** (0.514)	2.207*** (0.650)	-1.494 (4.650)	1.897*** (0.507)	2.059*** (0.744)	-0.383 (3.711)
No. of Observations	87	42	24	87	54	24	87	47	24
Adj. R ²	0.701	0.494	0.916	0.669	0.374	0.859	0.680	0.434	0.891

This table presents regression results in which dependent variable is offer premium for tender offers over different regulatory periods. Independent variables include 26-week high price, 60-day high price, 2-week high price, regulatory factors and various controls. Variable definition is according to Table 2. Results are presented for complete sample, positive premium and negative premium sample. Column 1 presents regression of the offer premium on target's 26-week high price with regulatory factors and other controls for complete sample for the period 2002 – 2011, column 2 presents 26-week high price regression results for positive premium sample during its period of regulation 2002-2011, column 3 presents 26-week high price regression results for complete sample during post SAST 2011-2014 period. Column 4 presents regression of the offer premium on target's 60-day high price with regulatory factors and other controls for complete sample during 2002 -2011, column 5 presents 60-day high price regression results for positive premium sample during 2002-2011, column 6 presents 60-day high price regression results for complete sample during post SAST 2011-2014 period, column 7 presents regression of the offer premium on target's 2-week high price with regulatory factors and other controls for complete sample, column 8 presents 2-week high price regression results for positive premium sample during 2002-2011, column 9 presents 2-week high price regression results for complete sample during post SAST 2011-2014 period.

The values within the parentheses represent standard errors.

*p<0.10; **p<0.05; ***p<0.01

Table 8

Extent of Anchoring to 52-week high price

	1	2	3	4	5	6
<i>Extent_Full</i>	0.659*** (0.121)					
<i>Extent_26WHP</i>		0.636*** (0.180)	0.249 (0.279)	0.506*** (0.187)		
<i>Extent_60DHP</i>					0.688*** (0.145)	0.083 (0.188)
<i>52WHPremium</i>	-0.261*** (0.052)	-0.262*** (0.064)	-0.095 (0.058)	-0.253*** (0.085)	-0.270*** (0.061)	-0.101 (0.060)
<i>Interaction_52</i>	0.116** (0.050)	0.105* (0.054)	0.329 (0.273)	0.120** (0.059)	0.391*** (0.082)	0.160 (0.167)
<i>RegulatoryProxy</i>	0.145*** (0.034)	0.1387*** (0.036)	0.755*** (0.118)	0.135*** (0.047)	0.090*** (0.032)	0.754*** (0.121)
<i>MarketPrice</i>	-0.074 (0.046)	-0.101* (0.055)	0.167** (0.078)	-0.122* (0.067)	-0.090* (0.053)	0.197** (0.072)
<i>Regulatory Interaction</i>	0.535*** (0.087)	0.097*** (0.239)	0.062 (0.239)	0.623*** (0.119)	0.510*** (0.092)	0.074 (0.245)
<i>SAST2011</i>	-0.032 (0.063)			-0.068 (0.089)		
<i>Objconsolidation</i>	-0.102** (0.052)	-0.106* (0.062)	0.007 (0.077)	-0.116 (0.077)	-0.092 (0.059)	0.028 (0.075)
<i>Objsubstantial</i>	-0.134** (0.062)	-0.098 (0.078)	-0.053 (0.070)	-0.156* (0.091)	-0.120 (0.074)	-0.039 (0.070)
<i>MarketCap</i>	-0.006 (0.012)	-0.012 (0.014)	-0.014 (0.016)	-0.0002 (0.018)	-0.007 (0.014)	-0.013 (0.018)
<i>PE</i>	-0.001** (0.0003)	-0.005 (0.0004)	-0.001 (0.001)	-0.001 (0.0004)	-0.001** (0.0003)	-0.001 (0.0010)
<i>PB</i>	0.005 (0.007)	-0.0002 (0.009)	0.003 (0.007)	-0.0001 (0.009)	0.001 (0.008)	0.001 (0.007)
<i>Sensex</i>	-0.158*** (0.046)	-0.167*** (0.049)	0.145 (0.387)	-0.152** (0.070)	-0.139*** (0.047)	0.239 (0.409)

Constant	1.937*** (0.439)	2.084*** (0.468)	-1.200 (3.838)	1.906*** (0.638)	1.744*** (0.454)	-2.123 (4.073)
No. of Observations	111	87	24	66	87	24
Adj. R ²	0.696	0.713	0.881	0.695	0.743	0.875

This table presents regression results in which dependent variable is offer premium for tender offers over different regulatory periods. The Regulatory factors and other controls are included in the analysis. Results are presented only in case of complete sample. Variable definition is according to Table 2. First, we replace the primary independent variable, the 52-week high price, with *Extent_Full* defined as 52-week high price minus 26-week high price for 2002-2011 and 60-day price for 2011-2014. Column 1 is the regression of the offer premium on *Extent_Full* with asymmetric anchoring effects, regulatory factors, and various controls for complete sample. In column 2, we present the regression of the offer premium on *Extent_26* defined as 52-week high price minus 26-week high price for 2002-2011 period, column 3 shows the regression results for *Extent_26* for 2011-2014 period, and column 4 shows regression results for *Extent_26* when 26-week high price > 60-day high price from 2002-2014 period. In column 5, we present the regression of the offer premium on *Extent_60* defined as 52-week high price minus 60-day high price for 2002-2011 period, and column 6 shows the regression results for *Extent_60* for 2011-2014 period.

The values within the parentheses represent standard errors.

. *p < 0.10; **p < 0.05; ***p < 0.01.

Table 9

Regression Analysis: Distance from the Reference Price

Variable Name	1	2	3	4	5
<i>Distance</i>	0.061*** (0.020)	0.040*** (0.011)	0.055*** (0.020)	0.035*** (0.014)	0.058*** (0.012)
<i>52WHPremium</i>	-0.455*** (0.068)	-0.283*** (0.046)			-0.399*** (0.053)
<i>Interaction_52</i>	0.074 (0.060)	0.058 (0.041)			-0.214* (0.130)
<i>RegulatoryProxy</i>		0.041 (0.028)	0.110 (0.083)	0.033 (0.029)	0.069** (0.029)
<i>MarketPrice</i>		-0.033 (0.040)	-0.009 (0.075)	-0.009 (0.047)	-0.088** (0.042)
<i>Regulatory Interaction</i>		0.654*** (0.070)	0.285* (0.167)	0.729*** (0.099)	0.309*** (0.107)
<i>SAST2011</i>		0.014 (0.050)	0.079 (0.089)	0.021 (0.063)	-0.042 (0.057)
<i>Objconsolidation</i>	-0.149** (0.066)	-0.083* (0.045)	-0.023 (0.089)	-0.085 (0.055)	
<i>Objsubstantial</i>	-0.074 (0.074)	-0.095* (0.051)	-0.086 (0.105)	-0.096 (0.060)	
<i>MarketCap</i>	-0.022 (0.016)	-0.021* (0.011)	-0.055** (0.022)	-0.017 (0.014)	-0.020* (0.012)
<i>PE</i>	-0.0013*** (0.0004)	-0.001* (0.0003)	-0.0001 (0.0004)	-0.001 (0.001)	-0.0001 (0.0003)
<i>PB</i>	-0.011 (0.009)	0.002 (0.006)	0.009 (0.010)	0.0000 (0.008)	0.004 (0.006)
<i>Sensex</i>	-0.030 (0.059)	-0.088** (0.044)	-0.095 (0.062)	-0.147** (0.070)	-0.038 (0.046)
<i>Constant</i>	0.877 (0.557)	1.305** (0.410)	1.556** (0.586)	1.577** (0.671)	0.823* (0.432)
<i>No of Observations</i>	99	98	37	61	64
<i>Adj. R²</i>	0.416	0.742	0.460	0.744	0.719

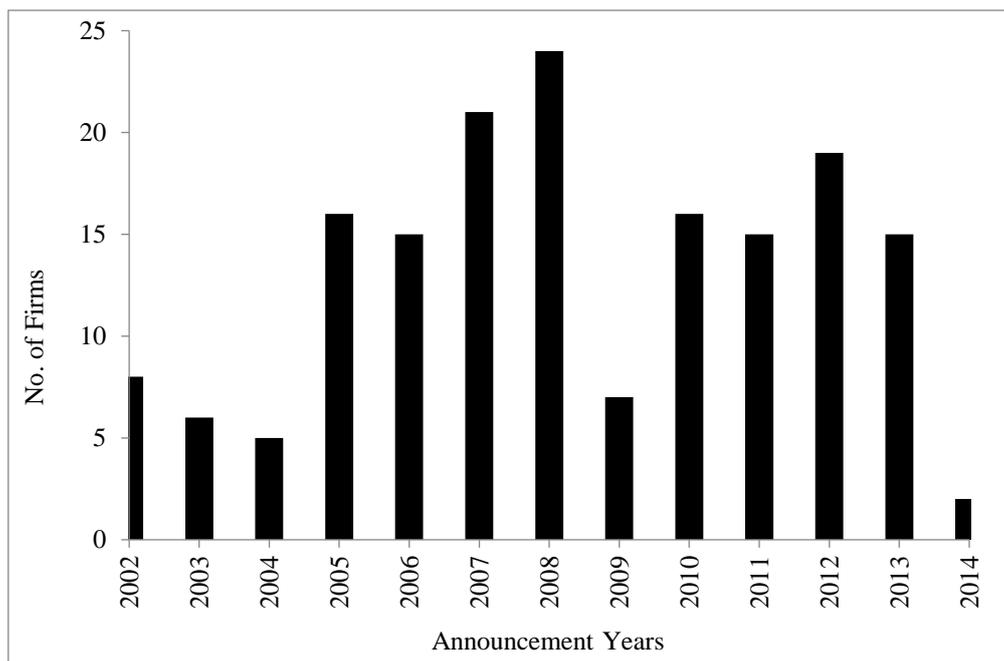
This table presents regression results in which dependent variable is offer premium for tender offers over the period 2002–2014. We replace the primary independent variable, 52-week high price with *Distance*. Regulatory factors and other controls are included in the analysis. Variable definition is according to Table 2. Results are presented for complete sample, positive premium and negative premium sample. Column 1 is the regression of the offer premium on distance with asymmetric anchoring factors and various controls for complete sample, column 2 includes regulatory factors for complete sample, column 3 presents regression results for positive premium sample, column 4 presents regression results for negative premium sample and column 5 presents results for the benchmark model excluding objective consolidation for complete sample.

The values within the parentheses represent standard errors.

*p < 0.10; **p < 0.05; ***p < 0.01.

Figure 1

Distribution of Open Offers across Announcement Years



The figure represents number of open offers for the period 2002–2014 in accordance to the date of public announcement in India.

Figure 2 Panel A

Histogram of Offer Premium for 52-week high price

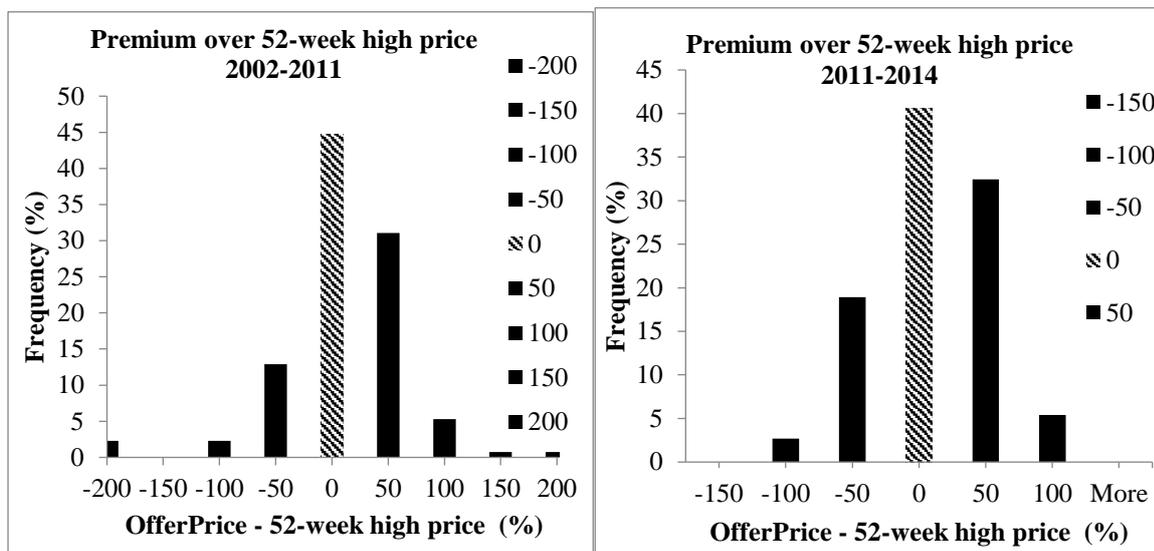


Figure 2 Panel A presents histogram that shows the difference between offer price and target’s 52-week high price for periods 2002–2011, and 2011–2014. Offer Price is defined as the offer price scaled by 30-day lagged market price prior to public announcement and 52-week high price is target’s high stock price over 335 calendar days ending 30 days prior to announcement date, scaled by the 30-day lagged market price prior to public announcement. The difference is expressed in percentage terms.

Figure 2 Panel B

Histogram of Offer Premium for 26-week high price and 60-day high price

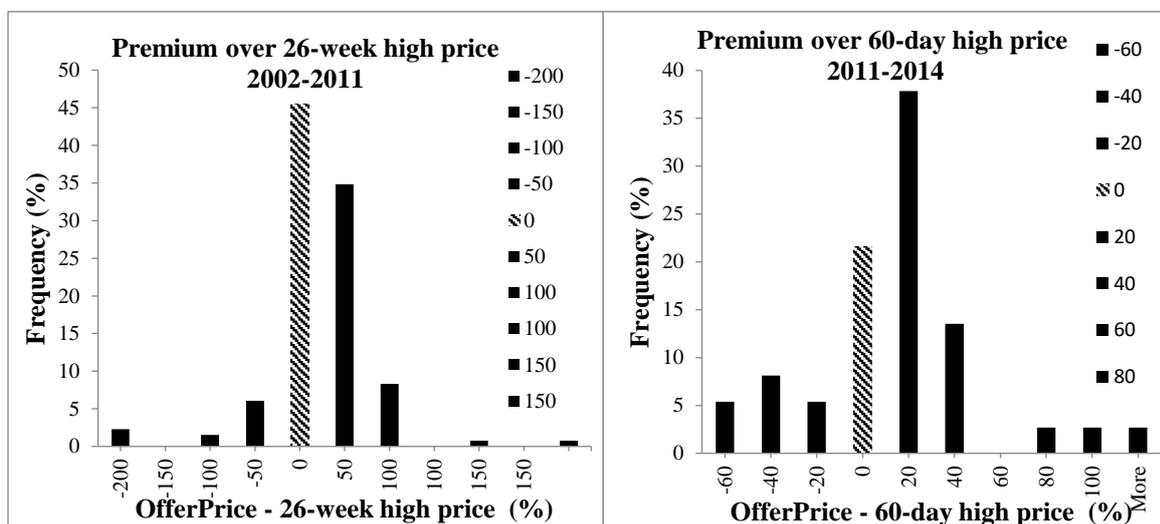


Figure 2 Panel B presents histogram that shows the difference between offer price and target’s 26-week high price for the period 2002–2011, and target’s 60-day high price for the period 2011–2014. Offer Price is defined as the offer price scaled by 30-day lagged market price prior to public announcement. The 26WeekHighPrice is target’s high stock price over 150 calendar days ending 30 days prior to the announcement date, scaled by 30-day lagged market price prior to public announcement. The 60DayHighPrice is target’s high stock price over 30 calendar days ending 30 days prior to the announcement date, scaled by 30-day lagged market price prior to public announcement. The difference is expressed in percentage term

Faculty Profile



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Biography

- Kavitha Ranganathan is currently Assistant Professor in the area of Finance and Economics at TAPMI. Prior to joining TAPMI, she worked at National Institute of Securities Markets (NISM), Mumbai, while pursuing Ph.D. Her research interests are in the area of Behavioral Economics and Finance. At NISM, she engaged in various policy research initiated by SEBI, NSE and Ministry of Finance. She had presented her research work at various conferences in India and abroad.

Research

- Judgment and Decision Making (Understanding how individuals make decisions under risk and uncertainty)
- Behavioral Corporate Finance (Exploring the intersection of psychology in corporate finance decisions, i.e. Mergers & Acquisitions)
- Regulation and Public Policy (How behavioural economics can contribute to public policy, with specific interests in securities market regulation)

Consultancy

- NSE Research Initiative: Reference Price Bias and Regulation: Evidence from Indian Mergers and Acquisitions, NSE Working Paper, March 2014
- Research Officer, Financial Sector Legislative Reforms Commission, Ministry of Finance Govt. of India, August 2011 – March 2013
- IPO Process in India: Due Diligence by Merchant Bankers, Submitted to Securities and Exchange Board of India (SEBI), December 2012

Publications

Articles Published and Under Review

1. Ranganathan, K and Singh, P (2016). "Anchoring in Mergers and Acquisitions: Does the Regulatory Environment Matter?" Under Review in Journal of Accounting, Auditing and Finance, 2016
2. Berg, N., Prakhya, S and Ranganathan, K (2016). "A satisficing approach to eliciting risk preferences" Under Review in Journal of Business Research, 2016

3. Ranganathan, K. (2016). , "Does Global Shapes of Utility Functions Matter for Investment Decisions?" Under Review in Bulletin of Economic Research, 2016
4. Ranganathan, K and Prakhya, S (2012). Global Shapes of Preference Scaling Functions, Journal of Interdisciplinary Economics, 24 (2), Sage Publication
5. Ranganathan, K (2006). The Fund Selection Behavior of Individual Investors towards Mutual Funds, The ICFAI Journal of Behavioral Finance, Vol. 3(2), ICFAI University Press

Research Work-in-Progress

- Block Deals

Market Reaction and Monitoring Role (with Poonam Singh)

- Personal Values and Satisficing (with Srinivas Prakhya)
- Satisficing Measures of Risk (with Nathan Berg and Srinivas Prakhya)
- Description-Experience Gap in Decision-Making Approaches

Conference and Workshop Presentations:

2. Summer School on Theory and Methods in Psychology, Mannheim, Germany, August 2015
3. Summer Institute on Bounded Rationality, Max Planck Institute for Human Development, Berlin, June 2014
4. Cognition and Well Being (CoWell), Jacobs University, Germany, June 2014
5. India Finance Conference, Indian Institute of Management, Ahmedabad, December 2013
6. Asia Summer Institute in Behavioral Economics, National University of Singapore, July 2012
7. Workshop on Rationality, Decision and Evaluation held at Indira Gandhi Institute of Development Research (IGIDR) from Dec. 10-14, 2012.
8. The Indian Econometric Society Conference, IGIDR, Mumbai, December 2013
9. Academy of Behavioral Finance (AOBF) conference, New York University, Sept. 2012
10. Society for Advancement in Behavioral Economics (SABE) Conference, July 2012
11. Behavioral and Experimental Economics (BEELAB) Conference, University of Florence, April 2011
12. COSMAR Conference, Indian Institute of Science (IISc), Bangalore, 2011
13. Doctoral Colloquium, Indian Institute of Management, Ahmedabad (IIMA), 2009
14. Indian Institute of Capital Markets Conference, Mumbai, 2005

Awards and Fellowships

- Best doctoral research paper award "A Satisficing Measure of Risk" at the Academy of Behavioral Economics and Finance (AOBF) conference held at New York University, 2012, and the COSMAR doctoral conference at IISc, Bangalore, 2011
- Summer Institute on Bounded Rationality, Max Planck Institute of Human Development, 2014
- Asia Summer Institute in Behavioral Economics, National University of Singapore, July 2012