Performance of IPO Returns in Indian Financial Market: An Empirical Investigation

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Abstract

IPOs' short-run performance in the Indian Financial market is reported in this study, which may be helpful to investors who are interested in IPO investments. Detailed analysis on the performance of 179 IPOs that came to the market during the period 2016-2021 is examined in this work. To assess the short-term effectiveness of IPOs, the first trading day raw returns of the security, Index return, market-adjusted abnormal return, and cumulative abnormal returns are used. T-test has been deployed to find the statistical significance of those returns. Further, the influence of other internal factors such as the age of the company, promoter holding, issue size, and issue price impact, over the security return in the market is clearly brought out using multiple OLS regression analysis. The findings are helpful to the market participants such as retail investors, high net worth individuals, traders, and fund managers for making effective investment decisions on Indian IPOs.

Keywords: Indian IPOs, Underpricing, short-run performance, Indian stock market

JEL classification: B22, CO1, C22, C52

Introduction

Raising capital through IPO (Initial Public Offerings) from the financial market is a herculean task for the firm. The business firms must earn the trust of the investors to make their IPO successful in the primary market. Once they succeed in their IPO it gives lot of benefits. It will get the capital for future plans, the reputation of the firm will increase, and the firm will get the privilege of its shares getting traded on the stock exchange. This will enable the firm to get a greater positive perception from all the stakeholders of the firm and the market. Narang (2017), found that the companies in India rigorously capitalized the economic and market growth by issuing IPOs, attracting all potential investors to subscribe to their shares. Even after listing, several external factors such as natural hazards and human-made events affect the performance of IPOs (Horn.S et al (2021). Last decade there were a greater number of IPOs coming to the market, which is higher than ever before.

Sometimes the IPOs mislead the Indian investors, as some of the IPOs gave negative returns on the day of listing and post listing.

Under-pricing or overpricing, as well as an agency issue between the investment bank and the issuing corporation, are common problems in the IPO market. IPO underpricing occurs when the issue price is lower than the security's listing day closing price, whereas IPO overpricing occurs when the issue price is greater than the security's listing day closing price. On the day of the listing, the former allows the investor to gain an abnormally high rate of return as compared to the benchmark index.(Kuklinski,2003; Purnanandam & Swaminathan, 2004). An IPO may be under-priced on purpose to persuade investors to subscribe, or it may be under-priced unintentionally because market analysts and underwriters underestimate the security's demand(Babu& Dsouza 2021). In the literature on IPO performance, there are well-documented studies in the developed markets, but with respect to the Indian market, more studies must be conducted to make investors and other market stakeholders well informed with respect to IPO investment decisions. In this study, the author tries to fill this gap by analysing the recent IPOs floated in the Indian market.

This research report is organized in a way, the first section explains the conceptual background of the IPO performance. The second section of the paper focuses on the literature on IPO security's listing day performance and post-listing performance in the market. The aim and hypotheses of the study are presented in the third section. The fourth and last portion of the report covers the findings and conclusions of the analysis.

Literature review

This study's literature is split into two sections. The first section discusses the literature on IPO under-pricing and security listing performance in the Indian market. The second part expresses the literature related to post listing short-run performance of Indian IPOs further it also includes the literature related to internal factor impact over the short-run IPO return.

During the period 1965 to 1970 initial common stock offerings of 400 companies across the world has been examined by Blum (1973). Ritter (1984) examined the 1028 pubic issues in the 1977-82 period in the U.S market. He calculated the average initial return of 16.83%. Another study in 1987 found underpricing of 47.78 % issues during the period. Rock (1986) proposed in his study that to attract all the investors in the market all issues should compulsorily be underpriced, to overcome the information asymmetry among the investor groups. Further, it is necessary to get the maximum subscription from the investors. Rock (1986) model has been further tested by Lee, Taylor, and Walter (1999) Taking all the issues listed on the Singapore stock exchange, researchers discovered that better-informed investors prefer to participate in IPOs because they expect higher initial returns, which is compatible with Rock's model.

Tinic (1988) has tested the hypothesis that the under-pricing of IPOs can act as insurance to the legal liabilities and relevant damages to the reputation of the issuer and the investment banker in the US market. He finds that the establishment of the SEC (Securities and Exchange Commission) enabled the prestigious investment bankers and underwriters to avoid speculative small issues.

Short-run market phenomena were originally observed by (Stoll & Curley, 1970; Logue, 1973; Ibbotson, 1975), who used the first-day return to describe the level of under-pricing. The hypothesis test was carried out by several researchers from various nations. Gillian, et al. (2012), Himanshu Puri (2012), Poornima (2016) examined the short-run performance of IPO by using market-adjusted return and wealth relative model to analyse short-run under performance of IPOs in the Johannesburg stock exchange, Indian stock market and Gulf base GCC markets respectively. In addition to short-run under performance (Leila et al, 2014; Batool et al, 2015; Wasantha,2016)examined the factors affecting the price of IPO in different stock markets such as the Tehran stock market, the market of six Gulf Co-Operation, and Indian stock market. Disha Mehta (2016) examined whether

average raw returns and Average Market-adjusted Excess Eeturns (MAER) are statistically significantly under-priced or not in the Indian stock market for which sample t-test was employed. The long run underperformance phenomenon was first documented by Ritter (1991) in which post-listing returns of 25 countries were investigated and reported a high number of IPO under-pricing in developing markets, by computing the buy-and-hold return (BHR), wealth relative (WR), cumulative raw return (CRR) and cumulative abnormal return (CAR).

In addition to this computation, the following researchers (Bhanu M et al, 2016; Sanjay et al, 2017; Bhakti; Chandni, 2018; Mohammad, 2018) analysed the Indian stock market and MENA (Middle East and North Africa) respectively and to determine long-term underperformance and over performance, used the Market Adjusted Abnormal Return (MAAR). The post-issue share price performance of initial public offerings was assessed by (Seshadevet al, 2010; Reddy K S, 2015; Ramesh Chandra, 2021) examined the post-issue performance of Indian IPOs using the buy-and-hold market-adjusted return (BHAR) and wealth relative (WR) techniques. Chen, (2019) the same research methodology was applied in the China stock market to analyse the performance of IPOs. Bhanu Murthy et al. (2016) examined the long-run effectiveness of Indian IPOs in order to check whether there exists any relationship between IPO long term performance and business short-run effectiveness features. Ambily et al. (2016) examined the effect of IPOs registered on the Indian stock market using the issue price and last trading price. Ramesh et al. (2015) investigated the short and long-term price effectiveness of initial public offerings (IPOs) of companies listed on the NSE (National Stock Exchange). To determine the listing day performance and under-pricing of Indian IPOs (Srinivasa, 2015;Smitha et al, 2018) computed Market Adjusted Abnormal Return (MAAR).A study by Fahad et al, looked into whether an IPO can be a long-term investing instrument or a speculative opportunity to make huge gains (Fadah et al., 2019).Another study indicated that in the post-listing phase of an IPO, investors cannot earn abnormal returns. (Jaleel, 2018).

Patel and Jampala (2016) studied the Indian Equity Market to analyse the determinants of listing day performance by using sample T test. The same research methodology was used by Dhamija, S., & Arora, R. K. (2017) Utilizing evidence from Indian Stock market, examined the factors of long-term effectiveness of IPOs. Suri A (2018) investigated initial public offerings (IPOs) performance in India. Researchers confirmed IPOs based on two primary performance metrics: the IPO's over-subscription ratio and the first trading day gains of IPO. (Tanted N, 2019) studied the return's difference between the IPO offering price, Listing Day Opening Price, and Closing Price, the study was conducted on the Indian IPO Issue Price and Listing Day Price.Busaba, (2021) examined the same objective in the US market. The short and long run performance of IPO was examined to measure the IPO return's progressive rise using Wilcoxon Signed Rank Test (Mohammed Arsha et.al ,2021). Naveen Kumar (2021) examined on initial under-pricing and long run underperformance during the free pricing era by using parametric significant test to study the IPOs in Indian market.

Previous studies have attempted at the short-term and long-term performance of IPOs, as well as the factors that influence IPO returns. Several findings led to investor recommendations for under-priced and overpriced stocks, as well as a greater knowledge of the factors that influence Initial Public Offering short-term performance. In this study, the short-term success of IPOs is measured using the security's first-day raw returns, market return, MAAR, and CAR. The study distinctively emphasizes on the internal factors that has a significant impact on the IPO returns such as age of the company, promoter holding, issue size, and issue price. The findings of the research will help investors to make wise decisions over their IPO investments.

Objectives of the study

To study the return performance of Indian IPOs on the day of listing

To analyse the short-run performance of IPOs in Indian financial market

To examine the factors that have an impact over the short-run IPO return.

Research Methodology

Data

This study used secondary data. During the research, NSE India's official website was utilized to construct a list of IPOs, promoter holdings, and listing dates. The CMIE-Prowess database was used to gather daily stock price data, market index data, and the firm's age. The research covers five years, from January 2016 to December 2021. During the specified period, 179 initial public offerings (IPOs) hit the Indian market.

Research Design

Employing a comprehensive research pattern, the short-run performance of Indian IPOs is investigated, as well as the impact of internal characteristics such as the company's age, promoter holdings, issue size, and issue price over the security return in the market.

Sample selection

The sample includes all Indian companies that went public between January 2016 and December 2021. The Table 1displays the number of companies that went public during that period.

Table 1- Number of IPOs in the Indian market in the past 6 years.

Years	Number of IPOs
2016	27
2017	38
2018	24
2019	17
2020	16
2021	57
Total	179

Analysis and Discussion

Short-run gains

The computation to analyse IPOs' short-term effectiveness are easy to read and compute since it is based on many previous studies. To evaluate the short-term performance of IPOs, we examined raw initial returns. On the first day of trade, the raw initial return (RAW) is determined as follows.

Returns of third, sixth, ninth, fifteenth and twenty first day of IPOs are calculated based on below formula.

$$r\_i,1 = (P\_(i,1) - P\_(i,0))/P\_(i,0)$$

Where r_i,1 is the company's raw initial return on the first day of trading, $P_i,1$is the security$i's$first day closing price and $P_i,0$is the issue price of security i.

$$SR\_i = (P\_(i,c) - P\_(i,o))/(P\_(i,o)\cdot)$$

Where $PR_(i,c)$is the security's closing price of the 1st trading day, PR_io is the security i opening price on the first trading day, SR_i is the secondary market raw on the first trading day r for security i. It calculates the difference between the first trading day's opening and closing prices

$$MAAR\_it = R\_it - R\_mt$$

R_it is the rate of raw return of firm i at time (t), where $MAAR\_it$ is the market-adjusted abnormal rate of return for company in period (t), R_mt is the rate of return on the market indexduring period (t).

$$〖AAR〗\_t = 1/n \sum\_(i=1)\^n▒〖AR〗\_(i.t)$$

whereAAR_t is the market-adjusted average abnormal return, n is the number of Initial Public offerings (IPOs)that hit the stock market in that period (t).

Table 2: Means Stock Return

	Mean return	Standard deviation	Maximum return	Minimum return
3rd day IPO return	0.03811	0.25556	2.95790	-0.65489
6th day IPO return	-0.00238	0.04072	0.16340	-0.24158
9th day IPO return	0.00160	0.03186	0.19980	-0.08383
15th day IPO return	0.00021	0.02967	0.16200	-0.06655
21st day IPO return	-0.00238	0.03064	0.11580	-0.12098

Table -2 displays four major statistics to analyse the mean IPO return. After the third day of trading, the return on the stock was 3.81% on average, varying from -65.49%to 29.57% with a standard deviation of 25.55%. Likewise, after the sixth trading day, the stock return ranged from -24.16 % to 16.34 %, with a standard deviation of 4.07 %. Similarly, after the fifteenth trading day, the stock return ranged from -6.65% to 16.21%, with a standard deviation of 0.03% and after the 21st trading day, the stock returned -0.24%, with a range of -12.10 % to 11.59 % and a root-mean-square deviation of 3.06 %.

On the third trading day, the highest mean return of 7.23 % was recorded. The following trading days' returns are much lower than the Index Return. As a result, we can infer that Initial Public Offering (IPO) has pursued to underperform the market index.

During the same time period, the logarithmic return on the market index (NIFTY 500) was:

$$R\_(m,d) = Ln(I\_1) - Ln(I\_0)$$

Where, $R\_(m,d)$ represents the return on market benchmark at the end of the d^{th} day, I_1 represents the dth day's closing value of Nifty 500 and I_0 represents the closing Nifty value on the stock's offering day.

Table 3: Mean Index Return

	Mean Return	Standard deviation	Maximum return	Minimum return
3rd Day Index return	0.00166	0.00881	0.02405	-0.05488
6th Day Index return	0.00029	0.01376	0.02840	-0.12808
9th Day Index return	0.00077	0.01048	0.04013	-0.04018
15th Day Index return	0.00108	0.00973	0.07691	-0.04018
21st Day Index return	0.00171	0.01026	0.05293	-0.03441

Table 3 shows that the average return on the third trading day is 0.0016, with a range of -5.48 % to 2.40 % and a root-mean-square deviation of 0.0 %. The mean index return on the sixth day is 0.0002, with a range of -12.80 % to 2.83 % and a root-mean-square deviation of 1.37 %. On the 9th trading day, the index returned 0.0007 %, ranging from -4.01 % to 4.01 % with a root-mean-square deviation of 1.04 %. Similarly, on the 21st trading day, the index returns averaged 0.0017, with a range of –3.41 % to 5.29 % and a standard deviation of 1.02 %.

Calculation of abnormal return

The difference between a security's actual return and its predicted return is known as abnormal return. "Events" can sometimes cause abnormal returns. The abnormal return is influenced by factors such as the company's age, promoters' holdings, issue size, and issue price. The formulas below are used to calculate abnormal returns and cumulative abnormal returns.

Abnormal return = Actual Return – Expected Return

Expected Return= $\alpha + \beta(R_m)$

Cumulative Abnormal Return = $\sum_{t=1}^{n} Actual\ Return$

$CAR\_(q,s) = \sum\_(t = q)\text{^}S\text{▒}AA\ R\_t$

The market-adjusted average CAR's t-statistic was calculated as follows:

where $CAR_(\ 〚q,〛\ _S\ )$representsaverage cumulative abnormal return over a period S.

The t-statistic for the average CAR was computed as follows

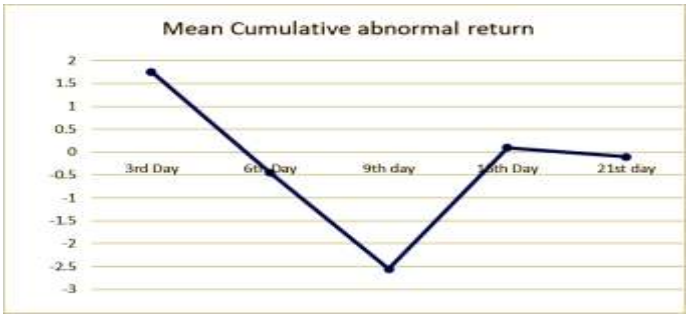
$t\ (CAR) = (CAR\_t)/(\sigma(CAR)\_t\ )$

Table 4: Abnormal Return

	Mean Abnormal return	T statistics	Mean Cumulative abnormal return	T statistics
3rd Day	0.02012	1.05093	0.02012	15.81236
6th Day	-0.00267	-0.96733	0.01745	-25.40974
9th day	-0.05549	-1.08000	-0.03804	-10.20335
15th Day	-0.00088	-0.40291	-0.03892	10.29212
21st day	-0.00229	-1.16711	-0.04121	-11.71857

We can observe from the table above that the IPO delivered considerable abnormal returns on the Third trading day. On the Third trading day, the average abnormal returns are 2.01%. Since the 2nd day, the excess returns have been negative. Until the 21st trading day, the cumulative abnormal returns are steadily decreasing. T has a critical value of 1.9739 at a 95% confidence level. The Critical value is found to be greater than the 0.05 significance level Therefore, the mean abnormal return and Cumulative Mean Abnormal return both are not significant.

Graph 1 : Representing the mean cumulative abnormal return.



As indicated in the Graph-1 , the average CAR is maximum on the third day of trading. The CAR has reduced since then. The return on the 9th day is very minimal, but it steadily increases on the 15th and 21st days.

Wealth relative model

To analyse the short-term performance of the IPOs under study, wealth relative model is also used. This compares the stock returns with the average market returns.

$$\text{WRd} = (1 + \frac{1}{N}\sum Ri,d)\ /(1 + \frac{1}{N}\sum Rm,d)\ |$$

Where *WRd* is the Wealth Relative for the dth trading day and N is the total number of IPOs in the sample. Ri, d is the stock returns for the dth day and Rm, d is the Market returns for the dth day. Here the sample size is 179. A value less than 1 indicates that the stocks have given lesser returns as compared to the market. If the value is higher than 1, it indicates a better than market performance. (Himanshu Puri, 2012)

Table 5: Wealth Relative model

	Mean market return	Mean Stock return	T-statistic	Wealth Relative
3rd Day Index return	0.00707	0.02012	15.81236	1.00007
6th Day Index return	0.00440	0.01745	25.40974	1.00007
9th Day Index return	0.00523	-0.03804	-10.20335	0.99976
15th Day Index return	0.00435	-0.03892	-10.29212	0.99976
21st Day Index return	0.00210	-0.04121	-11.71857	0.99976

As seen from the table, for 3rd day and 6th day, stocks display a better performance. From 9th day onwards, the Wealth relative values are less than 1. This indicates that for the selected sample of IPOs, their short-term stock returns are better than market upto the 6th day. Eventually, their performance deteriorates compared with the overall market. This result was obtained for the period 2016-2021.

Determinants of IPO Return

Internal elements such as the incorporation date of company, promoters' holdings, IPO issue size, and issue price impact on the security return on the market at the end of 21 trading days were studied using multiple regression analysis. This method can be used to investigate the magnitude and direction of a substantial number of independent variables and the dependent variable. The R square, as well as the modified R square it produces, show how much variance in the dependent variable is explained by the independent variables.

Hypothesis

H_0=There is no impact of dependent variables (Age of the company, Promoters Holding %, Issue %, Issue Price)on the IPO returns.

H_1=There is an impact of dependent variables (Age of the company, Promoters Holding %, Issue %, Issue Price) on the IPO returns.

Regression equation

Dependent variable: Stock Return

Method: Multiple OLS Regression

Sample: 179

Table 6: Results of Regression Analysis

Regression Table					
	3rd Day Return	**6th Day Return**	**9th day Return**	**15th Day Return**	**21st day Return**
Age					
Co - efficient	-0.00032	-0.00029	0.00011	-0.00003	0.00024
t- Stat	-0.27314	-1.55401	0.75148	-0.19383	1.68764
Probability	0.78507	0.12200	0.45338	0.84654	0.09327
Promoter Holding %					
Co - efficient	-0.00157	0.00014	0.00016	-0.00007	-0.00015
t- Stat	-1.36489	0.76982	1.09292	-0.49433	-1.06196
Probability	0.17405	0.44245	0.27594	0.62169	0.28973
Issue %					
Co - efficient	0.00101	0.00025	-0.00003	0.00003	-0.00024
t- Stat	0.78479	1.22677	-0.21620	0.19248	-1.53531
Probability	0.43364	0.22157	0.82909	0.84759	0.12652
Issue Price					
Co - efficient	-0.00005	-0.00002	-0.00001	-0.00001	0.00000
t- Stat	-1.08781	-1.97858	-1.79032	-1.57735	0.45955
Probability	0.27818	0.04944	0.07514	0.11653	0.64641
Multiple R	0.20346	0.17403	0.20935	0.12961	0.17649
R Square	0.04140	0.03029	0.04383	0.01680	0.03115
Adjusted R Square	0.01936	0.00799	0.02184	-0.00580	0.00887

On the 3rd day of the IPO, R square value of 4.13% denotes the moderate variation in return driven by the four variables. Since the F Statistics probabilityof 0.1162 isgreater than 0.05 it is a weak regression. Analysing the coefficients only Issue % (0.0010) has positive relationship with respect to the return, other variables have negative and downward relationship to the return. According to the probability values all the four variables such as Issue percentage (0.433645), Age (0.785072), Promoters holding % (0.17405), Issue Price (0.278182) have no impact on the IPO Returns.

On the 6th day of the IPO, R square value of 4.53% denotes the minimum variation in return driven by the four variables. Since the F Statistics probability of 0.0874 is not less than 0.05 it is not a strong regression. Analysing the coefficients only Promoter holding (0.0001) and Issue % (0.0002) has positive relationship with respect to the return, other variables have negative relationship to the return. According to the probability values all the four variables such as Issue percentage (0.2215), Age (0.1219), Promoters holding % (0.4424), and Issue Price (0.0494) have no impact on the IPO Returns.

On the 9th day of the IPO, R square value of 4.38% denotes the minimum variation in return driven by the four variables. Since the F Statistics probability of 0.0975 is not less than 0.05 it is not a strong regression. Analyzing the coefficients only Age (0.0001) and Promoters holding % (0.0001) have a positive relationship with respect to the return, other variables have a negative relationship to the return. According to the probability values, all the four variables such as Age (0.8465), Promoters holding % (0.6216), Issue percentage (0.8475), Issue Price (0.1165) have no impact on the IPO Returns.

On the 15th day of the IPO, the R square value of 1.67% denotes the least variation in return driven by the four variables. Since the F Statistics probability of 0.5637 is too high and not less than 0.05 it is not a strong regression. Analyzing the coefficient Except Issue % (2.87979E-05) none of the other variables has a positive relationship to the return. According to the probability values all the four variables such as Age (0.4533), Promoters holding % (0.2759), Issue percentage (0.8290), Issue Price (0.0751), have no impact on the IPO Returns.

On the 21st day of the IPO, R square value of 3.11% denotes the minimum variation in return driven by the four variables. Since the F Statistics probability of 0.2364 is not less than 0.05 it is not a strong regression. Analysing the coefficient except Promoters holding % (-0.0001) and Issue % (-0.0002) other variable such as Age (0.0002) and Issue price (2.72268E-06) has Positive relationship with respect to the returns. According to the probability values, all the four variables such as Age (0.0932), Promoters holding % (0.2897), Issue percentage (0.1265), Issue Price (0.6464) have no influence over the IPO returns.

Findings

1. The study discovered that on the third trading day, IPOs outperform the markets based on daily IPO returns (listing gain). With a standard deviation of 25.56 percent and a range of -65.48 % to 29.57 %, the third trading day recorded an average return of 3.81%. When comparing the returns of all previous trading day's up to the 21st day of the IPO, it was discovered that the 3rd day of the IPO produced the highest return
2. After the third trading day, the returns on an IPO continue to drop, according to the study. The IPO returns were marginally negative at the end of the month, falling to -106.24 % from the third day of trading.
3. On the end of the third trading day abnormal returns were at the maximum of 2.01 %and become negative on the 9th trading day. Since the 9th day from listing, the CAR have been dropping and have turned negative.
4. The critical value of 't' is found to be 1.9733 with a 95% confidence level. The mean abnormal return's estimated 't' value exceeds the significance level, indicating that the AAR is not significant.
5. The T statistic of the Average CAR returns is more than the critical T Value on all trading days. As a result, none of the trading days' Average CARs are significant.
6. The wealth relative model brings out that till the 6th day, stocks perform better than the overall market, and thereafter the performance diminishes.

7. According to the regression study, all four variables, such as age, promoter holding percentage, issue price, and issue percentage, had no effect on the returns of Initial Public Offering over the course of 21days of trading.

Conclusion

Based on the findings, we may infer that IPOs are a very good investment choice for investors to make quick return. Speculative investors take advantage of this as well, selling their shares on the day of the IPO listing. Intraday trading is also a good option to be considered to gain returns from IPO since the closing price of IPOs are comparatively high during the first three days from the date of IPO. The abnormal returns are similarly largest on the day of the listing, then progressively decline. Analysing the Short-run performance of IPO, returns are high only for the first three days of IPO and then returns gradually decrease and becomes negative. After becoming negative it continues to decline on negative trend. On such bearish trend short selling is recommended to gain profits in a bearish market. This study focuses on short-run performance of IPO hence outputs are favourable for speculators in decision making. The wealth relative model also confirms the finding that the performance of IPOs diminishes after the initial few days. This is mainly due to profit booking by retail investors. The market sentiment at the time of listing also plays an important part in the initial gains of the IPOs. It is observed that the internal factors such as age of the company, promoters holding percentage, Issue percentage, and Issue price has no impact on the IPO returns. Further studies can be done by including the external factors such as over subscription, economic stability, market condition, industrial production index. etc. on the performance of IPO stocks to give better insights to the investors.

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