Journal of
Risk and Financial Management

MDPI

Article

Effects of IPO Offer Price Ranges on Initial Subscription, Initial Turnover and Ownership Structure—Evidence from Indian IPO Market

Harsimran Sandhu * and Kousik Guhathakurta

Department of Finance & Accounting, Indian Institute of Management, Prabandh Shikhar, Rau-Pithampur Rd, Indore, Madhya Pradesh 453556, India; kousikg@iimidr.ac.in

* Correspondence: fi14harsimrans@iimidr.ac.in

Received: 2 October 2020; Accepted: 10 November 2020; Published: 13 November 2020

Abstract: In this paper, we establish the significance and effects of initial public offer (IPO) offer price ranges on subscription, initial trading, and post-IPO ownership structures. The primary market in India provides a unique setting for estimating the effect of various initial public offer (IPO) price ranges and IPO issue factors on the initial demand for an IPO among investors, measured by full IPO subscription/oversubscription, initial turnover (liquidity), and the post-IPO listing ownership structure among investors (ownership). For the IPO pre-listing stage, this study uses firth logistic regression to estimate the effect of various IPO offer price ranges (low to high) and various IPO issue factors on the full subscription/oversubscription of an IPO in each investor category. For the post-IPO listing stage, the study uses OLS regression to estimate the effect of various IPO offer price ranges (low to high) and various IPO issue factors on the initial trading ratio (IPO listing day trading) and the ownership percentage between institutional and individual investors. We find that all investor categories show a lesser likelihood for full subscription or oversubscription of an IPO issue at the lowest range of IPO offer prices. At the post-listing stage, the results indicate a diverse IPO offer price range in which individuals and institutions maximize their respective ownership holdings after the IPO listing. The results further show that lower promoter holdings diffuse higher ownership among individual shareholders by targeting lower IPO offer prices, thus increasing control.

Keywords: IPO offer price; initial public offerings; ownership structure; initial trading; investor behavior

JEL Classification: G14; G32; G40; G41

1. Introduction

When a company goes for an initial public offer (IPO), the number of shares issued and the offer price per share are decided by the company in consultation with the lead manager for the public issue. The company can alter the offer price by increasing or decreasing the number of issued shares. In the United States, companies have maintained IPO offer prices between $15 and $20 since 1976 (Weld et al. 2009). It is remarkable that companies have been able to maintain such a narrow band for more than 30 years. In the Indian context, corporations tend to gravitate toward lower IPO offer prices (Figure 1). Given the IPO issue size and the number of equity shares on offer, the IPO offer price has little economic significance.

A distinct feature of the Indian primary market is that various categories of investors can subscribe to the IPO issue based on mandatory allocation norms, as prescribed by the Securities Exchange Board of India (SEBI), which is India's securities market regulator (The SEBI does not play a role in fixing the price of an IPO). SEBI has divided investors into three broad categories: qualified institutional buyers

(QIBs), non-institutional investors (NIIs), and retail individual investors (RIIs) (IPO investor categories comprise QIB investors, including domestic/foreign institutional investors, mutual funds, venture capital, and insurance companies; RIIs, including individual investors that invested less than INR (Indian National Rupees) 100,000 ($1333) prior to 2009 and less than INR 200,000 after 2009; and NIIs, including investors who invest more than INR 200,000 ($2666). The subscription rates for each category are determined as per the allocation norms prescribed by the SEBI (Mandatory allocation norms mean that in the Indian primary market, via the book-building process, 50% of the issue is reserved for qualified institutional buyer investors, 35% for retail individual investors (RII), and the other 15% for non-institutional investors). IPO subscription rates for each investor category can be observed for all three categories prior to listing an IPO issue in the secondary market. These rates are estimated as the number of bids received for each category divided by the allotted shares in each category of shares. This process is referred to as the book-building process for the IPO. We can, thus, observe the level of participation among various categories of investors before and after the listing of an IPO in the secondary market. At the pre-listing stage, full subscription, oversubscription, and undersubscription levels provide an initial estimation for the level of demand among the various categories of investors. At the IPO post-listing stage in the secondary market, we can observe the first-day trading ratio—FDTR (the ratio of the IPO listing day shares trading volume to the number of shares issued in the IPO) in the secondary equity market and the post-IPO listing ownership structure between individual and institutional investors.

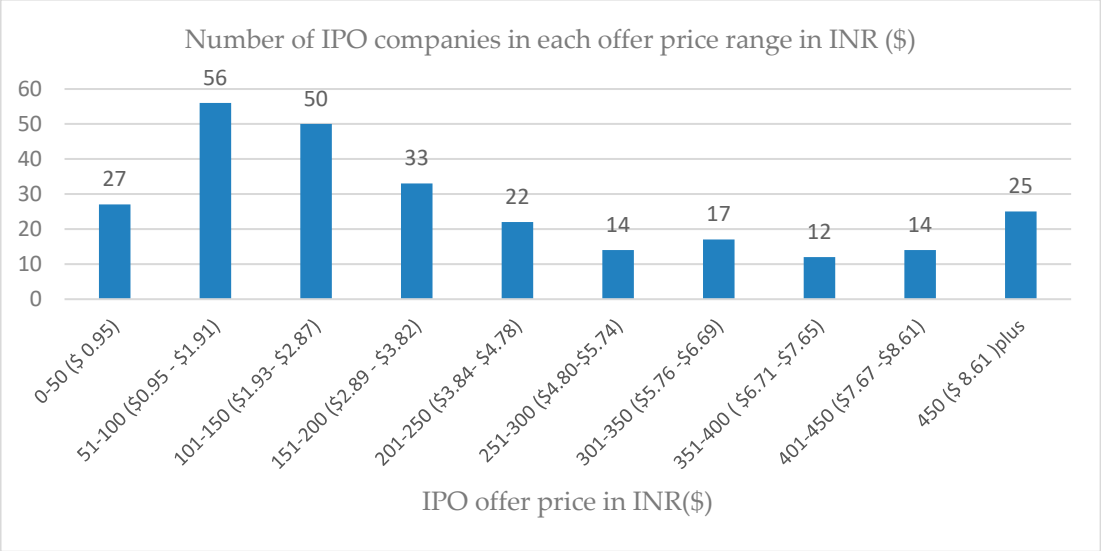

Figure 1. Initial public offer (IPO) offer price bands across companies in Indian National Rupees (INR) (2006–2015). The INR conversion to UDS $ is done at an average rate between 2006–2015. Source—Prime database, NSE India, and Source-RBI forex.

Apart from the various IPO issue factors, the IPO offer price is an important variable for estimating the level of participation among various categories of investors at the pre- and post-listing stages of an IPO. Often, investors do not like a company's offer price; thus, they do not apply for that company's IPO, resulting in undersubscription. In such a case, companies either revise the offer price or suspend the IPO. RIIs and QIBs are at the extreme ends of affordability for an IPO issue. As RIIs and NIIs are more wealth-constrained compared with QIBs, the IPO offer price is an important parameter while applying for an IPO, since the total amount of investment allowed in an individual company is restricted by the SEBI. Taking this into account, it is now possible to link IPO offer price ranges to the number of IPO undersubscriptions among RIIs, NIIs, and QIBs. The general observations from Table 1 show a link between IPO issue offer ranges (low to high) and the number of IPOs undersubscribed by

RIIs, NIIs, and QIBs, respectively. The data show a negative relationship between the number of IPOs undersubscribed against each IPO offer price range among RIIs, NIIs, and QIBs.

Table 1. IPO offer price bands and numbers of IPOs undersubscribed within the qualified institutional buyer (QIB), non-institutional investor (NII), and retail individual investor (RII) categories (2006–2015) (Oversubscription and undersubscription data have been taken from http://www.chittorgarh.com/ and NSE India for each category). The UDS $ conversation rate is the average rate (INR-$) between 2006–2015. (Source—RBI forex).

IPO Offer Price Range (in INR) ($)	Retail Individual Investor (RII)	Non-Institutional Investors (NII)	Qualified Institutional Buyer (QIB)
	Number of IPOs Undersubscribed	Number of IPOs Undersubscribed	Number of IPOs Undersubscribed
0–50 ($ 0.95)	21	20	30
51–100 ($0.95–$1.91)	18	19	38
101–150 ($1.93–$2.87)	15	6	20
151–200 ($2.89–$3.82)	16	8	10
201–250 ($3.84–$4.78)	7	4	5
251–300 ($4.80–$5.74)	6	3	1
301–350 ($5.76–$6.69)	3	4	0
351—400 ($6.71–$7.65)	5	2	1
401–450 ($7.67–$8.61)	5	11	2
Greater Than 450 ($ 8.61)	10	11	0

IPO investor categories: qualified institutional buyers (QIBs) investors include domestic/foreign institutional investors, mutual funds, venture capital, and insurance companies. Retail individual investors (RIIs) include individual investors that invest less than INR 100,000 ($1333) prior to 2009 and less than INR 200,000 ($2666) (after 2009. NIIs include investors investing greater than INR 200,000 ($2666)). INR—Indian National Rupee.

In the IPO post-listing stage, a link between the IPO offer price and the post-IPO listing ownership structure among companies has been established by Fernando et al. (2004). They suggest that lower IPO offer prices are preferred by individual investors and higher ones are preferred by institutional investors. In this context, the percentages of institutional and individual holdings immediately after the IPO listing are now estimated. The link between the IPO offer price ranges (low to high) and the post-IPO listing percentage of ownership holdings between institutional and individual investors can be estimated. Initial data observations show that the percentage of individual ownership is higher at lower ranges of IPO offer prices. In contrast, institutional investors tend to increase their holdings at higher levels of IPO offer price ranges. The percentage of individual ownership is highest for IPO offer price ranges of INR 0–50 and INR 50–100 (Figure 2).

In contrast to the findings of Fernando et al. (2004), a study done by Neupane and Poshakwale (2012) estimated that during the book-building process (using an Indian primary dataset), RIIs favor high-priced IPO stocks after controlling for institutional demand. Therefore, we find two different kinds of investor preferences at the pre-listing and post-listing stages for the IPO. In this study, we intend to find specific IPO offer price ranges along with other factors that affect the pre- and post-listing participation among various categories of investors.

The primary market in India provides a unique setting to estimate the effect of various IPO offer price ranges and factors based on the initial demand of an IPO among investors (measured by full IPO subscription and oversubscription), initial turnover of listing day shares (liquidity), and the post-IPO listing ownership structure among investors (ownership). This study has three specific objectives. First, at the IPO pre-listing stage, it aims to estimate the impact of various IPO offer price ranges (low to high) on the likelihood of the IPO being fully subscribed/oversubscribed to among various categories of investors (RIIs, NIIs, and QIBs). The study also estimates the impact of various IPO issue factors that may affect the likelihood of full subscription/oversubscription among various categories of investors. Second, at the IPO post-listing stage in the secondary market, the study aims to measure the impact of various IPO offer price ranges (low to high) and various IPO issue factors on the FDTR (IPO listing day share trading) and on the post-IPO ownership structure between individuals and institutions (after controlling for various financial and non-financial IPO factors). We find that all three categories of

investors (RIIs, NII, and QIBs) show a reduced likelihood to fully subscribe/oversubscribe to an IPO issue at the lowest range of IPO offer prices. At the post-listing stage, the results indicate a diverse IPO offer price range, in which individual and institutions maximize their respective ownership holdings after the IPO listing. The results further show that lower promoter holdings diffuse higher ownership among individual shareholders by targeting lower IPO offer prices, thus increasing control.

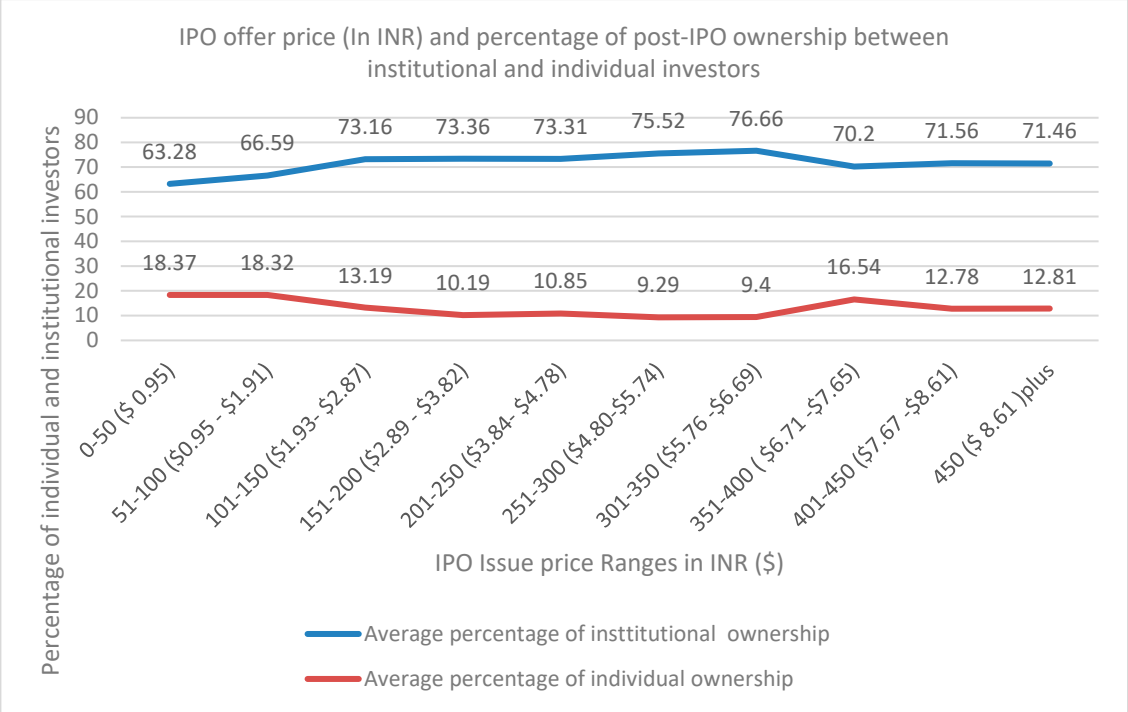

Figure 2. IPO offer price: mean institutional and individual holding after the IPO (2006–2015). (As per Indian regulations, the quarterly reports of listed Indian companies must specify their underlying ownership in terms of both the absolute number and percentage. The percentage of individual and institutional investors is assessed at the end of the first monthly quarter immediately after the IPO listing). Source—CIMIE Prowess IQ database. The UDS $ conversation rate is the average rate (INR-$) between 2006–2015. (Source-RBI forex).

The rest of the paper is organized as follows. Section 2 comprises the literature review and hypothesis development. Section 3 describes the sample descriptions, methodology, and models. Section 4 covers the regression results and discussion and finally, Section 5 concludes the study.

2. Literature Review & Hypotheses Development

2.1. Literature Review

2.1.1. IPO Subscription

The IPO subscription levels (rates) influence various factors, such as the IPO offer price, the IPO issue size, and the level of IPO issue underpricing. Past studies, such as those of Yong and Isa (2003), Rock (1986), Fung et al. (2005), and Ljungqvist and Wilhelm (2006), have shown that the subscription rate is an important variable affecting the after-market performance of an IPO. The subscription rate is positively related to the IPO issue/offer price (Sahoo and Rajib 2012). Investors' demand for an initial public offer (IPO) is positively related to IPO underpricing (Agarwal et al. 2006). IPOs with higher investor demand are underpriced more as compared to IPOs with lower investor demand. In a recent study by Neupane and Poshakwale (2012), the authors used the book-building process approach to estimate the demand for an IPO based on the subscription rates of various categories of

investors during an IPO. They concluded that subscription rates of retail participation are influenced by institutional subscription rates at the pre-listing stage.

2.1.2. Initial Trading (Listing Day Trading)—First Day Trading Ratio (FDTR)

The first day trading ratio (initial trading) is estimated as the ratio between the total number of shares traded on the listing day of the IPO in the secondary market divided by the total number of shares issued in the IPO. An increased initial turnover in the post-IPO listing could be an estimation of the extent of rationing in the pre-market stage of the IPO if the participation of some investors in the pre-market (pre-IPO listing) is limited. Earlier research has examined the immediate trading on the IPO listing day (listing day trading). Some studies find a non-linear relationship between initial trading and the IPO offer price (Fernando et al. 2004). The study finds that both lower-priced IPOs and higher-priced IPOs trade less on listing day. The initial turnover (or first day trading ratio) is positively associated with IPO issue underpricing (Krigman et al. 1999). Prior studies, such as those by Booth and Chua (1996), Chowdhry and Sherman (1996), hypothesized that as liquidity is determined by the ownership structure, they find a positive association between liquidity and IPO underpricing. Miller and Reilly (1987) also showed a correlation between underpricing and initial trading volume, while Aggarwal and Rivoli (1990) and Krigman et al. (1999) documented large opening-day trading volumes.

2.1.3. Percentage Ownership among Individual and Institutional Investors Post-IPO Listing

The significance of the IPO offer price is driven by different preferences between individual and institutional investors. Individual investors prefer lower-priced stocks, while institutional investors prefer higher-priced stocks. Individual investors suffer from the nominal illusion (Birru and Wang 2016) for lower-priced stocks, meaning that they expect low-priced stocks to grow in the future as compared with high-priced stocks. This nominal illusion can be explained through various biases such as reference points[1] (Kahneman and Tversky 1979, 1984) and framing[2] (Thaler 1985). A study by Fernando et al. (2004) suggested a link between the IPO offer price and target ownership among firms after the IPO. The study argued that firms targeting institutional investors keep the IPO offer price high, however, companies targeting individual investors do not. A lower-priced issue leads to higher ownership dispersion among individual shareholders as compared with high-priced issues. Companies in which managers desire the benefits of control target low-priced IPO issues (Brennan and Franks 1997). Such companies want to avoid higher institutional holding after the IPO. The post-listing activity in the secondary market is related to the type of ownership structure that companies prefer after IPO.

Another important IPO issue variable discussed in the literature is underpricing. IPO underpricing is calculated as the difference between the first day (listing day) closing share price and the IPO offer price. Past literature (e.g., Chalk and III 1987; Booth and Chua 1996) widely supports the effect of underpricing on shareholders' dispersion immediately after an IPO. Agarwal et al. (2006) also estimated that investors' demand for an IPO subscription is positively related to the underpricing of an IPO. The relationship between IPO underpricing and the IPO offer price is U-shaped (Fernando et al. 2004). It further estimates that both higher-priced IPOs and lower-priced IPOs have higher underpricing compared with mid-priced IPOs. In contrast, a study by Chalk and III (1987) argued that lower-priced IPOs have higher underpricing compared with higher-priced IPOs. In a similar study, Fernando et al. (2004) found underpricing to be lowest for an IPO offer price between $15 and $18 for US markets. In a recent

---

[1] The term "reference point" was first coined by Kahneman and Tversky (1979) in their well-known paper about prospect theory. Individual investors may have a reference point in mind regarding the nominal prices for gains and losses while trading in the secondary market.

[2] Framing biases are a behavioral interpretation of the IPO offer price, in which individual investors frame their decisions based on the absolute nominal prices rather the percentage of returns.

study, Clarke et al. (2016) divided underpricing into two parts—voluntary and first-day return driven by unmet demand of non-institutional shareholders. The average underpricing (gross) was calculated as 23% for Indian markets, out of which 14% was for the first-day return.

Institutional investors have an affinity toward higher quality and larger capitalization stocks (Del Guercio 1996). Past findings (e.g., Stoll and Whaley 1983; Dyl and Elliott 2006) estimate a positive relationship between market capitalization and share price. Prior literature (Falkenstein 1996) also supports that institutional investors prefer high-priced stocks, and Gompers and Gompers and Metrick (2001) further showed that institutional investors tend to avoid low-priced shares and suggested a negative relationship between individual ownership and IPO issue size.

In the presence of strong investors, a wider spread in ownership outside the promotor holding structure becomes more important for creating stronger promotor control. Brennan and Franks (1997) argued that a higher dispersion of outside promotor holding after the IPO reduces the incentive for shareholders to monitor the company. Higher dispersed holding among individual shareholders creates collective action issues for individual shareholders and thus creates problems in monitoring the promotor after the IPO Black (1992). Therefore, the initial owners ration the shares and discriminate between shareholders to reduce the size of new shareholdings. Lower promoter holdings diffuse ownership among individual shareholders by targeting a lower IPO offer price, thus increasing control. In support of this, Mello and Parsons (1998) hypothesized that one objective of the IPO is to create a dispersed outside promotor holding. Such a dispersed structure induces managerial control over the post-listing liquidity of newly listed firms while also allowing the current management to determine the terms under which a transfer of control should take place. Signaling, as well as the reduced monitoring hypothesis, indicate an inverse relationship between promotor holding and the IPO offer price Cotter et al. (2005). In contrast, studies lsike those of Leland and Pyle (1977). And Ritter (1984) found a positive relationship between the IPO offer price and post-IPO issue promotor ownership.

2.1.4. IPO Offer Prsice and Pre IPO Financial of a Company

Companies must file the red herring prospectus with the registrar of companies (ROC). The issuing company inserts a clause relating to the "basis for issue price" in the red herring prospectus, which includes earnings per share, return on net worth data for the last three years, and net asset value (NAV). The earning per share becomes the proxy for the financial strength of the company. Ghicas et al. (2000) showed that past earnings in IPO prospectuses form an important basis for future forecasts by investment bankers. Thus, the earning forecast becomes an important explanatory variable for estimating the IPO offer price by investment bankers (Ghicas et al. 2000). The price-earnings ratio is calculated as the ratio between the IPO offer price and the weighted earning per share (before the IPO) for the issue. Bartov et al. (2002) found that earning affects the IPO offer price valuations. Past studies have shown that that the peer group average P/E (price-earnings ratio) is positively associated with the price of the IPO stocks (Kim and Ritter 1999; Cotter et al. 2005; Schreiner 2007). When a company decides to go public via an IPO, the existing private shareholders and potential public shareholders must estimate what the company's price should be. The company also provides a comparative industry PE ratio of similar companies in the sector so that the investors can do a fair comparison with other industries. In a related study, Aggarwal et al. (2009) showed that companies with more negative earnings will have higher IPO valuations in comparison with companies with less negative earnings. In contrast, companies with higher positive earnings will have higher valuations than firms with less positive earnings do. Aggarwal et al. (2009) further suggested that negative earnings are a proxy growth opportunity for Internet firms and that such growth options are a significant component of IPO firm value. Klein (1996) further documents a positive relationship between the pre-IPO book value of equity and offer price for an IPO.

2.2. Hypotheses Development

Prior literature provides evidence that initial demand among investors (subscription rates) is positively linked to IPO offer price (Sahoo and Rajib 2012). The study by Neupane and Poshakwale (2012) further provides evidence linking retail investor initial demand with institutional demand at the pre-listing stage. In the post listing stage, Fernando et al. 2004 provides evidence linking IPO offer prices and post-IPO ownership structure. We extend the literature by estimating the impact of specific IPO offer prices ranges (low to high) on initial demand among investors at the pre-listing stage, initial turnover, and ownership structure among investors at the post listing stage.

2.2.1. IPO Pre-Listing Stage—Full Subscription/Oversubscription

In the pre-listing stage of an IPO, the initial level of demand among various categories of investors is estimated by the subscription rate. Oversubscription/full subscription is an indication of the success of an IPO in each category, while undersubscription is an indication of low initial demand among investors. Past studies such as Sahoo and Rajib (2012) document a positive association between IPO offer price and IPO subscription rate. Another related study by Fernando et al. (2004) provides evidence that institutional investors do not prefer low priced IPOs, while a study by Neupane and Poshakwale (2012) provides evidence that retail investors follow the institutional investors' (QIB) demand during the book-building process of an IPO (pre-listing stage). This leads to our first hypothesis:

Hypothesis 1 (H1). *Retail investors (RII) and non-institutional investors (NII) follow the institutional investors' (QIB) demand during the IPO book-building process by undersubscribing to the lowest-priced IPOs.*

2.2.2. IPO Post Listing Stage—Initial Trading and Post-IPO Ownership Structure

In the post listing stage of an IPO, increased initial turnover in the post-IPO listing is an estimation of the extent of rationing in the pre-market stage of the IPO, if the participation of some investors in the pre-market (pre-IPO listing) is limited. Both lower-priced IPOs and higher-priced IPOs trade less on listing day (Fernando et al. 2004). Low priced IPOs and high-priced IPOs are preferred by individual and institutional investors respectively. The lower-priced IPOs are associated with higher transaction costs (McInish and Wood 1992) and, thus, investors hold the newly allotted shares beyond the listing day. As the transaction cost for the lowest priced IPOs is higher as compared to high priced IPOs, the investors may trade less on listing day, this leads to our second hypothesis

Hypothesis 2 (H2). *Investors trade less on IPO listing day (initial trading) in companies having the lowest IPO offer price range.*

Individual and institutional investors have diverse preferences for IPO issue prices (Fernando et al. 2004). Individuals prefer low priced IPOs while institutional investors prefer high priced IPOs. This varied IPO offer price preference among investors leads to different ownership among each IPO post listing.

Hypothesis 3 (H3). *Individual investors and institutional investors maximize their respective shareholdings post-IPO listing at specific low and high IPO offer price ranges, respectively.*

The above three hypotheses are tested along with various IPO issue factors affecting the initial demand among investors, initial trading, and post-IPO ownership structure.

3. Sample, Research Methodology, and Models

3.1. Sample Description

The study took 200 IPOs as the final sample for statistical analysis. For the purpose of the current study and empirical analysis, data from between 2006 and 2015 (inclusive) were employed. The IPO offer prices were obtained from the NSE online database (a public website) and the prime database. The number of shares traded on the first day of the listing was taken from the NSE database, and the number of shares issued was extracted from the prime database. The IPO issue subscription rates (full subscription and oversubscription) were taken from a public website (Oversubscription and undersubscription data were taken from http://www.chittorgarh.com/ and NSE India for each category, NSE—the National stock exchange, located in Mumbai). The percentage of underlying ownership is available on a quarterly basis for Indian companies. The percentage of individual ownership and institutional ownership is immediately assessed at the end of the first monthly quarter for all IPOs. The sample data for the percentage of promotor holdings were also estimated immediately at the end of the first monthly quarter (after the listing) for all IPOs. The sample data for individual ownership (after the IPO) and institutional ownership (the first monthly quarter after the IPO listing in the secondary market) were obtained from the CIMIE Prowess IQ database. The various financial and non-financial control variables were then estimated for each IPO from the prime database. Table 2 provides descriptive statistics for sample variable The mean percentage of the individual investors after the IPO was around 15.86% for the sample. The mean IPO offer price *** was around INR 215 for the sample. The mean IPO underpricing (market-adjusted) was around 15%. The mean for the percentage of promotor holdings for the sample was around 58.77%, with a wide range of 4.9% (min) to 98.38% (max). Correlation among sample variables are described in Tables 3 and 4

Table 2. Descriptive statistics for the sample variables. (INR and $ USD) The UDS $ conversation rate is the average rate (INR-$) between 2006–2015. Source—Prime database and NSE India. Source—RBI forex.

Sample Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Percentage of individual holding (after the IPO)	200	15.86	11.80	0.27	56.67
Percentage of institutional holding (after the IPO)	200	68.52	19.15	2.05	99.18
First-day trading ratio (FDTR)	200	2.18	2.24	0.0016	13.90
Non-Financial (IPO Issue-Specific)					
Market-adjusted underpricing ***	200	0.15	0.44	0.78	2.46
Minimum lot size in INR ($)	200	6655 ($127)	3641 ($69.70)	2600 ($49.47)	51,600 ($987)
IPO offer price in INR ($)	200	215 ($4.12)	192.22 ($3.68)	12 ($0.23)	1310 ($25.08)
IPO issue size in million INR ($)	200	44,687 ($855)	152,850 ($2925)	378 ($7.24)	1,547,509 ($29,623)
PIPH: Percentage of promotor holdings	200	58.77	16.28	4.90	98.38
Financial (Firm-Specific) Controls					
EPS (3-year average before the IPO)	200	13.04	37.85	0.19	372.95
IPO offer price to EPS (before the IPO)	200	39.40	80.21	0.29	881.00
Return on net worth	200	23.79	16.97	0.44	165.00
Net asset value (NAV) before the IPO	200	71.39	57.64	5.75	497.00

The percentage of individual and institutional holdings was assessed at the end of the first monthly quarter immediately after the IPO.

Market-adjusted underpricing (MAU)—MAU is calculated following Ibbotson and Ritter (1995). Market-adjusted IPO underpricing is calculated as follows:

$$IPO\ Underpricing(Market\ Adjusted) = \frac{P1 - P0}{P0} - \frac{M1 - M0}{M0}.$$

where MAU is the market-adjusted underpricing of each *IPO* at the end of the listing date, $P1$ is the closing price on the first trading day, and $P0$ is the offer price provided by the prospectus. $M1$ and $M0$ are the closing values of a selected market index (NIFTY 500) on the listing date and the day prior to listing, respectively.

Table 3. Correlation matrix—post-IPO holdings and IPO issue price factors (financial and non-financial).

	Percentage of Individual Holdings (after the IPO)	Percentageof Institutional Holdings (after the IPO)	IPO Offer Price (INR)	IPO Issue Size (in Million INR)	Market-Adjusted Underpricing (MAU)	Percentage Promotor Holding	EPS (3-Year Average before the IPO)	IPO Offer Price to EPS (before the IPO)	Return on Net Worth (before the IPO)	Net Asset Value (after the IPO)	Minimum Lot Size (in INR)
Percentage of individual holdings (after the IPO)	1										
Percentage of institutional holdings (after the IPO)	−0.6217	1									
IPO offer price (in INR)	−0.2649	0.1508	1								
IPO issue size (in million INR)	−0.219	0.2691	0.134	1							
Market-adjusted underpricing (MAU)	−0.0494	0.0225	0.1065	0.042	1						
Percentage of promotor holdings (PIPH)	−0.4118	0.6138	0.003	0.3352	−0.0884	1					
EPS (before the IPO)	−0.0669	0.0937	0.148	−0.0306	−0.0325	0.0586	1				
IPO offer price to EPS (before the IPO)	−0.1326	0.1132	0.1059	0.0807	−0.017	0.107	−0.1089	1			
Return on net worth	−0.0829	0.1552	0.2058	0.0076	0.0328	0.0433	0.3432	−0.2077	1		
Net asset value (before the IPO	−0.1601	0.0589	0.7425	−0.0475	0.0743	−0.0413	0.0825	−0.0198	0.104	1	
Minimum lot size (in INR)	−0.0126	0.0425	0.2	−0.0173	−0.0349	0.0144	0.0172	−0.0356	−0.0234	0.1232	1

Table 4. Correlation matrix—first-day trading ratio and IPO issue factors.

Correlation Matrix	First-Day Trading Ratio	IPO Offer Price	IPO Issue Size	Market-Adjusted Underpricing	Promotor Holdings (%)	Individual Holdings (%)
First-day trading ratio (FDTR)	1					
IPO offer price (In INR)	−0.1181	1				
IPO issue size (In INR Mn)	−0.4613	0.435	1			
Market-adjusted underpricing	0.2527	0.0875	−0.0504	1		
Percentage of promotor holdings (post listing)	−0.241	0.1065	0.4631	−0.1034	1	
Percentage of individual holdings (post listing)	0.3219	−0.2641	−0.524	−0.0801	−0.4472	1
Percentiles across the IPO offer price for the sample.						
25%	50%		75%	90%	95%	
75	137		252	468	640	

Minimum lot size—the minimum order quantity is the minimum number of shares that an investor can bid in an IPO.

The price earnings ratio is calculated as the ratio between the IPO offer price and weighted earning per share (before IPO) for the issue. Return on net worth is calculated as net profit/loss at the end of each year divided by net worth at the end of each year.

The NAV per equity share represents total assets less total liability (excluding deferred tax) per the restated financial information as divided by the number of equities share outstanding as at the end of the year/period.

The EPS is calculated as net profit attributable to equity shareholders divided by the weighted average of diluted equity shares.

3.2. Research Methodology and Regression Models

We divided the research methodology into two parts. The first part of the methodology estimates the likelihood of full subscription or oversubscription for an IPO among each category of investors (RIIs, NIIs, and QIBs) against each IPO offer price range (low to high) and various IPO issue factors. In order to estimate the likelihood of IPO full subscription or oversubscription within each category of investors (RIIs, NIIs, and QIBs), we used a firth logistic regression logit regression model, as the data set is small (N = 200). The dependent variable is binary (1, 0), which assumes a value of 1 if the IPO issue is fully subscribed or oversubscribed and 0 otherwise. The independent variables were represented by various ranges of the IPO offer price ranges (IPO offer price dummies). Each IPO offer price dummy assumes a value of 1 if it falls within a price band and 0 otherwise. IPO offer prices were divided into offer price bands of INR 0–50, 51–100, 101–150, 151–200, 201–250, 251–300, 301–350, 351–400, and 401–450. IPO issue underpricing (MAU) and IPO issue size were continuous independent variables in the fifth logit regression model.

In the second part of the methodology, we estimated the impact of various IPO offer price ranges (low to high) and various IPO-specific factors on the first-day trading ratio (FDTR) and post-IPO listing percentage ownership among individual (INDSH) and institutional investors (INSTI). The percentage of the individual (INDSH) and institutional holding among investors (INSTI) post-IPO listing was assessed at the end of the first quarter for each company after an IPO listing. To analyze the impact of various IPO offer price ranges (low to high) on the percentages of individual and institutional shareholding, the IPO offer price data were divided into nine IPO offer price ranges (low to high). The lowest and highest IPO offer price ranges were based on the percentiles for IPO offer prices for the sample. The IPO offer price for the 90th percentile was INR 468 (Table 4). The nine IPO offer price ranges were divided with intervals of INR 50, that is, 0–50, 51–100, 101–150, 151–200, 201–250, 251–300, 301–350, 351–400, and 401–450. The IPO offer price ranges were represented by binary dummy variables (1, 0). The IPO offer price band assumed a value of 1 if it belonged to a particular IPO offer price range and 0 otherwise, and therefore created nine independent IPO offer price dummies (representing each of the IPO offer price ranges). The IPO offer price band category represented by a dummy (1) shows the impact of each price band on the percentage of the individual and institutional holding immediately after the IPO in comparison with the reference category. The current study also estimated the effect of the percentage of promotor holdings on the percentage of ownership between individual shareholders and institutional holdings (after the IPO). The research design used two multiple OLS regression models with percentages of institutional ownership (post-IPO listing) and percentage of individual ownership (post-IPO listing) as dependent variables. The dependent variables were regressed for various IPO offer price bands, firm-specific variables, and IPO issue characteristics. The model controls for various financial variables (firm-specific) and non-financial variables (IPO issue-specific), which could affect the percentage of individual and institutional shareholding immediately after the IPO, for example, IPO issue size, market-adjusted IPO underpricing, price/earnings ratio (IPO offer price to three-year weighted earning average before the IPO), earning per share, return on net worth (three-year weighted earning average before the IPO) and NAV.

3.2.1. Investor Demand at the Pre-IPO Listing Stage—Models

A firth logistic regression model was used involving oversubscription and undersubscription (IPO investor categories—RIIs, NII, and QIBs):

$$D_{i(ipo\frac{full\ subscription/oversubscription=1}{undersubscription=0})} = \beta_0 + \sum_{q=1}^{9} \beta_q D_{q\,(IPO\ offer\ price\ ranges)} + X_j(ipo\ underpricing) + \alpha(IPO\ Issue\ size) + \varepsilon$$

Dependent variable—wherein D_i is a binary dummy variable to represent full subscription or oversubscription within each category (RIIs, NIIs, and QIBs).

$$D_i \begin{cases} \text{If IPO issue is fully subscribed or oversubscribed in each IPO investor category} = 1 \\ \text{If IPO issue is undersubscribed in each IPO investor category} = 0 \end{cases}$$

Independent variable—D_q is a dummy variable (independent variables) to represent each IPO offer price range

$$D_g \begin{cases} \text{If within the IPO offer price range} = 1 \\ \text{If outside the IPO offer price range} = 0 \end{cases}$$

where q = 9 for IPO offer price dummies.

Regression coefficient β_q, where q = 0–50, 51–100, 101–150, 151–200, 201–250, 251–300, 301–350, 351–400 and 401–450; X_j– IPO underpricing; α – *IPO Issue size*.

Independent variable (IPO issue-specific)—X_j = coefficient for IPO underpricing; α = IPO issue size.

3.2.2. Investor Participation after the IPO Listing—Models

We assessed the effect of IPO offer price ranges and IPO Issue factors on the first-day trading ratio (FDTR) using the regression OLS model:

$$\text{FDTR} = \beta_0 + \sum_{i=1}^{9} \beta_i D_i(\text{IPO offer price range}) + \sum_{j=1}^{4} + \gamma_j X_j + \varepsilon$$

Dependent variable (FDTR) = First-day trading ratio is expressed as follows:

$$\text{FDTR} = \frac{Total\ number\ of\ shares\ traded\ on\ the\ IPO\ Listing\ day}{Total\ number\ of\ shares\ issued\ in\ IPO}$$

β_1 to β_9—regression coefficients for the IPO offer price ranges.

γ_1 to γ_4—regression coefficients for the IPO issue-specific variables in the primary market.

Independent variables (IPO offer price ranges)—0–50, 5100, 101–150, 151–200, 201–250, 251–300, 301–350, 351–400, and 401–450. *Di*—binary dummy variables i = 9.

$$D_i \begin{cases} \text{If within IPO offer price range} = 1 \\ \text{If outside IPO offer price range} = 0,\ i = 9 \end{cases}$$

Independent variables (IPO issue-specific)—X_j—IPO issue-specific variables—j = 4 i.e., X_1—Market adjusted IPO underpricing (MAU); X_2—IPO issue size; X_3—percentage of individual holding; X_4—percentage of promoter holding (post listing).

Effect of IPO Offer Price Ranges on Individual and Institutional Investors

$$INDSH\ (post-IPO) = \beta_0 + \sum_{i=1}^{9} \beta_i D_i\ (IPO\ offer\ price\ ranges) + \alpha\ (promotor\ holding - PH) + \sum_{j=1}^{7} \gamma_j X_j + \varepsilon$$

$$INSTI\ (post\ ipo) = \beta_0 + \sum_{i=1}^{9} \beta_i D_i\ (IPO\ offer\ price\ ranges) + \alpha\ (promotor\ holding - PH) + \sum_{j=1}^{7} \gamma_j X_j + \varepsilon$$

Dependent variable—*INDSH* = Percentage of individual shareholding immediately post-IPO; *INSTI* = = Percentage of institutional shareholding immediately post-IPO.

Independent variables—IPO offer price ranges—0–50, 51–100, 101–150, 151–200, 201–250, 251–300, 301–350, 351–400, and 401–450; $D(i)$—binary dummy variables wherein $i = 9$.

$$D_{(i)} \begin{cases} \text{If within the IPO offer price range } = 1 \\ \text{If outside the IPO offer price range } = 0 \end{cases}$$

β_1 to β_9—regression coefficients for each IPO offer price ranges (low to high).

α—regression coefficient for the percentage of promotor holding.

γ_1 to γ_7 = Regression coefficients for the IPO issue-specific variables (non-financial and financial).

Independent variable—Percentage of promotor holdings post listing—PH.

Control variables (financial and non-financial variables).

X_1 to X_7—regression coefficients for the firm-specific and IPO issue-specific variables.

Non-financial IPO issue-specific variables X_1 to X_3 (X_1—IPO issue size; X_2—Market-adjusted IPO underpricing; X_3—Minimum Lot Size).

Financial (firm-specific) firm control variables X_4 to X_7 (X_4—EPS; X_5 —IPO offer price to earnings (pre-IPO); X_6—return on net worth; X_7—net asset value).

4. Regression Results and Discussion

4.1. Regression Results (Firth Logistic Regression)—The Effect of IPO Offer Price Range and Issue-Specific Characteristics on IPO Full Subscription or Oversubscription among Investor Categories (for Results, See Appendix A)

The firth logistic regression model results show the binary outcome for the dependent variable (fully subscribed or oversubscribed IPO = 1, otherwise = 0) that is regressed against each IPO offer price range (nine IPO offer price dummies) for all investor categories (RIIs, NIIs, and QIBs). The results show a lower likelihood for full subscription or oversubscription at the lowest range of IPO offer price (i.e., INR 0–50) for all categories of investors (RII coef. (−)0.891; *p*-value 0.028); NII coef. (−) 1.43; *p*-value 0.001; QIsB coef. (−) 1.83; *p*-value 0.001). The results support Neupane and Poshakwale's study (Neupane and Poshakwale 2012), which showed that retail investors follow the institutional demand during the book-building process, as an institution is bound to have more rational information about the company. Institutional investors prefer higher IPO offer prices and shun low-priced IPOs. The reasons for this could be lower bid–ask spreads McInish and Wood (1992) for higher-priced stocks, which reduces the transaction cost for institutional investors. Among the continuous independent variables, IPO issue size shows a negative regression coefficient, with a *p*-value that is statistically significant and shows a lower likelihood for full subscription/oversubscription among RIIs (retail) (coef. (–) 0.000150; *p*-value—0.023) and NIIs (Non-institutional) coef. (–) 0.000174; *p*-value—0.010) if the IPO size is higher and vice versa. On the other hand, companies with a higher IPO issue size have a higher likelihood of oversubscription in the QIB (institutional) category (regression coef. 0.0051 and *p*-value 0.000). These results are supported by Del Guercio (1996), in which institutional investors show a higher affinity towards higher quality and larger capitalization stocks. The likelihood for full subscription/oversubscription is higher (coef. 0.0063; *p*-value 0.026) for higher underpriced IPOs (MAU) within the QIB category (institutional investor).

4.2. Regression Results (OLS Regression)—The Effect of IPO Offer Price Ranges and IPO Issue Characteristics on First-Day Trading Ratio (FDTR) (for Results, See Appendix B)

The first-day trading ratio (FDTR) shows the level of trading activity (buy–sell share volume) as the ratio of the number of shares traded on the IPO listing day divided by the total shares issued by the company in the IPO. The lowest IPO offer price range (i.e., INR 0–50) shows a negative and significant coefficient (coef. (–)1.49; *p*-value 0.015) in relation to the first-day trading ratio. This is consistent with

the fact that at the lowest IPO offer price range, the investors will trade less on the IPO listing day, as lower-priced IPOs are associated with higher transaction costs (McInish and Wood 1992) and, thus, hold the newly allotted shares beyond the listing day. Institutional investors may also trade less often immediately on the IPO listing day, as companies targeting higher priced IPOs want to have monitoring benefits from institutional investors beyond the IPO listing period Stoughton and Zechner (1998). Both IPO market-adjusted underpricing (coef. 1.53; *p*-value—0.000) and percentage of individual investors immediately after the IPO (coef. 0.04; *p*-value—0.019) listing show a positive coefficient, which is statistically significant in relation to the FDTR. The results show that if the market-adjusted IPO underpricing is higher, it will induce investors to trade more to take advantage of the IPO listing gains and thus engage in higher trading on listing day. These above results are supported by Krigman et al. (1999), which indicates that the initial turnover is positively associated with IPO underpricing. The percentage of individual investors (after the IPO listing) has a positive and statically significant (coef. 0.040; *p*-value 0.019) coefficient in relation to the FDTR. The results also show that a higher percentage of individual investors in the ownership of a company may have a positive impact on listing trading on the listing day (FDTR) of the IPO. IPO issue size has a negative and significant coefficient (coef. (−)1.77; *p*-value 0.000) in relation to FDTR. This indicates that lower sized IPOs tend to have higher first-day trading volumes (FDTR). As lower-sized IPOs are also associated with a higher number of individual investors, as stated by Gompers and Metrick (2001) (and higher-sized IPO with institutional investors—Del Guercio (1996), in ownership of the company, this could lead to a higher trading turnover on the first day and vice-versa for higher-sized IPOs.

4.3. Regression Results—The Effect of IPO Offer Price Ranges, Promotor Holding and Financial/Non-Financial Controls on Post-IPO Ownership Structure between Individual and Institutional Investors (for results, See Appendix C

The regression coefficient for the dummy variable representing an IPO price range of INR 0–50 (coef. 9.92; *p*-value—0.005) is positive and statistically significant for the percentage of individual holdings in the ownership of the company (after the IPO). This result shows that individual investors are most sensitive to the lowest ranges of the IPO offer price (i.e., INR 0–50). The regression coefficients become negative at higher ranges of IPO offer prices (dummies), but the *p*-values are not statistically significant. The regression coefficient for the same IPO offer price range (less than and equal to INR 50) is negative but not statistically significant, at coef. 6.14 (*p*-value 0.229), for institutional investors. Institutional investors show a positive preference for higher ranges of IPO offer prices (dummies). The regression results exhibit the highest positive and significant regression coefficient (coef. 14.83; *p*-value—0.021) for the IPO offer price range of INR 301–350 for institutional investors. The dummy representing the IPO offer price range of INR 301–350 has a negative and significant regression coefficient (coef. −9.15; *p*-value 0.037) for individual investors, which show the highest aversion among individual investors for higher IPO prices. We checked multi-collinearity among regressions results, the mean VIF was 1.46 for both the regression models.

The regression results can establish two specific IPO offer price ranges in which individual investors (INR 0–50) and institutional investors (INR 301–350) maximize their respective holdings after the listing of the IPO issue. The above regression results are consistent with the past results obtained by Fernando et al. (2004), in which institutional investors prefer higher-priced IPOs, while individual investors prefer lower-priced IPOs (but a range is not defined). The regression coefficient for post-issue promoter holding (PIPH) is negative and statistically significant for individual investors, at a coefficient of −0.244 and a *p*-value of 0.000, which supports the earlier argument that lower promotor holdings would prefer higher dispersion among individual shareholders and vice versa for institutional holdings (positive and significant regression coefficient 0.65). Therefore, the results show that lower promotor holdings may target lower IPO offer prices to target higher ownership dispersion among individual investors. The regression results (using an Indian dataset) are supported by Sahoo and Rajib (2012), who showed that the offer price is positively related to post-issue promoter group holdings. The study

suggested that the percentage of promotor holdings after the issue is an indication of the firm quality and future cash flow. None of the financial controls and non-financial controls have statistically significant regression coefficients. The difference in corporate ownership structures across countries can be linked to different types of corporate control across countries (Franks and Mayer 1997). The different levels of ownership across Germany, the United States, and the United Kingdom create different incentives for corporate control. Franks and Mayer (1997) hypothesized that a high concentration in ownership holdings builds a longer relationship between companies and investors, while, in contrast, dispersed holdings will incentivize owners to sell holdings if the company is going through a temporary downturn. One of the prominent features of Indian corporate houses is the high level of promotor holding[3] and thus they want to maintain control after the IPO. So, a lower promotor holding percentage after the IPO would like to disperse holding post-IPO to maintain control. Initial managers/promotors who want to preserve control (post-IPO) like to avoid institutional investors (Brennan and Franks 1997). A related augment by (Booth and Chua (1996) claims that mangers target lower IPO issue price to have broader ownership among retail investors post-IPO. Past evidence (Ritter 1984; Kim et al. 1995; Klein 1996) finds a positive relationship between promotor holding and IPO issue price. The intensity of agency issues between promotors and post-IPO ownership structure are signaled by the extent of dispersion among individual shareholders post-IPO. Numerous past studies (such as Brennan and Franks 1997; Stoughton and Zechner 1998; Mello and Parsons 1998). suggest that the ownership mix between institutional and individual investors post-IPO is an important parameter in driving IPO decisions.

In this paper, we establish the significance of specific price ranges on pre- and post-IPO listing participation among various categories of investors. One possible explanation from psychology for lower IPO price preference among individual investors is that individuals judge the value of something based on a number of units Pelham et al. (1994). As individuals are more averse to losses, they may think that lower stock prices have lower downside risks than high-priced stocks do, forming a lower reference price in their minds. In contrast, institutional investors prefer higher IPO offer prices and shun low-priced IPOs. The study is also able to establish various effects of IPO issue factors on both pre- and post-participation of various categories of investors in full subscription/oversubscription, initial trading volume, and post-IPO listing ownership structure.

5. Conclusions

This study establishes a link between IPO offer price ranges and pre-listing demand among various categories of investors. At the pre-listing stage of an IPO, RII and NII (individual investors) follow the QIB investors (institutional investors) by avoiding the lowest-priced IPOs. At the post listing stage, a link between the lowest IPO offer price ranges and initial turnover is also established. The initial turnover (IPO listing day trades) shows that investors trade less at the lowest range of IPO offer price. Individual (lowest range) and institutional investors (higher range) maximize their respective post-listing ownership at diverse ranges of IPO offer prices.

The results further estimate that lower promoter holdings diffuse higher ownership among individual shareholders by targeting lower IPO offer prices, thus increasing control. Among the various IPO issue factors, IPO underpricing is positively related to a higher likelihood of IPOs being oversubscribed in the QIB category (as compensation by the company to institutional investors). The RII and NII categories have a higher likelihood to fully subscribe/oversubscribe to lower-sized IPOs, while QIB investors are positively associated with oversubscription to larger-sized IPOs. In the post-listing stage, listing day trading is positively associated with IPO underpricing and individual holders in the ownership structure of the company. This study gives certain aspects of individual

[3] The percentage holding of promoters in Indian companies listed on National Stock Exchange stood at 54.46% as on June 30, 2019 and value though, promoter holding in companies listed on NSE his INR 73.33 lakh crore (Source—NSE Infobase—Prime database).

investors' behavior towards IPO offer prices, which further affects the initial trading and ownership structure post-IPO. The study has two limitations, first, the sample for the study is restricted to the Indian primary capital market for a specified time period and, second the study can be expanded to provide evidence for the effect of reduction in market price bands (like stock splits ranges) on companies' change in underlying ownership in the secondary equity market. The results will have important consequences for agency issues and corporate control, as promotors may use the IPO offer price to target a desired ownership structure post-IPO. The results provide the economic significance of IPO offer price levels among investors in pre- and post-IPO listing.

Author Contributions: Conceptualization, H.S. & K.G.; Methodology, H.S. and K.G.; Software, H.S.; Validation, H.S. and K.G.; Formal analysis, H.S.; Investigation, H.S.; Data curation, H.S.; Writing–original draft preparation, H.S.; writing, H.S.; Supervision, K.G.; Project administration, K.G. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Results of the firth logistic regression model. The effect of IPO offer price range and issue-specific characteristics on the oversubscription or undersubscription of an IPO listing among investors categories.

Firth Logit Regression Model	Dependent Variable—If the IPO Issue Is Oversubscribed, Takes the Value of 1; Otherwise 0; N = 200		
Independent Variables-Coef (Coef Range) (*p*-Value)	**RII (Retail)**	**NII**	**QIB**
Dummy_0–50	−0.891 (−1.548, −0.036) (0.028)	−1.43 (−2.12, −0.46) (0.001)	−1.83 (−2.38, −0.28) (0.001)
Dummy_51–100	0.175 (−0.50, 1.03) (0.670)	−0.804 (−1.49, 0.128) (0.068)	−1.21 (−1.67, 0.24) 0.013
Dummy_101–150	0.238 (−0.12, 1.24) (0.587)	0.551 (0.178, 2.15) (0.352)	−0.189 (−0.30, 1.46) (0.714)
Dummy_151–200	−0.545 (−1.49, 0.089) (0.208)	−0.415 (−1.74, 0.23) (0.427)	0.102 (−0.81, 1.16) (0.862)
Dummy_201–250	0.071 (−0.97, 0.90) (0.888)	0.072 (−1.31, 1.02) (0.906)	−0.254 (−1.26, 0.92) (0.689)
Dummy_251–300	−0.218 (−1.52, 0.86) (0.727)	0.906 (−1.44, 2.16) (0.544)	0.339 (−1.45, 2.17) (0.728)
Dummy_301–350	0.495 (0.95, 1.91) (0.506)	−0.110 (−1.68, 1.26) (0.885)	1.22 (−1.57, 4.22) (0.418)
Dummy_351–400	−0.212 (−1.78, 1.26) (0.789)	−1.38 (−2.99, −0.024) (0.068)	0.941 (−2.04, 3.92) (0.547)
Dummy_401–450	0.628 (−1.10, 2.46) (0.68)	0.032 (−1.73, 1.90) (0.972)	−1.21 (−3.13, 0.93) (0.261)
IPO Issue Size	−0.0001504 (−0.0002584, 3.05) (0.023)	−0.0001745 (−0.0002775, −8.75) (0.010)	0.0051 (0.0031823, 0.008878) (0.000)
IPO Underpricing (MAU)	0.004999 (−0.001329, 0.010282) (0.088)	0.0000741 (−0.0013297, 0.010282) (0.979)	0.0063 (0.0006169, 0.0119556) (0.026)
Intercept (*p*-value)	1.189 (0.594, 1.59) (0.000)	1.94 (1.21, 2.43) (0.000)	0.444 (−1.07, 0.809) (0.322)
Wald chi2	19.05	25.11	58.53

Significance level—at 5%; at 10%. Range of coefficients between a 95% confidence interval.

Appendix B

Table A2. Results of OLS regressions. The effect of the IPO offer price ranges and the IPO issue characteristics on the FDTR.

Independent Variables IPO Price Ranges (Low to High) & Firm-Specific Variables Coef (Coef Range) (*p*-Value)	**Dependent Variables—First-Day Trading Ratio (FDTR) Regression Coefficients (OLS Regression)**
Dummy_(0–50)	−1.473 (−2.63, −0.275) (0.015)
Dummy_(51–100)	0.160 (−0.814, 1.172) (0.752)
Dummy_(101–150)	−0.060 (−1.072, 0.986) (0.908)
Dummy_(151–200)	0.649 (−0.704, 1.961) (0.256)
Dummy_(201–250)	0.609 (−1.655, 1.80) (0.368)
Dummy_(251–300)	0.058 (−1.462, 1.614) (0.947)
Dummy_(301–350)	−0.013 (−2.281, 1.812) (0.987)
Dummy_(351–400)	−0.01331 (−4.544, 3.362) 0.987
Dummy_(401–450)	0.611 (−0.007, 0.0752) (0.760)
X_1 log (IPO Issue Size)	−1.77 (−2.503, −1.030) (0.000)
X_2 market-adjusted underpricing	1.53 (0.809, 2.266) (0.000)
X_3 percentage of promotor holdings	0.0059 (−0.016, 0.0290) (0.609)
X_4 percentage of individual holdings	0.040 (0.007, 0.0752) (0.019)
Intercept	8.48 (4.884, 11.912) (0.000)
F-value (*p*-value)	0.0000
Adj. R-square	0.28

Significance level—at 5%; at 10%. Range of coefficients between a 95% confidence interval.

Appendix C

Table A3. Results of OLS regressions. The effect of IPO offers price ranges and financial and IPO issue characteristics on post-IPO ownership structure between individual and institutional investors. The regression model is checked for multicollinearity among the reession variables.

Independent Variable IPO Price Ranges (Low to High); Non-Financial Variables (Issue Specific) and Financial Variables (Firm-Specific) Coef. (p-Value)	Regression Model 1: Dependent Variable: (Percentage of Individual Shareholding Immediately after the IPO) Regression Coefficients (OLS Regression) N-200	Regression Model 2: Dependent Variable: Percentage of the Individual Shareholding Immediately after the IPO Regression Coefficients (OLS Regression) N-200
Dummy_0–50	9.925 (3.073, 16.777) (0.005)	−6.14 (−16.197, 3.899) (0.229)
Dummy_(51–100)	4.22 (−1.289, 9.732) (0.132)	1.32 (−6.751, 9.408) (0.746)
Dummy_(101–150)	0.385 (−4.917, 5.687) (0.886)	4.97 (−2.793, 12.748) (0.208)
Dummy_(151–200)	−2.54 (−8.570, 3.478) (0.405)	5.22 (−3.771, 14.214) (0.253)
Dummy_(201–250)	−1.20 (−8.649, 6.235) (0.749)	0.516 (−10.387, 11.421) (0.926)
Dummy_(251–300)	−0.790 (−10.581, 9.001) (0.874)	7.33 (−10.387, 11.421) (0.314)
Dummy_(301–350)	−9.15 (−17.756, −0.558) (0.037)	14.83 (2.2308, 27.429) (0.021)
Dummy_(351–400)	−2.55 (−25.099, 19.997) (0.824)	−1.18 (−34.230, 31.853) (0.943)
Dummy_(401–450)	−5.38 (−18.569, 7.795) (0.421)	8.36 (−10.954, 27.680) (0.394)
α percentage of promotor holdings (after the IPO listing)	−0.244 (−0.347, −0.1408) (0.000)	0.65 (0.501, 0.803) (0.000)
X_1 IPO issue size (million INR) *****	−6.47 (−0.0000171, 4.15) (0.231)	0.0000116 (−3.996, 0.0000271) (0.144)
X_2 market-adjusted underpricing (MAU) *****	−1.07 (−4.841, 2.694) (0.574)	2.10 (−3.427, 7.627) (0.454)
X_3 Minimum Lot Size (in INR) *****	0.0000639 (−0.000349, 0.000476) (0.761)	0.0001913 (0.533)
X_4 EPS (3-year weighted average before the IPO) ******	−0.013 (−0.055, 0.0278) (0.517)	0.0175 (−.0433, 0.0784) (0.570)
X_5 IPO offer price to earnings (weighted average 3 years) ratio ******	−0.0047 (−0.0248, 0.0152) (0.638)	0.0123 (−0.0169, 0.0417) (0.407)
X_6 return on net worth (weighted average 3 years ratio to the IPO) ******	0.0485 (−0.057, 0.154) (0.367)	0.0726 (−0.0830, 0.228) (0.358)
X_7 net asset value (before the IPO) ******	−0.00305 (−0.0380, 0.031) (0.863)	−0.0014 (−0.0482, 0.0545) (0.964)
β_0 constant	27.84 (18.516, 37.173) (0.000)	22.264 (9.492, 36.891) (0.000)
F-statistic (p-value)	0.000	0.0000
Adj. R^2	0.31	0.40

Significance level at 1%, 5%, and 10% levels. The regressions model is also checked for multicollinearity among the regression variables (***** Issue-specific controls (****** Financial controls (before the IPO).

References

Agarwal, Sumit, Chunlin Liu, and S. Ghon Rhee. 2006. Investor demand for IPOs and after market performance: Evidence from the Hong Kong stock market. *Journal of International Financial Markets, Institutions & Money* 18: 176–90.

Aggarwal, Reena, and Pietra Rivoli. 1990. Fads in the initial public offering market? *Financial Management* 19: 45–57. [CrossRef]

Aggarwal, Rajesh, Sanjai Bhagat, and Srinivasan Rangan. 2009. The Impact of Fundamentals on IPO Valuation. *Financial Management* 38: 253–84. [CrossRef]

Bartov, Eli, Partha Mohanram, and Chandrakanth Seethamraju. 2002. Valuation of internet stocks. An IPO perspective. *Journal of Accounting Research* 40: 321–46. [CrossRef]

Birru, Justin, and Baolian Wang. 2016. Nominal Price Illusion. *Journal of Financial Economics* 119: 578–98. [CrossRef]

Black, Bernard S. 1992. Institutional investors and corporate governance: The case for institutional voice. *Journal of Applied Corporate Finance* 5: 19–32. [CrossRef]

Booth, James R., and Lena Chua. 1996. Ownership dispersion, costly information and IPO under-pricing. *Journal of Financial Economics* 41: 291–310. [CrossRef]

Brennan, Michael J., and Julian Franks. 1997. Under-pricing, ownership and control in initial public offerings of equity securities in the UK. *Journal of Financial Economics* 45: 391–413. [CrossRef]

Chalk, Andrew J., and John W. Peavy III. 1987. Initial public offerings: Daily returns, offering types and the price effect. *Financial Analysts Journal* 43: 65–69. [CrossRef]

Chowdhry, Bhagwan, and Ann Sherman. 1996. International differences in oversubscription and underpricing of IPOs. *Journal of Corporate Finance* 2: 359–81. [CrossRef]

Clarke, Jonathan, Arif Khurshed, Alok Pande, and Ajai K. Singh. 2016. Sentiment traders & IPO initial returns: The indian evidence. *Journal of Corporate Finance* 37: 24–37.

Cotter, Julie, Michelle Goyen, and Sherryl Hegarty. 2005. Offer pricing in Australian industrial public offers. *Accounting and Finance* 45: 95–125. [CrossRef]

Del Guercio, Diane. 1996. The distorting effect of the prudent-man laws on institutional equity investments. *Journal of Financial Economics* 40: 31–62. [CrossRef]

Dyl, Edward A., and William B. Elliott. 2006. The Share Price Puzzle. *The Journal of Business* 79: 2045–66. [CrossRef]

Falkenstein, Eric G. 1996. Preferences for stock characteristics as revealed by mutual fund portfolio holdings. *Journal of Finance* 51: 111–35. [CrossRef]

Fernando, Chitru S., Srinivasan Krishnamurthy, and Paul A. Spindt. 2004. Are share price levels informative? Evidence from the ownership, pricing, turnover, and performance of IPO firms. *Journal of Financial Markets* 7: 377–403. [CrossRef]

Franks, Julian, and Colin Mayer. 1997. Corporate ownership and control in the UK, Germany and France. *Journal of Applied Corporate Finance* 9: 30–45. [CrossRef]

Fung, Joseph KW, Louis TW Cheng, and Kam C. Chan. 2005. The Impact of the costs of subscription on measured IPO returns: The Case of Asia. *Journal of Corporate Finance* 10: 45. [CrossRef]

Ghicas, Dimitrios C., Nikolaos Iriotis, Aphroditi Papadaki, and Martin Walker. 2000. Fundamental analysis and valuation of IPOs in the construction industry. *International Journal of Accounting* 35: 227–41. [CrossRef]

Gompers, Paul A., and Andrew Metrick. 2001. Institutional investors and equity prices. *Quarterly Journal of Economics* 116: 229–51. [CrossRef]

Ibbotson, Roger G., and Jay R. Ritter. 1995. Initial public offerings. In *Handbooks in Operations Research and Management Science*. Amsterdam: North-Holland Publishing, vol. 9, pp. 993–1016.

Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica, Econometric Society* 47: 262–93. [CrossRef]

Kahneman, Daniel, and Amos Tversky. 1984. Choices, values, and frames. *American Psychologist* 39: 341–50. [CrossRef]

Kim, Moonchul, and Jay R. Ritter. 1999. Valuing IPOs. *Journal of Financial Economics* 53: 409–37. [CrossRef]

Kim, Jeong-Bon, Itzhak Krinsky, and Jason Lee. 1995. The role of financial variables in the pricing of Korean initial public offerings. *Pacific-Basin Finance Journal* 3: 449–64. [CrossRef]

Klein, April. 1996. The association between the information contained in the prospectus and the price of initial public offerings. *Journal of Financial Statement Analysis* 2: 23–40.

Krigman, Laurie, Wayne H. Shaw, and Kent L. Womack. 1999. The persistence of IPO mispricing and the predictive power of flipping. *Journal of Finance* 54: 1015–44. [CrossRef]

Leland, Hayne E., and David H. Pyle. 1977. Informational Asymmetries. Financial Structure, and Financial Intermediation. *The Journal of Finance* 32: 371–87. [CrossRef]

Ljungqvist, Alexander, and William Wilhelm Jr. 2006. Does prospect theory explain IPO market behavior? *Journal of Finance* 60: 1759–90. [CrossRef]

McInish, Thomas H., and Robert A. Wood. 1992. An analysis of intraday patterns in bid/ask spreads for NYSE stocks. *Journal of Finance* 47: 753–76. [CrossRef]

Mello, Antonio S., and John E. Parsons. 1998. Going public and the ownership structure of the firm. *Journal of Financial Economics* 49: 79–10. [CrossRef]

Miller, Robert E., and Frank K. Reilly. 1987. An examination of mispricing, returns and uncertainty for initial public offerings. *Financial Management* 16: 33–38. [CrossRef]

Neupane, Suman, and Sunil S. Poshakwale. 2012. Transparency in IPO mechanism: Retail investors' participation, IPO pricing and returns. *Journal of banking & Finance* 36: 2064–76.

Pelham, Brett W., Tin T. Sumarta, and Laura Myaskovsky. 1994. The easy path from many too much: The numerosity heuristic. *Cognitive Psychology* 26: 103–33. [CrossRef]

Ritter, Jay R. 1984. Signalling and the valuation of unseasoned new issues: A Comment. *Journal of Finance* 39: 1231–33. [CrossRef]

Rock, Kevin. 1986. Why new issues are under-priced. *Journal of Financial Economics* 15: 187–221. [CrossRef]

Sahoo, Seshadev, and Prabina Rajib. 2012. Determinants of pricing IPOs: An empirical investigation. *South Asian Journal of Management* 19: 59–87.

Schreiner, Andreas. 2007. *Equity valuation using multiples: An empirical investigation, Deutsche Universitats-Verlag*. Wiesbaden: GWV Fachverlage GmbH.

Stoll, Hans R., and Robert E. Whaley. 1983. Transactions costs and the small firm effect. *Journal of Financial Economics* 12: 57–80. [CrossRef]

Stoughton, Neal M., and Josef Zechner. 1998. IPO mechanisms, monitoring, and ownership structure. *Journal of Financial Economics* 49: 45–78. [CrossRef]

Thaler, Richard. 1985. Mental Accounting and Consumer Choice. *Marketing Science* 4: 199–214. [CrossRef]

Weld, William C., Roni Michaely, Richard H. Thaler, and Shlomo Benartzi. 2009. The nominal price puzzle. *Journal of Economic Perspectives* 23: 121–42. [CrossRef]

Yong, Othman, and Zaidi Isa. 2003. Initial performance of new issues of shares in Malaysia. *Applied Economics* 35: 919. [CrossRef]