Article

Investor Perception Towards Initial Public Offerings and Its Impact on IPO Under-pricing in India

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Abstract

The research is carried out to understand the IPO under-pricing status and examine the impact of investor perception on the under-pricing of IPOs in India. Three hypotheses were formulated and tested to decide the status of IPO under-pricing and factors influencing IPO under-pricing in India. Data has been collected for 217 IPOs issued from 2018 to 2023. Statistical tools like 'descriptive statistics', 'Pearson correlation analysis', 'one sample t-test', 'regression analysis' and 'independent sample t-test' are used. The study findings show that recent IPOs in India exhibit significant under-pricing (p-value 0.000 < 0.05), demonstrating the presence of IPO under-pricing in the Indian primary market. The observed mean under-pricing rate for high subscription status IPOs is 58.248%, and for low subscription status, it is 5.988%, depicting a statistically significant difference.

Further, Pearson correlation analysis confirms the strong positive correlation (r = 0.714, p < 0.01) between investor perception and the IPO under-pricing rate. The total subscription rate significantly influences IPO under-pricing (p = 0.000, coefficient = 0.491). This study concludes that increased positive investor perception leads to increased investor participation in IPOs, resulting in higher IPO subscription rates. An increased IPO subscription rate reduces the chances of IPO allotment, and un-allotted investors try to purchase the shares in the secondary market on the day of listing, which increases the listing price and results in IPO under-pricing.

Keywords: *Investor Perception, IPO Under-pricing, Subscription Rate, Under-pricing Rate*

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1. Introduction

The IPO market is the primary platform for businesses and companies to source funds and increase their business operations by offering company stocks to the public for the first time. Many companies are going public through an initial public offering to fund their financial needs. An IPO serves as the most convenient source of financing for the long-term financial needs of the business as it will not create any burden of payment of fixed interest. An IPO infuses large capital into the business and diversifies and expands ownership. Financing through Initial Public Offering not only creates new funding opportunities but also increases the public visibility of the business. When a private company becomes public, it must adhere to additional rules, regulations, and disclosure requirements. It will not only influence the success of an IPO but also affect the prospects of the business after listing the initial public offering (Yang & Sheu, 2006). Investors participate in IPOs for the potential high returns and growth prospects but often get trapped in IPOs due to overvaluation, market volatility and information asymmetry. The SEBI has set up several regulatory frameworks and disclosure requirements to bring transparency to the primary market and enable better investor protection.

At present, the IPO landscape in India is witnessing phenomenal change driven by a combination of economic growth, regulatory reforms, and investor enthusiasm. In recent years, investors' participation in the equity market has experienced remarkable growth due to the increased number of new investors. After the COVID-19 pandemic, the retail investors' count in the Indian stock market has drastically increased. Factors like economic growth, enhanced financial literacy, technological innovation, regulatory support, and proactive government policies have collectively contributed to increased retail investors in the Indian stock market. The rise in primary market activities is impacting the valuation of IPOs in India. The valuation of an IPO is essential in determining the offer price for the issue, which subsequently affects the rate of under-pricing.

IPO under-pricing means the IPOs are offered at a lower price than the listing day closing price of the share. Under-pricing is the phenomenon where IPOs are priced lower than the actual price. The majority of the primary markets around the world are experiencing under-pricing of IPOs, but the degree varies across countries. IPOs are usually underpriced to increase the investor participation rate in the Initial Public Offerings and thereby reduce the risk of failure of an IPO (Sahoo & Rajib, 2010). Investors are earning abnormally high returns on the listing day due to the high rate of IPO under-pricing (Purnanandam & Swaminathan, 2004; Kuklinski, 2003). If the under-pricing of IPOs is within the limit, it stimulates the investors.

In contrast, excessive under-pricing shows inefficiency in the pricing mechanism and potential fraud or misleading by the companies. A higher rate of IPO under-pricing leads to long-run underperformance of IPOs (Hoechle & Schmid, 2007). In simple terms, under-pricing acts as both a boon and a bane. Hence, it becomes essential to understand the status of IPO under-pricing in India and examine the factors influencing the IPO under-pricing. Many factors influence IPO under-pricing in India, such as Market Conditions, Investor Perception, Issuer Characteristics, Underwriter Incentives, Regulatory Framework, Demand-Supply Dynamics, and Investor Participation. Among these factors, Investor perception is the primary factor that shapes under-pricing in India, as investor perception acts as a critical issue in shaping the demand dynamics of IPOs, influencing the pricing strategy and thereby contributing to the degree of under-pricing in the primary market.

With this perspective, it becomes necessary to study the degree of under-pricing in India and understand the interrelationship between optimistic investors' sentiment and the IPO under-pricing rate. The following review of existing research provides insights into IPO under-pricing in India and worldwide.

2. Review of literature

Madhusoodanan and Thiripalraju (1997) describe under-pricing as the listing day market price being more significant than the issue price of a stock. Katti and Phani (2016) argue that the under-pricing rate is dynamic, and different markets have different under-pricing rates around the world. Ichev (2023) found the presence of IPO under-pricing in all emerging markets. Zhou (2022) found that IPO under-pricing

and IPO success rates are negatively correlated, but the turnover rate is positively correlated. Furthermore, they found that implementing stricter supervision and increasing audit systems can help to reduce the risks arising from IPO under-pricing. Rani (2014) discovered that company-specific characteristics have a direct relationship with the listing day gain, but these factors do not significantly impact the under-pricing of IPOs. S. Wang and Yao (2013), Ibrahim and Benli (2022), Chen et al. (2021), and Saade S. (2015) found that higher investor sentiment leads to an overestimation of new stocks on the first day, resulting in higher IPO under-pricing rates. The study suggests that irrational behaviour, such as overreaction and herding, will contribute to IPO under-pricing. Y. Wang and Yao (2021) found that during the first phase sentiment of investors has a positive correlation, while there is a negative correlation with the cost of issuance. After listing, investor perception will majorly affect the IPO under-pricing rate.

Zou et al. (2020) conclude that there is no presence of IPO under-pricing in the SME market in China. Chinese government rules and regulations on price determination of IPOs significantly influence initial returns and under-pricing. Su and Brookfield (2013) found that an underwriter's reputation significantly impacts IPO Under-pricing. Chhabra et al. (2017) and Chi and Padgett (2002) argue that information asymmetry significantly impacts listing day returns to a large extent. Sahoo and Rajib (2010) found that prestigious banks often substantially underprice IPOs to decrease the threat of unsuccessful IPOs. Bédard et al. (2016) argue that the quality of the governance and the auditor associated with the issue will significantly reduce the rate of IPO under-pricing. Sharma and Seraphim (2010) state that underwriters' reputations have negatively correlated with the under-pricing rates of Indian IPOs.

The above discussion clarifies that IPO under-pricing is present in all primary markets, and many factors influence the IPO under-pricing rate around the world. The discussion further reveals that exorbitant under-pricing leads to inefficient pricing mechanisms. There is not much research focusing on the relationship between IPO under-pricing and investor perception. With this perspective, this study focuses on the present status of IPO under-pricing in India and the impact of positive investor perception on IPO under-pricing in India.

3. Objectives and Hypotheses

3.1 Problem Statement

In recent years, the Indian primary market has experienced phenomenal change, and many companies are coming forward to list their initial public offerings (IPOs). Furthermore, the number of investors participating in IPOs is also increasing in the Indian market. This creates the necessity to examine how these Indian IPOs are valued and what influences the IPO valuation in India. With this perspective, the research aims to investigate the current status of under-pricing in India and the impact of positive investor perception on under-pricing in India.

3.2 Objectives

- To study the current status of IPO under-pricing in India

- To analyse the impact of Investors perception on IPO under-pricing in India

- To examine the impact of Issue Size, Lot Size and Offer Price on IPO Under-pricing in India

3.3 Hypotheses

H01: No significant under-pricing is observed in recent IPOs in India.

Ha1: Significant under-pricing is observed in recent IPOs in India.

H02: There is no significant relationship between positive investor perception and IPO under-pricing.

Ha2: A significant relationship exists between positive investor perception and IPO under-pricing.

H03: There is no significant impact of issue size, lot size and offer price on IPO under-pricing.

Ha3: Issue size, lot size, and offer price significantly impact IPO under-pricing.

3.4 Conceptual Framework

- **Investor perception**

Subscription rates of IPOs show investors' perceptions of an IPO. Hence, investors' perceptions of an IPO

are measured by the extent to which that IPO is subscribed.

- **IPO Under-pricing Rate**

The IPO Under-pricing Rate for the study has been calculated using the following formula.

$$IPO\ Under-pricing\ Rate = \frac{Listing\ Day\ Closing\ Price - Issue\ Price}{Issue\ Price} * 100$$

- **Classification of IPOs**

For this study, IPOs are classified into two groups: those with "high subscription status IPOs" and "low subscription status IPOs." IPOs with a subscription rate higher than the average are classified as "high subscription status IPOs," and IPOs with subscription rates lower than the average are classified as "low subscription status IPOs."

4. Research Methodology

4.1 Data Source & Tools used for analysis

The research has been carried out using secondary data sourced from NSE and other websites. The time frame considered for the study is six years, from 2018 to 2023. Statistical tools like 'descriptive statistics', 'one sample t-test', 'regression analysis', 'independent sample t-test', and 'Pearson correlation' techniques were used for data analysis and hypothesis testing.

4.2 Sampling method

The sample for this study has been selected, as shown in Table 01 below.

Table 01: Sample selection

Year	Number of IPOs issued	Number of IPOs not considered for study due to incomplete data	Number of IPOs considered for study
2023	60	1	59
2022	39	0	39
2021	66	2	64
2020	16	1	15
2019	17	1	16
2018	24	0	24
Total	222	5	217

Source: compiled from https://www.chittorgarh.com/ report/ipo_report_listing_day_gain/98/all/

From 2018 to 2023, 222 initial public offerings were issued. Due to incomplete data, 05 IPOs were not considered for this study. Finally, 217 IPOs were included in the research study.

5. Analysis and Discussion

5.1 'Descriptive Statistics'

Table 02:'Descriptive Statistics'

	N	Min	Max	Mean	Std. Deviation
Issue Price	217	12	2150	450.74	355.153
Lot Size	217	6	1000	81.35	122.394
Issue Size(Rs in Crores)	217	23.00	21008.48	1472.832	2492.051
QIB Subscription Rate	217	.64	220.69	56.417	63.675
NII Subscription Rate	217	.03	958.07	88.579	165.866
RII Subscription Rate	217	.03	374.81	17.387	34.486
Total Subscription Rate	217	.53	326.49	43.981	57.617
Listing Day Closing Price	217	12.30	3118.65	552.710	474.465
IPO Under-pricing Rate	217	-27.248	270.398	24.291	39.493
Valid N (listwise)	217				

Source: compiled from https://www.chittorgarh.com/ report/ipo_report_listing_day_gain/98/all/

The average issue price of 217 IPOs for the study is ₹450.74. The mean lot size is 81.35 shares, and the mean issue size of IPOs is ₹1472.832 Crores. The average subscription rate of QIBs, NIIs, and RIIs is 56.417, 88.579, and 17.387 times, respectively. The average total subscription rate of IPOs is 43.981 times, and the mean listing day closing price is ₹552.710. India's average IPO Under-pricing rate is 24.291%, from -27.248% to 270.398%, with a standard deviation of 39.493%.

5.2 'One Sample t Test'

Table 03: 'One-Sample Statistics'

	N	Mean	Standard Deviation	Standard Error Mean
IPO Under-pricing Rate	217	24.291	39.493	2.681

The table number 03 shows that, the mean under-pricing rate is 24.291%% and the standard deviation is 39.493%

Table 04: 'One-Sample Test'

			Test Value = '0'			
					'95 % Confidence Interval'	
	t	df	Sig (2-tailed)	Mean Difference	Lower	Upper
IPO Under-pricing Rate	9.061	216	.000	24.291	19.0071	29.5755

The One-Sample Test was conducted to compare the calculated values with the test value. The test value is 0, representing no under-pricing in the Indian IPO Market. The calculated t-value is 9.061, and the p-value is 0.000 below 0.05. Hence, the results are statistically significant.

Table 05: 'One Sample Effect Sizes'

		Standardizer[a]	Point Estimate	'95% Confidence Interval'	
				Lower	Upper
IPO Under-pricing Rate	Cohen's d	39.493	.615	.469	.760
	Hedges' correction	39.630	.613	.468	.757

'a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation.
Hedges' correction uses the sample standard deviation, plus a correction factor.'

Cohen's d depicts a medium effect size with a point estimate of 0.615, which measures the standardised effect size. Hedges' correction is also 0.613. Since the 95% confidence interval (0.469 to 0.760 and 0.468 to 0.757) does not include 0 and the calculated p-value (0.000) is below 0.05, the null hypothesis H01 is rejected. Therefore, significant under-pricing is observed in recent IPOs in India with a medium effect size. The observed under-pricing is not only statistically significant but also practically meaningful.

5.3 'Independent Sample T Test'

Table 06: 'Group Statistics'

	Subscription Status	N	Mean	Standard Deviation	Standard Error Mean
Total Subscription Rate	High	76	105.4374	58.32698	6.69056
	Low	141	10.8565	12.00386	1.01091
Issue Price	High	76	454.82	342.727	39.313
	Low	141	448.55	362.858	30.558
Lot Size	High	76	76.70	98.359	11.283
	Low	141	83.87	133.834	11.271
Issue Size (Rs Cr)	High	76	827.7633	753.21513	86.39970
	Low	141	1820.5288	2988.32108	251.66203
IPO Under-pricing Rate	High	76	58.248	46.101	5.2888
	Low	141	5.988	17.448	1.4694

For this study, 217 IPOs are classified into High and Low subscription status. The IPOs with a higher subscription rate than the average are classified as "High". In comparison, IPOs with a lower subscription rate than the average are classified as "Low". According to the above classifications, 76 IPOs have a high subscription status, while 141 IPOs have a low subscription status. The mean IPO under-pricing rate in high subscription status IPOs is 58.248%, and in low subscription status IPOs, it is 5.988%. This indicates a difference between the IPO under-pricing rates of high and low subscription rate IPOs.

Table 07: 'Independent Samples Test'

	'Levene's Test for Equality of Variances'		't-test for Equality of Means'						
	F	Sig.	t	df	Sig. (2 tailed)	'Mean Difference'	'Std. Error Difference'	'95% Confidence Interval of the Difference'	
								Lower	Upper

Issue Price	Equal variances assumed	.223	.637	.124	215	.902	6.270	50.655	-93.574	106.113
	Equal variances not assumed			.126	161.436	.900	6.270	49.793	-92.060	104.599
Lot Size	Equal variances assumed	.550	.459	-.411	215	.682	-7.168	17.451	-41.564	27.228
	Equal variances not assumed			-.449	195.226	.654	-7.168	15.948	-38.620	24.284
Issue Size (Rs Cr)	Equal variances assumed	17.63	.000	-2.845	215	.005	-992.765	348.941	-1680.550	-304.980
	Equal variances not assumed			-3.731	170.525	.000	-992.765	266.080	-1518.00	-467.530
Total Subscription Rate	Equal variances assumed	107.62	.000	18.573	215	.000	94.580	5.092	84.543	104.618
	Equal variances not assumed.			13.978	78.442	.000	94.580	6.766	81.110	108.050
IPO Under-pricing Rate	Equal variances assumed	48.81	.000	11.981	215	.000	52.260	4.362	43.662	60.858
	Equal variances not assumed			9.522	86.752	.000	52.260	5.488	41.351	63.170

Levene's test suggests no significant difference in the issue price and lot size between the groups with low and high subscription rates (p = 0.682 and 0.902, respectively). Levene's test further suggests the presence of significant differences in the Issue size, IPO subscription rate and IPO Under-pricing, as the calculated p-value for all three variables (0.000) is less than 0.05. The mean IPO under-pricing rate in high subscription status IPOs is 58.248%, and in low subscription status IPOs is 5.988%. This indicates the presence of statistically significant differences in the IPO under-pricing rates of IPOs with high and low subscription rates. Hence, the H02 is rejected, concluding that there is a strong relationship between positive investor perception and IPO under-pricing. The increased IPO under-pricing indicates a positive perception and increased investor participation in IPO subscription.

5.4 Correlation Analysis

Table 08: Correlations

		Total Subscription Rate	IPO Under-pricing Rate
Total Subscription Rate	Pearson r	1	.714[**]
	Sig.(2-tailed)		.000
	N	217	217
IPO Under-pricing Rate	Pearson r	.714[**]	1
	Sig.(2-tailed)	.000	
	N	217	217
'**. Correlation is significant at the 0.01 level (2-tailed).'			

The Pearson correlation test has been carried out to study the connection between investor perception and the IPO under-pricing rate in India. The study results show a strong positive correlation between investor perception and IPO under-pricing rate in India with a correlation coefficient of 0.714, and these results demonstrate statistical significance because the p-value is 0.000(<0.01). It once again proves the rejection of the Null hypothesis H02, indicating that increased positive investor perception leads to increased IPO under-pricing rates in India and vice versa.

5.5 Regression Analysis

A regression test is used to evaluate the effect of predictors (Total Subscription Rate, Lot Size, Issue Size and Issue Price) on dependent variable IPO under-pricing rate in India.

The following regression equation has been developed:

$$Ý = α + β_1 X_1 + β_2 X_2 + β_3 X_3 + β_4 X_{4+ei}$$

Where,

$Ý$ = IPO Under-pricing rate (Dependent Variable))

$α$ = Constant

X_1 = Total Subscription Rate

X_2 = Lot Size

X_3 = Issue Size

X_4 = Issue Price

B_1, $β_2$, $β_3$ & $β_4$ = Regression coefficients of Four Factors

ei = Error Item

Table 09: 'Model Summary'

Model	R	R^2	Adjusted R^2	'Standard Error of the Estimate'
1	.715[a]	.512	.502	27.8562

a. Predictors(Constant): Total Subscription Rate, Lot Size, Issue Size (Rs Cr), Issue Price

The regression model explains that four independent variables—total subscription rate, lot size, issue size, and issue price—cause 51.2% of the variance in IPO under-pricing (R-square = 0.512).

Table 10: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	172391.936	4	43097.984	55.541	.000[b]
	Residual	164506.093	212	775.972		
	Total	336898.029	216			

a. Dependent Variable: IPO Under-pricing Rate

b. Predictors(Constant): Total Subscription Rate, Lot Size, Issue Size (Rs Cr), Issue Price

The ANOVA shows that the regression model is significant, with a p-value of 0.000, less than 0.05. This specifies that one or more independent variables significantly contribute to the variance in the IPO under-pricing rate in India. The F-statistic is 55.541, suggesting that the regression model developed aligns well with the data.

Table 11: 'Coefficients a'

Model		'Unstandardized Coefficients'		'Standardized Coefficients	t	Sig.
		B	Std. Error	Beta'		
1	(Constant)	3.463	4.510		.768	.443
	Issue Price	-.004	.007	-.033	-.514	.608
	Lot Size	.005	.019	.016	.273	.785
	Issue Size (Rs Cr)	.000	.001	.019	.337	.737
	Total Subscription Rate	.491	.034	.717	14.628	.000

a. Dependent Variable: IPO Under-pricing Rate

Issue Price, Lot Size, and Issue Size do not significantly affect IPO under-pricing statistically, as indicated by their non-significant p values of 0.608, 0.785, and 0.737, respectively (p > 0.05). The coefficient for the total subscription rate is 0.491, indicating that every one-unit increase in the total subscription rate leads to a 0.491-unit increase in the IPO under-pricing rate in India. This effect is statistically significant with a p-value of 0.000.

Thus, the study accepts the null hypothesis (H03) for issue price, lot size, and issue size, indicating that the variables do not substantially impact IPO under-pricing. However, we reject the null hypothesis (H03) for the total subscription rate, indicating that positive investor perception significantly impacts the IPO under-pricing rate in India. The results of this research study are consistent with the conclusions of previous research conducted by S. Wang and

Yao (2013), Saade S. (2015), Chen et al. (2021), and Ibrahim and Benli (2022).

6. Conclusion

The above research is carried out to understand the status of initial public offering under-pricing and to study the impact of investors' perceptions on the under-pricing of IPOs in India. Three hypotheses were formulated and tested to determine the status of IPO under-pricing and the various factors influencing IPO under-pricing in India. Data has been collected for 217 IPOs issued from 2018 to 2023. The study results show that recent IPOs in India exhibit significant under-pricing as indicated by the rejection of the null hypothesis (H01) (p-value 0.000 < 0.05). Cohen's d = 0.615 and Hedges' correction = 0.613 suggest a medium-size effect; these results are statistically and practically significant.

The independent sample t-test results reveal that there are no significant differences in issue price and lot size between groups with high and low subscription rates (p = 0.902 and 0.682, respectively) while indicating significant differences in issue size, IPO subscription rate, and under-pricing rate (p < 0.05). The observed mean under-pricing rates of 58.248% for high subscription status IPOs and 5.988% for low subscription status IPOs show a statistically significant difference, resulting in the rejection of the null hypothesis (H02). Further, Pearson correlation analysis also confirms the rejection of null hypothesis H02 because there is a strong positive correlation (r = 0.714, p < 0.01) between investor perception and the IPO under-pricing rate. This indicates that increased positive investor perception increases investor participation in IPOs, resulting in higher IPO subscription rates. An increased IPO subscription rate reduces the chances of IPO allotment, and un-allotted investors try to purchase the shares in the secondary market on the day of listing. This increases the demand for newly issued shares, increasing the listing price and resulting in IPO under-pricing.

Issue Price, Lot Size, and Issue Size show no significant effects on IPO under-pricing (p > 0.05), while the total subscription rate significantly influences IPO under-pricing (p = 0.000, coefficient = 0.491). Hence, null hypothesis H03 is rejected only for the total subscription rate, indicating that positive investor perception significantly impacts IPO under-pricing rates in India.

Scope for the future study

This study covers IPOs issued from 2018 to 2023, considering factors such as issue price, lot size, issue size, and IPO subscription rates. Researchers can also consider IPOs issued before 2018 and other factors influencing IPO under-pricing in India.

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