

Pattern and Determinants of Long –Run Performance of IPOs in India

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Initial Public Offering (IPO) research documented across the countries shows that it has been a favorite topic of research among academicians. Still some major issues of IPO which remains unsolved are: Determinants of Underpricing, long term performance, its impact on other issues. IPO pricing differs across countries and time. It depends on the country and company specifications. The country specifications determine a major portion of IPO pricing, and similarities in micro structure of the market among countries makes the applicability of IPO research easier across countries. Earlier IPO underpricing was a major problem but now a days overpricing is also seen in the IPO market. IPO research helps issuers in gauging their firm value and it also helps investors in taking decisions on their subscription to different IPOs. Follow on Public Offerings (FPOs) have also been a research topic but the difference between severity of problem lies due to difference in predictability of firm value.

There are several theories of IPO pricing which are empirically proved to be true across many countries. The theories are as follows. The Underwriter's Monopsony Power Hypothesis (Baron,1982), Winner's Curse Hypothesis (Rock,1986), The Signalling Hypothesis (Allen and Faulhaber,1989), The Costly Information Acquisition Hypothesis (Benveniste and Spindt,1989), The Investment Banker's Reputation Hypothesis (Carter and Manaster,1990), The Cascades Hypothesi (Welch,1992), The Stabilization Hypothesis (Ruud,1993), The Reduced Monitoring Hypothesis (Brennan and Franks, 1997), Implicit Insurance Against Legal Liabilities Hypothesis (Tinic, 1988).These are discussed in detail in the section of Literature review. The present study analyzed the initial returns of IPOs listed in Indai during January 2008-December 2012.The day-wise average returns were found significant up to Day 10.

Key words : *IPO, Book-Building, Long-run performance, offer documents, IPO research.*

INTRODUCTION

Financing is an imperative and major decision in any business organization. The sources of finance thus become an important matter for any business. The sources of finance can be divided in two parts: Private sources and Public sources. Private sources are own wealth, earnings of the business, relatives, banks, financial institutions, etc. Public source is raising funds from the public. Going public is a very thoughtful decision for a

company. Moreover, going public for the first time is an extraordinary event in any business. The first equity offering or issue by a company to the public is called initial public offering (IPO). On the event of IPO on the one side the company reveals its value in the market and on the other side the market (investors) also decides the value of the company. Thus determination of value of the company through determination of price of the IPO becomes a key aspect while going public. The international phenomenon is that valuation by the company differs from the valuation done by the market. The valuation differs because these two players have opposite expectations. The issuing firm wants to raise maximum funds from the market by selling the issue at maximum price while investors want to buy at least price.

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Moreover the effect of pricing of the initial public offerings is not limited to these two parties. The pricing of initial public offerings affects economy also. As public offering is a way of resource mobilization from investors to business projects that implies the resource mobilization from low growth opportunities to high growth opportunities. Therefore if issuing firms keep very high offering price then it discourages to investors for buying the issue while if it is very low then it discourages to the issuing firms because leaving money in the market in terms of low offer price is an indirect cost of fund raising for the company. Here, low and high price is the deviation from the true value of the issue. The true value of the share is determined by the secondary market forces on the first trading day.

Public offerings can be categorized into two broad categories: Initial Public offerings (hereafter, IPO) and Follow on Public offerings (FPOs). When a company offers its shares to the public for the first time then it is called initial public offerings while when a company offers shares to the public subsequent to IPO then it is called further public offerings or follow on public offerings. The pricing of the issue has different implication for these two kinds of public offerings. In case of IPO, investors have very little information regarding such companies, while they have good amount of information of companies issuing FPO. Similarly, IPO firms find it difficult to gauge market's perception on their IPO. Therefore the present study aims to empirically analyze the pricing of book built initial public offerings in India.

Loughran, Ritter and Rydqvist (1994) studied IPOs of several countries and found that underpricing is an international phenomenon but the degree of underpricing differs from country to country because each country has different binding regulations, contractual mechanisms, and the characteristics of the firms going public. In the said study the latest data (updated November, 2008) on 39 countries shows that still these countries are facing a

problem of high average initial return. The given data shows that China is having the maximum average underpricing of 164.5% during 1990-2005, in India it is 92.7% during 1990-2007 and in US it is 16.9% during 1960-2007. Thus It has been found that the Initial Public Offerings are underpriced worldwide (Loughran, Ritter, and Rydqvist 1994). There are many theoretical explanations to underpricing as well as it has been a favourite topic of empirical research for academicians across the world.

The underpricing and overpricing are the results of the difference between the price set by the investors and price set by the issuer. Therefore question arises: Why companies do not opt for auction method only? Sherman (2005) carried out a thorough analysis on trends of IPO pricing method across countries. The author reported that during 1980s, book building was being used by North America only, but by the end of 1990s it was a dominant method in Europe, Asia and Latin America. Fixed price method is being abandoned worldwide and it is being used only in smaller countries where retail investors are dominant. Auctions are used only where book building method has some regulatory restriction. The author, in contradiction to the popular belief found that auctions always do not lead to lower expected underpricing and that the issuers prefer book building regardless of the change in underpricing levels. The auction method has advantage if the investors are scattered and well informed about the issuing firm and industry. Auctions are not preferred where investors have to put efforts to learn about a new issue. The author mentions that the issuer incurs the cost of information acquisition from the investors in case of both auction method as well as book building method. But both the methods are different in the sense that in book building issuer has greater control over information expenditures than in auction. Moreover auction has high probability of under subscription and thereby lower expected proceeds. Book building allows the underwriter to coordinate the informed and uninformed

investors and thereby ensuring enough investors to participate in the offering.

Introduction of book building method in Indian Capital Market could not eliminate mispricing of IPOs. Therefore to find out the gaps we need a thorough analysis of IPO pricing. In the present study we empirically examine the pricing equity IPOs issued and listed in Indian Capital Market during financial year 1999 -2000 to financial year 2012-2013.

REVIEW OF LITERATURE

Literature review on Theories of IPO Pricing

The Underwriter's Monopsony Power Hypothesis:-Baron (1982) explains two reasons of underpricing of initial public offerings. One is the information asymmetry between issuer and the investment banker. An investment banker knows better about the capital market than the issuer. Therefore issuer offers incentive to investment banker by providing with the price which is lower than the first best offer price, for revealing its superior information about the capital market. This lower price is an incentive for the investment banker who can sell the issue easily. Thus information asymmetry between the issuer and the banker causes the underpricing of new issue. And another reason is that issuers are more uncertain about the market demand of the unseasoned issue than for the seasoned issues. Therefore their need for investment bankers' information about the market condition increases in the new issues and hence issuer's willingness to accept underpricing for new issues is high.

Winner's Curse Hypothesis: Rock (1986) argued that the reason of underpricing is information asymmetry between investors in the IPO market. There are two types of investors, informed and uninformed investors. Informed investors always subscribe for underpriced issues while uninformed investors get those issues which are not demanded by the informed investors, i.e., overpriced issues. Therefore to tempt uninformed investors to subscribe on average underpricing

is required which is a compensation for getting allocation in overpriced issues.

The Signalling Hypothesis

Allen and Faulhaber (1989) explain that underpricing is a signal of good quality firm because low value firms cannot afford underpricing. Therefore to signal high value of the firm, issuer underprices the issue. The high value firm returns back for seasoned offerings and recovers the money left in underpriced new issue.

The Costly Information Acquisition Hypothesis

Benveniste and Spindt (1989) argue that underpricing is a natural consequence of the premarket auction, in which investors reveal their interest in the issue. For revealing the interest underwriter gives incentive to the investors in terms of underpricing. Now issue arises as why can't an issuing firm itself collect premarket indications of interest without employing an underwriter. The argument given is that the investment banker can bring higher proceeds from the regular clients.

The Investment Banker's Reputation Hypothesis

Carter and Manaster (1990) conclude that underwriter's reputation is negatively related to underpricing. Underpricing is injurious to the issuing firm therefore low risk firms want to reveal their quality by selecting prestigious underwriter and the prestigious underwriters to maintain their market reputation always select low risk firms. Therefore issues marketed by prestigious underwriter will always have lower underpricing.

The Cascades Hypothesis

Welch (1992) explains that issuer underprices the issue in order to motivate the first few

potential investors to purchase, which cascade positive information about the issue, because later investors completely rely on the earlier investors for subscribing in any issue. Thus underpricing of an issue particularly when it is sold sequentially would persuade the earlier investors and thereby later investors would take purchase decision by following them.

The Stabilization Hypothesis

Ruud (1993) found that IPO underpricing is the result of underwriter's price support until the issue is fully sold.

The Reduced Monitoring Hypothesis

Brennan and Franks (1997) studied 69 IPOs in UK and found that underpricing is to ensure oversubscription and therefore rationing in the share allocation process is unfavourable to large applicants and in favour of small applicants to reduce control in the hand of outsiders.

Implicit Insurance Against Legal Liabilities Hypothesis

Tinic (1988) studied 70 IPOs during pre-SEC (Securities and Exchange Commission) and 134 IPOs during 1966 to 1971 (post -SEC) and found that underpricing is higher in post -SEC period because legal liabilities against investment banker and issuer increased after SEC, therefore underpricing or higher initial return became as implicit insurance against possible damages due to legal actions by SEC. As according to SEC maximum recoverable limit is offer price therefore lower offer price makes an insurance against any post issue legal liability.

Literature review on Different methods of IPO Pricing

Sherman (2005) compared book building and auction method of pricing of initial public offerings. He concluded that book building method is less risky for both the issuer and the

investors and hence leads to less underpricing. It is less risky compared to auction because it has co-ordination between investors and the issuer while in auction without knowing how many bidders will participate, both issuer and investors must take decision. Moreover it increases the probability of under subscription. Book building gives investors full information and time to evaluate the issue, which leads to more accurate pricing of the issue. Another advantage of book building over auction method is that in book building issuer has more control over information expenditure, hence more control over either underpricing or after market volatility.

Literature review on Determinants of IPO Pricing

India is not the only country which is facing problem of underpricing. As Su(2004) studied 283 IPOs in China between January 1994 and December 1997 and found maximum underpricing of 692.60%, average underpricing of 129.36% and maximum overpricing of 36.64%. Thus IPOs' pricing is highly deviated from the true value. Further he concluded that firms with higher pre-IPO leverage are more underpriced. Moreover timing of offering also found to be important in China, if issue comes when the market fluctuations are high and market return are low surrounding an IPO then underpricing is higher. Thus underpricing differs with firm's capital structure and market conditions during an IPO.

Nandha and Sawyer (2002) studied 381 IPOs over the financial year 1994-95. They found that initial return or underpricing in India is high(101%) than in other emerging economies, which shows that in India speculation and risk are dominating the market fundamentals. In their study promoters' stake in the post issue equity and issue size are significant determinants of underpricing in India, which indicates that underpricing depends on the issue characteristics also.

Krishnamurti and Kumar (2002) studied 386 IPOs between July 1992 and December 1994 and found average market adjusted initial return of 72.34%. They concluded that the issues of smaller size, high subscription and longer listing delay are more underpriced. They suggested to introduce the method of gauging the potential demand before pricing the issue and to reduce the time delay for listing.

Aggarwal, Prabhala and Puri (2002) found that mean initial return on total IPOs offered in U.S. during May 1997 and June 1998 is 14.27%. They found that institutional allocation is higher than retail allocation in IPOs and institutional allocation is greater in underpriced issues. They attribute the findings to the reason that institutional investors get high allocation from the underwriters as they held private information about the issue. The underwriters use the private information of these investors in gauging market demand.

Ranjan and Madhusoodanan (2004) studied 92 IPOs listed on NSE and BSE in the period January 1999 to November 2003 and found that underpricing differs with the issue size and issue mechanism as money left in the study period by large IPOs was 3% while by small IPOs was 80%. Money left by fixed price issues were 78% while money left by book built IPOs was -2%.

Ghosh (2005) studied 2,247 IPOs in India during April 1991 to March 2001 and found average underpricing of 96 percent. Similarly Shelly and Singh (2008) studied 1,963 fixed price IPOs issued during July 1992 to August 2006 and found market adjusted average initial returns of 70 percent. The reason of high underpricing in these studies can be attributed to the fixed price mechanism of IPO pricing in the study sample. Sehgal and Singh (2007) studied 438 IPOs in India between June 1992 and March 2006 and found that average underpricing during the study period is 101%, and maximum overpricing is 87.96%. They found that underpricing is not good for investors also because in the studied

IPOs there is no relationship between initial return and long term return. That indicates that investors cannot get any signal from the initial return of IPOs, on long term performance of IPOs.

Sahoo and Rajib (2009) studied 43 IPOs during 2001-2005 and found average undervaluation of 46.63% and standard deviation of initial returns is 78.65% implying high degree of variations in initial returns. They found that the issues which are managed or priced by prestigious investment banks are less underpriced compared to issues priced by less prestigious investment banks. Because the prestigious investment banks are managing issues with the help of large number of syndicate members than their non prestigious counterparts. The said study also found that investment banks manage issues with larger size, old firms and higher promoters' holding in the post issue equity capital. This implies that investors in India can have a presumption about the listing day price on the basis of type of investment bank for a specific issue. Thus in India issue characteristics contributed to the degree of underpricing.

Kohli (2009) studied 499 IPOs between April 1994 to March 2006 and found that stock markets in India suffered from the excessive optimism and poor valuation because he found that high prices of new issues are not related with their future profitability and growth in the sample.

Chambers and Dimson (2009) documented 19 % equally weighted mean underpricing for 1,987 IPOs during 1987 – 2007 in UK. Kumar (2007) studied 156 IPOs in India listed from 1999 to till May 2007 and reported an average underpricing of 26.35%. The author found that opening return, market conditions before IPO and offer price quotient are significant variables of underpricing. Pande and Vaidyanathan (2009) studied 55 bookbuilt IPOs listed between 26th March 2004 to 31st October 2006. Average underpricing in the sample was 22.62%, maximum underpricing 82.50% and maximum

overpricing was 33.40%. They found that issues with offer price towards upper end of the offer price band are more underpriced as compared to issues which are priced towards the lower end of the offer price band and listing delay is positively related with underpricing.

A recent study on IPO underpricing by Deb (2009) found out the evidence of on average underpricing in India during 2001-2009 for a sample size of 187 IPOs. Moreover the author found that in the after market short run investors are not getting any excess return on mis-priced issues. It shows that underpricing does not bring consistent benefits to investors also.

Thus from the prior research it is obvious that IPO underpricing is higher for fixed price issues than for book built IPOs. However on the other hand research on book built IPOs' pricing still indicate high underpricing or overpricing. Therefore still pricing of IPO is a matter of research to get it fairly priced.

Research Objectives

This study aims to find out the determinants of pricing of IPOs in Indian Capital Market.

This main objective will lead to the following sub objectives:

1. Analysis of initial returns of IPOs.
2. Analysis of short run performance of IPOs.
3. To see difference in short-run performance of two categories of IPOs : Underpriced vs Overpriced IPOs

Methodology

The sample for the present study consist 134 IPOs listed in India during January 2008 – December 2012. Data were collected from NSE and BSE websites. I used linear regression analysis models in the present study.

Data Analysis

TABLE 1
Descriptive Statistics

Maximum	129.25%
Minimum	-68.92%
Mean	6.74%
Standard Deviation	32.68
No of issues with negative initial returns	58
No of issues with positive initial returns	76
Total	134

Table 1 shows descriptive statistics of 134 IPOs listed during January 2008 to December 2012. In the sample 76 IPOs were underpriced and 58 IPOs were overpriced. There was no IPO with fair pricing. The maximum underpricing was 129.25 % while minimum initial returns or maximum overpricing is approximately 69%. This shows that maximum underpricing is much higher than the maximum overpricing during the study period.

TABLE 2
Year-wise No. of IPOs in the sample

Year	No. of IPOs in the sample
2008	8
2009	30
2010	55
2011	14
2012	27

Table 2 shows year-wise no. of IPOs. In the study sample the maximum number of IPOs is 55 in 2010 and minimum number of IPO is 8 in 2008.

TABLE 3
Year-wise Average Initial Returns (AIR)

Year	Air
2008	4.5%
2009	14.17%
2010	10.41%
2011	-0.45%
2012	3.1%

Table 3 shows the average initial returns in the sample. Year-wise AIR are ranging from -0.45 % in 2011 to 14.17% in 2009.

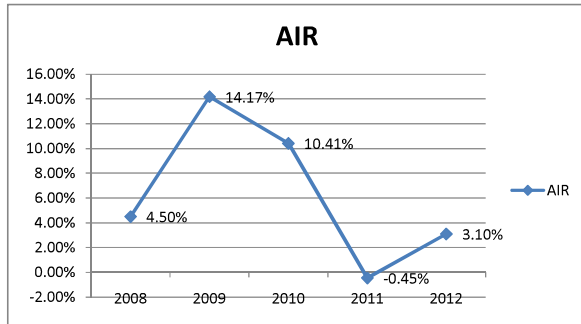


Figure 1 : Average Initial Return

The Figure 1 average initial returns (AIR) during last 5 years. It can be seen that AIR started decreasing from the year 2009 and continued declining till 2011. Again in the year 2012 it has increased.

TABLE 4
BHAR Day-wise

Day	Average Returns (w.r.t Issue price)
Day 1	6.74%
Day 2	7.63%
Day 3	7.23%
Day 4	6.15%

Day 5	6.05%
Day 6	4.95%
Day 7	3.32%
Day 8	3.07%
Day 9	2.48%
Day 10	2.57%

Table 4 shows the average returns day-wise after listing. I have calculated day-wise returns up to Day 10 after listing. The above table shows that day-wise average returns are positive up to Day 10. It shows that on average IPO are giving positive returns till day 10. In the present study I have not calculated average returns beyond Day 10, hence I am unable to comment on average returns after Day 10.

Table 5 I have categorized IPO in 2 categories overpriced IPOs and underpriced IPOs. Overpriced IPOs are the IPOs with negative returns on listing day and underpriced IPO are IPOs with positive returns on listing day. It can be seen that on average IPOs with negative returns on Day 1 given negative returns up to Day 10 and similarly IPOs with average positive returns on Day 1 gives positive returns up to Day 10 also. After listing daywise average returns are significant in both the categories which can be seen in significant t values.

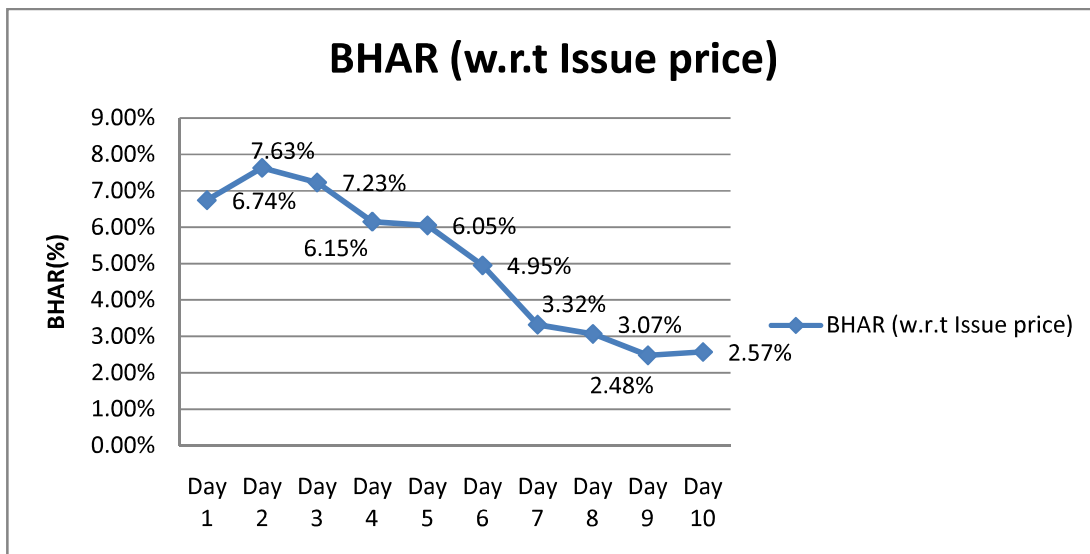


TABLE 5
Day - wise after listing average returns for Overpriced and Underpriced IPOs till Day 10

Day - wise IPO Returns till Day 10								
Day	Overpriced IPOs				Underpriced IPOs			
	No. of IPOs	Avg Returns	STD	t value	No. of IPOs	Avg Returns	STD	t value
1.00	58.00	-19.32	17.25	-8.51	76.00	26.63	27.24	8.52
2.00	58.00	-19.95	19.53	-7.76	76.00	28.68	30.27	8.26
3.00	58.00	-20.83	19.78	-8.00	76.00	28.65	29.88	8.36
4.00	58.00	-23.01	20.23	-8.64	76.00	28.40	31.70	7.81
5.00	58.00	-23.16	21.48	-8.20	76.00	28.35	33.21	7.44
6.00	58.00	-24.57	21.79	-8.57	76.00	27.49	31.66	7.57
7.00	58.00	-24.97	22.10	-8.59	76.00	24.91	29.31	7.41
8.00	58.00	-25.15	22.85	-8.36	76.00	24.60	30.15	7.12
9.00	58.00	-25.69	23.21	-8.41	76.00	23.98	31.66	6.61
10.00	58.00	-25.92	23.45	-8.40	76.00	24.31	33.01	6.42

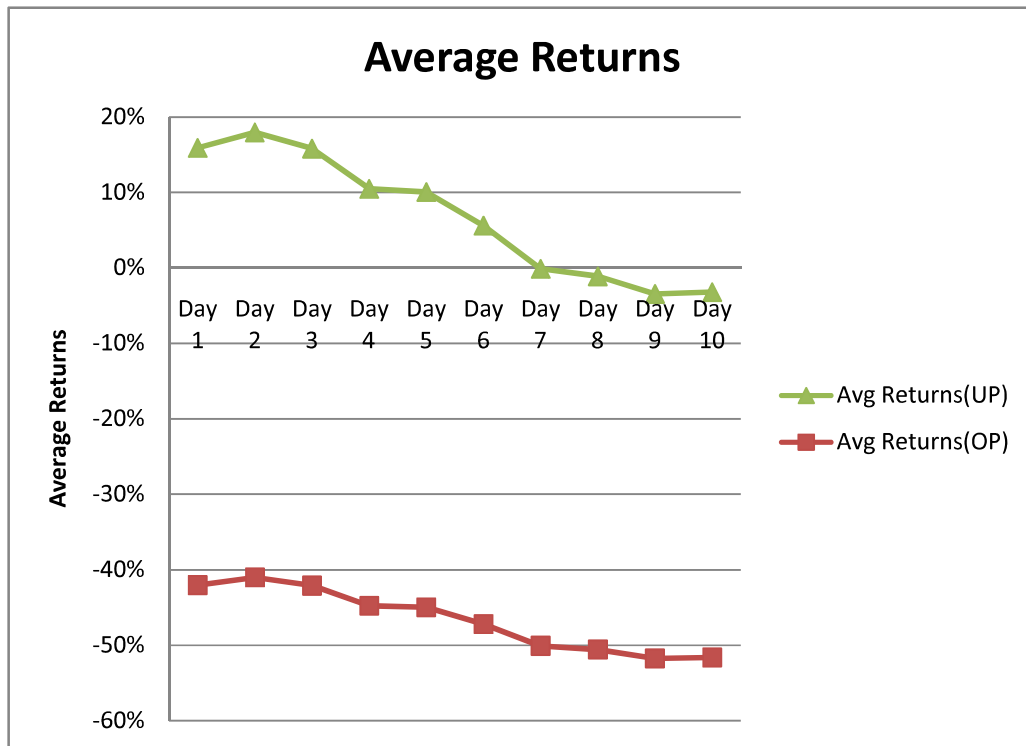


Figure 3: Day-wise after listing average returns for Overpriced and Underpriced IPOs till Day 10

Figure 3 shows that there is continuous decline in after listing average returns up to Day 10 in both types of IPOs. But the decline is more in underpriced IPOs' returns than in the overpriced IPOs.

Regression Analysis

Model 1: Listing day's returns and Day 5's returns

$$C5 = \beta + \beta_1 C1$$

C5: Returns on Day 5

C1: Returns on Day 1

TABLE 6
Regression Analysis : Model 1

Regression Equation : $C5 = 3.16 + 1.10 C1$			
Predictor	Coef	SE Coef	t
Constant	-3.15	0.74	-4.28
C1	1.096	0.029	37.2
F = 1384.09 (0.000)			
R-Sq(adj) = 93.0%			

N = 104 after removing outliers

In table 6 the results of model 1 shows that Day 5 returns significantly depends on Day 1 returns. Positive value (1.096) of C1 coefficient shows that Day 5 returns are positively related with Day 1 returns. The R-Sq is 93% for model 1.

Model 2: Listing day's returns and Day 10's returns

$$C10 = \beta + \beta_1 C1$$

C10: Returns on Day 10

C1: Returns on Day 1

TABLE 7
Regression Analysis : Model 2

Regression Equation : $C10 = -3.43 + 1.21 C1$			
Predictor	Coef	SE Coef	t
Constant	-3.43	0.896	-3.83
C1	1.21	0.035	34.22
F = 1170.84(0.000)			
R-Sq(adj) = 92.3%			

N = 97 after removing outliers

In table 7 the results of model 2 shows that Day 10 returns significantly depends on Day 1 returns. Positive value (1.21) of C1 coefficient

shows that Day 10 returns are positively related with Day 1 returns. The R-Sq is 92.3% for model 2

Model 3 : Listing day's returns and Day 5's returns for Underpriced IPOs.

$$C5 = \beta + \beta_1 C1$$

C5: Returns on Day 5

C1: Returns on Day 1

TABLE 8
Regression Analysis: Model 3

Regression Equation : $C5 = 0.64 + 0.999 C1$			
Predictor	Coef	SE Coef	t
Constant	0.637	1.519	0.42
C1	0.998	0.057	17.48
F = 305.44 (0.000)			
R-Sq(adj) = 82.6%			

N = 64 after removing outliers

In table 8 the results of model 3 shows that Day 5 returns significantly depends on Day 1 returns for underpriced IPOs. Positive value (0.998) of C1 coefficient shows that Day 5 returns are positively related with Day 1 returns. The R-Sq is 82.6% for model 3.

Model 4 : Listing day's returns and Day 10's returns for Underpriced IPOs.

$$C10 = \beta + \beta_1 C1$$

C10: Returns on Day 10

C1: Returns on Day 1

TABLE 9
Regression Analysis: Model 4

Regression Equation : $C10 = 2.62 + 1.01 C1$			
Predictor	Coef	SE Coef	t
Constant	2.622	1.958	1.34
C1	1.012	0.07	14.45
F = 208.70 (0.000)			
R-Sq(adj) = 78.2%			

N = 58 after removing outliers

In table 9 the results of model 4 shows that Day 10 returns significantly depends on Day 1 returns for underpriced IPOs. Positive value (1.012) of C1 coefficient shows that Day 10 returns are positively related with Day 1 returns. The R-Sq is 78.2% for model 4.

Model 5 : Listing day's returns and Day 5 's returns for Overpriced IPOs.

$$C5 = \beta + \beta_1 C1$$

C5: Returns on Day 5

C1: Returns on Day 1

**TABLE 10
Regression Analysis: Model 5**

Regression Equation : $C5 = -3.06 + 1.12 C1$			
Predictor	Coef	SE Coef	T
Constant	-3.056	1.538	-1.99
C1	1.12	0.059	19.02
361.64 (0.000)			
R-Sq(adj) = 87.4%			

N = 52 after removing outliers

In table 10 the results of model 5 shows that Day 5 returns significantly depends on Day 1 returns for overpriced IPOs. Positive value (1.12) of C1 coefficient shows that Day 5 returns are positively related with Day 1 returns. The R-Sq is 87.4% for model 5

Model 6 : Listing day's returns and Day 10 's returns for Overpriced IPOs.

$$C10 = \beta + \beta_1 C1$$

C10: Returns on Day 10

C1: Returns on Day 1

In table 11 the results of model 6 shows that Day 10 returns significantly depends on Day 1 returns for overpriced IPOs. Positive value (1.16) of C1 coefficient shows that Day 10 returns are positively related with Day 1 returns. The R-Sq is 78.6 % for model 10.

**TABLE 11
Regression Analysis: Model 6**

Regression Equation : $C10 = -4.73 + 1.16 C1$			
Predictor	Coef	SE Coef	T
Constant	-4.729	2.12	-2.23
C1	1.16	0.081	14.23
F = 202.44 (0.000)			
R-Sq(adj) = 78.6%			

N = 55 after removing outliers

CONCLUSION

The present study based on IPOs listed during January 2008- December 2012 in India found that on average IPOs are underpriced in India. The degree of overpricing and no. of overpriced IPOs are less than degree of underpricing and no. of underpriced IPOs. I calculated day-wise average returns (w.r.t to issue price) up to Day 10. After listing average returns are found to be significant up to Day 10. Day 5 and Day 10 returns significantly depend on Day 1 returns for overall sample as well as for separate categories of overpriced and underpriced IPOs. In future research can be carried out taking day-wise returns after day 10, monthly and yearly returns.

Future Scope/Limitation

In future research can be carried out taking day-wise returns after day 10, monthly and yearly returns. On the basis of present study it cannot be commented that how many days after listing returns are significant because due to shortage of time in the present study we considered after listing returns up to Day 10 only.

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