Post-issue Performance of IPOs in India

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Abstract:

Initial Public Offers (IPOs) market is considered to be the safest way to invest in the stocks and it also assures profits due to underpricing. Therefore, it attracts every type of investors and very particularly the retail investors. However, gaps do appear in perceived profits and the actual profits. Expectations have been built around some sector stocks such as Public sector – considered as safe bet; Petrochemical and Infrastructure sector stocks – for assured long term appreciation; Finance and IT sector for quick profits, etc. This study is an attempt to capture the performance of IPOs across different sectors, over different time frames, to identify the performing sectors and the effect of the non-performing IPOs. Our results indicate that public sector stocks outperform all other sector stocks during short as well as long term period. Manufacturing sector stocks appear to be least performing stocks during short as well as long term duration. Further, if non-performing IPOs could be checked out, there would be substantial gains for the investors. We expect our study to serve as a guiding tool for retail investors to enable them to focus their investments.

Keywords: IPO Market, Market Appreciation Analysis, Underpricing, Non-performing IPOs, Retail Investors.

1. Introduction

Post 1992, the Indian equity market has undergone series of reforms through the initiatives of Securities and Exchange Board of India (SEBI), the statutory securities market regulating body in India. The market was mired by many scams and frauds before SEBI authoritatively introduced initiatives to set-up some important institutional mechanisms for both primary as well as secondary market segments particularly after 1998. The objective of these initiatives was to bring-up the Indian securities market comparable to best of the world's any securities market in terms of safety and security of investment and transparency in transactions. The initiatives have well paid-off. The secondary segment of Indian securities market, comprising of two main stock exchanges, the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE), ranks high amongst the world securities markets. The globalization endeavour has ushered the market in the never before league of the world wide investors.

Consequent to these reforms, the new issue market witnessed sudden evaporation of issues. The broad picture on the Indian Public Issue market vis-à-vis the IPO market for the period 1993 to 2010 is presented in the Table 1. The market is visible in two period segments. The market before 2001-02 where average issue size never touched a figure of Rs. 100 crore while there after the average size of the issue never came below this mark. The number of issues decreased drastically particularly during 2001-02 and 2002-03, however the average is still high because of the mega size issues indicating that market continued to look forward to quality issues from the corporate.

Indian IPO Market is considered unique around the world since it involves large quantity of retail (small) investors[1], which can be more than 99 percent of the total applicants in an IPO; very high level of Over-subscription, which sometimes can go beyond 100 times; minimal rejection/ withdrawal of issues; and very low financial literacy of these retail investors. Therefore, the focus of SEBI through all its initiatives is always to ensure that retail investors are protected from all issuers of IPOs with dubious background. Thus an effort is always to ensure that only genuine issuers approach the IPO market with

1 SEBI defines retail (small) investor as the one who invests upto Rs. 1.0 lakh in an issue.

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Table 1: Funds Mobilization through Public Issues

Period	IPO Issues			Total Issues			Share of IPO in Total (%)
	No.	Amount (Rs. Crore)	Av. Issue Size (Rs. Crore)	No.	Amount (Rs. Crore)	Av. Issue Size (Rs. Crore)	
1993-94	692	7864	11.36	1143	24372	21.32	32.27
1994-95	1239	16572	13.38	1692	27633	16.33	59.97
1995-96	1357	10924	8.05	1725	20804	12.06	52.51
1996-97	717	5959	8.31	884	14284	16.16	41.72
1997-98	52	1048	20.15	111	4570	41.17	22.93
1998-99	18	404	22.44	58	5587	96.33	7.23
1999-00	51	2719	53.31	93	7817	84.05	34.78
2000-01	114	2722	23.88	151	6108	40.45	44.56
2001-02	7	1202	171.71	35	7543	215.51	15.94
2002-03	6	1039	173.17	26	4070	156.54	25.53
2003-04	21	3434	163.52	57	23272	408.28	14.76
2004-05	23	13749	597.78	60	28256	470.93	48.66
2005-06	79	10936	138.43	139	27382	196.99	39.94
2006-07	77	28504	370.18	124	33508	270.23	85.07
2007-08	85	42595	501.12	124	87029	701.85	48.94
2008-09	21	2082	99.14	47	16220	345.11	12.84
2009-10	39	24696	633.23	76	57555	757.30	42.90

Source: SEBI's Handbook for Statistics, 2010.

fair level of valuation of their stock very much in line with quality of their fundamental strength.

Each and every type of investor is attracted to the IPO market. The underpricing[2] offers excellent opportunity to buyers for purchasing stocks at an attractive price to assure profits. However, it is equally true that investors find gaps in expected value and actual value or profits generated. Different IPOs behave differently across different sectors and over different time frames. Not all IPOs are under-priced. Few of these are some times overpriced, hence such IPOs do not generate positive gains for some time or long time or permanently. It is difficult task to identify such non-performing IPOs or the 'lemons'[3] in a given market conditions.

This study is undertaken to evaluate the post issue performance of IPOs in the Indian IPO Market. The study aims to evaluate the performance of IPOs on sectoral basis, based on the market price appreciation (underpricing) in their stock values over different time frames ranging from listing day, short-term and long-term duration up to three years (where available) and find out which sector has outperformed the overall level of performance. Our results exhibit that IPO stock of Public sector and Finance sector exhibit maximum change in value on listing day as well as on 30th day. However thereafter, it is IT/ITES sector which reflects maximum value appreciation beating all other sectors.

The remaining part of this article is divided into six section. This introduction is followed with, Review of Literature in Section 2, followed by the objectives of the study and hypothesis in Section 3. Research Methodology is discussed in Section 4, which is followed with data analysis in Section 5. Finally, the conclusions within Section 6.

2 It is indicated that underpricing is a common practice in the stock markets around the world. Indian stock market also boasts of underpricing in IPOs. In one of the study by the authors, underpricing at an average of 15 percent is noted in the Indian IPOs (yet to be published).

3 It is a term associated with automobile industry, particularly in used market segment, where seller is fully aware of the weakness of product on sale, but the buyers will come to know of it only during post purchase period.

Table 2: Underpricing: International Evidence

Country	*Study*	*Sample period*	*Sample Size*	*Short run returns (mean underpricing) (%)*
Argentina	Eijgenhuijsen and van der Valk (1997)	1991-1994	20	4.4
Australia	Lee, Taylor and Walter (1996); Woo(2000); Pham *et al.* (2003); Ritter	1976-2006	1103	19.8
Belgium	Rogiers, Manigart and Ooghe (1993); Loughran *et al*.	1984-2004	114	13.5
Brazil	Aggarwal, Leal and Hernandez (1993) ;Loughran *et al.*	1979-2006	180	48.7
Canada	Jog and Srivastava (1994),Kryzanowski, Lazrak and Rakita (2006)	1971-2006	635	7.1
China	Chen, Choi, and Jiang (2007)	1990-2005	1394	164.5
Egypt	Omran (2005)	1990-2000	53	8.4
Finland	Keloharju (1993)	1984-1992	85	9.6
France	Derrien and Womack (1999); Chahine (2002);Loughran *et al*.	1992-2006	686	10.7
Germany	Ljungqvist (1997); Rocholl(2005): Euro IPO Fact Book 2007	1978-2008	700	25.3
Greece	Kazantzis and Thomas (1995)	1987-1994	129	51.7
Hong Kong	Zhao and Wu	1980-1996	334	15.9
Hungary	Jelic and Briston (1999)	1990-1998	25	44
Indonesia	Hanafi (1997); Danny and Suherman (2009)	1989-2008	339	21.5
Iran	Bagherzadeh (2006)	1991-2004	279	22.4
Italy	Arosio *et al*. (2000)	1985-2000	164	23.9
Japan	Hamao *et al* (2000), Kaneko *et al*. (2001),Loughran *et al*	1970-2008	2628	40.1
Korea	Ihm (1997); Loughran *et al*.	1980-2008	1490	55.2
Malaysia	Isa (1993); Yong and Isa (2003); Yong (2007)	1980-2006	350	69.6
Portugal	Almeida and Dugue (2000)	1992-1998	21	10.5
Russia	Loughran *et al*.	1999-2006	40	4.2
Singapore	Lee *et al* (1996); Loughran *et al*.	1973-2008	519	27.4
Spain	Otero and Fernandez (2000); Loughran *et al*.	1985-2006	128	10.9
Taiwan	Chen (1992); Loughran *et al*.	1980-2006	1312	37.2
Turkey	Durukan (2002); Kucukkocaoglu (2009)	1990-1997	173	14.61
UK	Levis (1993); Chambers and Dimson (2009)	1959-2008	4198	16.3
USA	Ibbotson, Sindelar and Ritter (1994); Loughran *etal*.	1960-2008	12028	16.9

Source: Mittal and Mayur (2011) and various studies cited

2. Review of Related Studies

This is a well researched topic throughout the world. But almost in all such studies the focus remained only on underpricing of the stocks. The study by Reilly and Hatfield (1969) reported underpricing to the extent of 11% from their study of the IPOs in US during the period 1963-65. Other studies by Ibbotson (1975), Reilly (1977), Aggarwal and Rivoli (1989), Ritter (1991), Loughran and Ritter (1995), Ritter and Welch (2002), Ljungqvist and Wilhelm (2003) all document underpricing in the U.S. market. Jog and Riding (1987) reported the same for the Canadian market and then Ljungqvist (1997) for the German market, and Gong and Sekhar (2001) for the Australian market also report underpricing. Others studies which reported underpricing are Wong and Chiang (1986) for the Singapore market; Chen *et al* (2004) for the Chinese market and Yong and Isa (2003) provide evidence on underpricing of IPOs in the Asian markets. A list of studies using listing day returns (underpricing) around the world is presented in the Table 2.

The various studies on underpricing in the Indian context are listed in Table 3. The study by Shah (1995) provides

evidence on the short run performance of 2056 new listings over the period January 1991 to May 1995 and documents a phenomenal 105.6% excess return over the offer price. In another study, Madhusoodanan and Thiripalraju (1997) based on IPOs offered on BSE during the period 1992 to 1995 show that underpricing was higher than the international experiences in the short run and in the long run too they yield higher returns compared to the negative returns recorded from the international markets. Similarly, Krishnamurti and Kumar (2002) working on a sample of IPOs that hit the market between 1992 and1994 demonstrate that the underpricing is to the extent of 72.34% (market adjusted returns). Kakati (1999) analyzed the performance of a sample of 500 IPOs that came to the market during January 1993 to March 1996 and documents that the short run underpricing is to the tune of 36.6% and in the long-run the overpricing is 40.8%.

All such studies agree that IPOs tend to be profitable only during short term period since IPO's are under-priced. Since 1998 onwards Indian IPO market has witnessed changes that tend to focus on better realization to the issuers of stocks and better stocks for the investing public. This study is undertaken to find the extent of underpricing in Indian IPOs across different sectors, over different time frames.

3. Objectives of Study

The purpose of our study is to evaluate the IPO market for post issue performance of IPO stocks at overall and sector-wise level on three different time frames – Listing day, Short term Period (up to 6 months) and Long Term Period (beyond one year) to find the:

1. Extent of appreciation (underpricing) in Indian IPO market across different sectors.
2. Extent of non-performing IPO stocks in Indian IPO market across different sectors.
3. Extent of difference made by non-performing IPO stocks on the appreciation (underpricing) across different sectors.

4. Research Methodology

4.1 Sample Selection

The websites of NSE, BSE and SEBI provide ample of information on various aspects of securities market. The data under consideration here have been collated from the website of NSE and is presented in Table 4. There were total 398 public offers through book building process from the period September 1999 to March 2011. Of this 13 were cancelled or withdrawn. Of the remaining 338

Table 3: Underpricing: Indian Evidence

Study	*Sample period*	*Number of firms*	*Short run returns (mean underpricing) (%)*	*Long run returns (%)*
Shah (1995)	1991-1995	2056	105.6	NA
Madhusoodanan and Thiripalraju (1997)	1992-1995	1922	294.8	16.33 (annualized)
Kakati (1999)	1993-1996	500	36.6	-40.8
Krishnamurti and Kumar (2002)	1992-1994	386	72.34	NA
Ranjan and Madhusoodanan (2004)	1999-2003	92	78_a -2_b	NA
Kumar (2010)	1999-2006	156	26.35	-3.89
Marisetty and Subrahmanyam (2010)	1990-2007	2811	92.7	NA
Kumar and Vikraman (2009)	2004-2008	71	55	2
Mittal and Mayur (2011)	1997-2007	306	25.13	NA

NA: Not Analyzed.
Source: Mittal and Mayur (2011) and various studies cited
[a]Fixed priced issues
[b] Bookbuilt issues

Table 4: Sample Selection

Year	*No. of Offers*	*listed on NSE (Population)*	*Withdrawn / Cancelled*	*Sample*	*Sample (% of Population)*
1999-00	4	3	0	2	67
2000-01	11	6	2	6	100
2001-02	1	1	0	1	100
2002-03	2	1	0	1	100
2003-04	14	12	0	12	100
2004-05	18	17	0	14	82
2005-06	70	65	0	60	92
2006-07	78	65	4	60	92
2007-08	82	71	4	70	99
2008-09	18	15	0	15	100
2009-10	44	38	1	36	95
2010-11	56	44	2	41	93
Total	398	338	13	319	94

offers were listed on NSE. Our sample is of 319 offers stocks/issues of companies for which relevant data was available. The sample makes 94 percent of the population.

4.2 Sample Distribution

In order to further highlight the performance of these stocks, these have been further segregated into public (government), private, manufacturing, information technology (IT)/ information technology enabled services (ITES), services, infrastructure, petrochemicals and finance. The sectoral distribution of sample is presented in Table 5.

4.3 Analysis Methodology

The data collated are analyzed for collective change in value of stocks for market price appreciation (MPA) over three different time horizon- Listing Day, Short-run Period (up to six months) and Long-run Period (one year and above). Results have been compiled for change in values of stock arrived at by comparing the issue price with that of closing price of the stock on the listing day (1D) and then after 30 days (1M), three months (3M), six months (6M), one year (1Y), two years (2Y) and three Years (3Y). This is calculated as follows-

Table 5: Sectoral Distribution of Sample (Number of offers)

	Short-run Period				*Long-run Period*		
Sector	*1D*	*1M*	*3M*	*6M*	*1Y*	*2Y*	*3Y*
TOTAL	319	319	319	314	286	238	229
Public	20	20	20	20	17	12	12
Private	299	299	299	294	269	226	217
Manufacturing	138	138	138	134	122	107	103
IT/ITES	47	47	47	47	45	38	35
Services	45	45	45	45	42	36	34
Infrastructure	61	61	61	61	52	35	35
Petrochemicals	8	8	8	8	8	7	7
Finance	20	20	20	19	17	15	13
TOTAL	319	319	319	314	286	238	229

Table 6: Market Price Appreciation Across Sectors (%)

	TOTAL	Public	Private	Mfg	IT/ITES	Services	Infra	Petro	Finance
Listing Day	25.13	36.14	24.55	22.77	33.56	23.79	19.40	12.09	41.77
After 30 days	24.87	40.08	24.07	18.37	39.96	15.27	22.98	7.69	52.61
After 3 Months	23.09	30.13	22.72	14.16	46.76	15.93	21.65	11.93	36.26
After 6 Months	22.06	34.78	21.38	14.96	45.89	26.67	21.73	6.41	0.55
After 1 Year	20.75	33.86	20.14	19.34	51.67	31.61	2.99	38.78	-27.70
After 2 Years	6.46	79.95	4.75	7.53	48.96	-4.71	-20.86	51.90	-13.51
After 3 Years	-11.38	99.40	-14.02	-8.36	22.79	-22.40	-44.99	73.94	-23.80
Short Term Period	24.05	35.28	23.46	17.88	41.54	20.42	21.44	9.53	34.34
Long Term Period	7.40	14.86	6.86	7.20	44.73	7.94	-11.05	-14.32	-19.16

$A_{it} = (MP_{cit} - OP_{oi}) / OP_{oi} \times 100$

$CVt = (\Sigma Vt - \Sigma Vi)/ \Sigma Vi \times 100$

where, A_{it} = Appreciation of Stock 'i' at time't'; MP_{it} = Market Price of Stock 'i' at time't'; OP_i= Offer Price of Stock 'i'; CVt = Change in Value of stock at't'; Vt = Value of stock at time't'; and Vi = Value of stock at Issue time.

A positive value indicates the extent of underpricing in stocks, negative value indicates over-pricing extent and zero value indicates aptly priced stock. This is followed with measuring the Pearson's correlation coefficient.

This is further followed with the analysis of appreciation of individual stock to identify the non-performing IPOs. For our study, we define non-performing IPOs as those which yield below 1 percent appreciation over their issue price. The data is compiled for proportion of non-performing IPOs (with below 1 percent appreciation), proportion of performing IPOs in four slabs based on appreciation - 1 to 30 percent; 30 to 50 percent; 50 to 100 percent; and above 100 percent. Above information is used to calculate the effect it would make to the appreciation (underpricing) calculated above. The rationale for arriving at benefit adopted here is that as an investor whether there would be gain or loss on investment.

4.4 Limitations

It may be noted here that retail investors are usually allotted shares at some discount over the issue price but same has not been considered here to provide a holistic picture. Thus, the performance reflected by stocks considered here is applicable to all types of investor types. Retail investors stand to gain additional benefit to the extent of discount extended. Further, it is also assumed that any other benefit such as dividend or bonus shares if extended will have its impact on the stock value to that extent and hence only the value of the stock is considered as the basis for measuring performance. It is also assumed that market forces will have uniform impact on the stocks which in-turn will have holistic bearing on the stock value. Thus, stock values considered here are not adjusted with any other factor such as index values.

5. Results and Observations

The market price appreciation analysis reveals an interesting result. Table 6 summarizes the results of the appreciation as observed across all sectors over different time frames. The figures given are the average change observed in the value of the stocks with respect to their issue price.

The average appreciation on first day of listing is observed to be 25.13 percent at overall level. Stocks of Finance sector with 41.77 percent followed by Public Sector (36.14 percent) and IT sector (33.56 percent) beat this overall level. Rest all sectors stocks remain below the benchmark, with Petrochemical sector stocks appreciating lowest at 12 percent. A general descending trend in appreciation is observed in the stocks across all sectors, with the IT sector and Public Sector stocks being an exception. The appreciation of stocks tends to decline from the levels of listing day with each passing day and becomes negative towards longer duration. Thus a negative relationship is exhibited between appreciation and time period.

It may be observed here that compared to the overall performance of all the stocks, stocks of IT sector followed

Table 7: Pearson's Product of Movement (Correlation)

	Short Term Period				*Long Term Period*		
	1d	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*
Total	0.9198	0.8793	0.8277	0.7460	0.5914	0.2664	0.2495
Public	0.9427	0.8820	0.9760	0.9240	0.9437	0.8393	0.1574
Private	0.9181	0.8795	0.8169	0.7327	0.5588	0.2583	0.2545
Manufacturing	0.9319	0.9084	0.7825	0.6801	0.4541	0.4210	0.2752
IT/ITES	0.8640	0.8111	0.8305	0.7883	0.5351	0.0376	0.2413
Services	0.9336	0.9218	0.9261	0.8745	0.8268	0.4852	0.4310
Infrastructure	0.9039	0.8173	0.8387	0.7468	0.7074	0.4978	0.3105
Petrochemicals	0.9969	0.9972	0.9965	0.9983	0.9960	0.5004	0.9514
Finance	0.9382	0.9447	0.7903	0.7362	0.2292	0.3414	-0.0418

by public sectors have defied the trend and yielded better appreciation in short as well as long term periods. The stocks of IT sector delivered highest appreciation in short as well as long term durations. Finance sector stocks, in comparison, exhibited highest appreciation during initial period of 30 days, but thereafter descended to lowest of all during long term period.

The falling trend in the appreciation of stocks as observed in Table 6 is very much supported by the Pearson's Product of Movement (Correlation) analysis given in Table 7.

The above results confirm the negative relationship observed in Table 6. While the coefficient is positive and strong enough at around 90 percent on the listing day (1d) and above 73 percent during initial 6 months (short term period) across all sectors, this positive strength tends to dilute over long term period. The exception to this trend is exhibited by petrochemical sector stocks which remain positively strong at around 99 percent almost through out the time frame period. The public sector stocks also exhibit strong and positive coefficient between 83 to 97 percent during the initial 2 years time frame.

However, the detailed analysis is required to understand the extent of appreciation across different sectors. Table 8 summarizes the extent of appreciation exhibited across different sectors using different classification slabs. The first slab - appreciation below 1 percent basically highlights the non-performing IPOs which siphon the investor gains from the other wise lucrative appreciation.

At Total (overall) level, while 110 IPO stocks (34.5 percent) exhibited appreciation below 1 percent (non-performing IPOs) on listing day, which increased to 150 IPO stocks (65.5 percent) after three years. At the same time 66 IPO stocks (20 percent) exhibited appreciation of more than 50 percent on listing day increased to 52 IPO stocks (23 percent) after three years.

The sectorwise analysis reveals that except for the stocks of Public sector (at 10 percent) and Finance Sector (15 percent), all remaining sectors exhibited 25 percent (IT/ITES sector) to 40 percent (manufacturing sector) stocks having appreciation of below 1 percent on listing day (1d). This only swells to 54 percent (IT/ITES sector) to 73 percent (manufacturing sector) across all sectors after 3 years (3y) with exception being public sector (8 percent), petrochemical sector (14 percent) and finance sector (33 percent) stocks. Further, it is noted that 16 percent (Infrastructure sector) to 22 percent (manufacturing sector) IPO stocks appreciated by more than 50 percent on listing day across different sectors which remained at the same level or decreased after 3 years – manufacturing (17 percent), IT/ITES (26 percent). The exception to this is petrochemicals sector (12 percent to 59 percent), public sector (20 percent to 83 percent) and finance sector (25 percent to 53 percent).

The above results can be interpreted to the fact that only public and finance sector stocks sustain the appreciation over the long term duration as compared to the rest of the sector stocks. Clearly, this view is in contrast to the views available from Table 6 and 7 particularly in case of finance sector. Manufacturing sector is viewed as least performing sector.

The extent of difference due to non-performing IPO stocks, that yielded less than 1 percent appreciation over their issue price across sectors is presented in Table 9. The difference is derived from the maximum appreciation possible if these non-performing IPOs would not be

Table 8: Extent of Appreciation

	IPO No's							% of Total						
Appreciation	*1d*	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*	*1d*	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*
Total (Overall)														
Below 1%	110	130	159	159	155	151	150	34.5	40.8	49.8	50.6	54.2	63.4	65.5
1 to 30%	99	86	62	53	23	18	18	31.0	27.0	19.4	16.9	8.0	7.6	7.9
30 to 50%	44	30	28	20	27	13	9	13.8	9.4	8.8	6.4	9.4	5.5	3.9
50 to 100%	48	47	30	35	30	7	16	15.0	14.7	9.4	11.1	10.5	2.9	7.0
Above 100%	18	26	40	47	51	49	36	5.6	8.2	12.5	15.0	17.8	20.6	15.7
Total	319	319	319	314	286	238	229	100	100	100	100	100	100	100
Public Sector														
Below 1%	2	5	5	7	6	2	1	10.0	25.0	25.0	35.0	35.3	16.7	8.3
1 to 30%	9	5	5	3	0	1	1	45.0	25.0	25.0	15.0	0.0	8.3	8.3
30 to 50%	5	4	4	1	1	0	0	25.0	20.0	20.0	5.0	5.9	0.0	0.0
50 to 100%	1	2	3	6	5	1	2	5.0	10.0	15.0	30.0	29.4	8.3	16.7
Above 100%	3	4	3	3	5	8	8	15.0	20.0	15.0	15.0	29.4	66.7	66.7
Total	20	20	20	20	17	12	12	100	100	100	100	100	100	100
Private Sector														
Below 1%	108	125	154	152	149	149	149	36.1	41.8	51.5	51.7	55.4	65.9	68.7
1 to 30%	90	81	57	50	23	17	17	30.1	27.1	19.1	17.0	8.6	7.5	7.8
30 to 50%	39	26	24	19	26	13	9	13.0	8.7	8.0	6.5	9.7	5.8	4.1
50 to 100%	47	45	27	29	25	6	14	15.7	15.1	9.0	9.9	9.3	2.7	6.5
Above 100%	15	22	37	44	46	41	28	5.0	7.4	12.4	15.0	17.1	18.1	12.9
Total	299	299	299	294	269	226	217	100	100	100	100	100	100	100
Manufacturing Sector														
Below 1%	56	62	80	81	75	73	76	40.6	44.9	58.0	60.4	61.5	68.2	73.8
1 to 30%	35	35	24	17	6	8	7	25.4	25.4	17.4	12.7	4.9	7.5	6.8
30 to 50%	16	15	9	5	12	7	3	11.6	10.9	6.5	3.7	9.8	6.5	2.9
50 to 100%	25	18	10	11	8	1	6	18.1	13.0	7.2	8.2	6.6	0.9	5.8
Above 100%	6	8	15	20	21	18	11	4.3	5.8	10.9	14.9	17.2	16.8	10.7
Total	138	138	138	134	122	107	103	100	100	100	100	100	100	100
IT Sector														
Below 1%	12	14	14	17	20	23	19	25.5	29.8	29.8	36.2	44.4	60.5	54.3
1 to 30%	17	16	13	9	4	4	5	36.2	34.0	27.7	19.1	8.9	10.5	14.3
30 to 50%	8	3	6	8	5	1	2	17.0	6.4	12.8	17.0	11.1	2.6	5.7
50 to 100%	6	10	5	4	7	1	2	12.8	21.3	10.6	8.5	15.6	2.6	5.7
Above 100%	4	4	9	9	9	9	7	8.5	8.5	19.1	19.1	20.0	23.7	20.0
Total	47	47	47	47	45	38	35	100	100	100	100	100	100	100
Services Sector														
Below 1%	13	18	22	20	19	23	24	28.9	40.0	48.9	44.4	45.2	63.9	70.6
1 to 30%	16	15	10	10	5	3	2	35.6	33.3	22.2	22.2	11.9	8.3	5.9
30 to 50%	7	2	4	1	2	1	2	15.6	4.4	8.9	2.2	4.8	2.8	5.9
50 to 100%	7	7	6	8	6	1	3	15.6	15.6	13.3	17.8	14.3	2.8	8.8
Above 100%	2	3	3	6	10	8	3	4.4	6.7	6.7	13.3	23.8	22.2	8.8

	IPO No's							*% of Total*						
Appreciation	*1d*	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*	*1d*	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*
Total	45	45	45	45	42	36	34	100	100	100	100	100	100	100
Infrastructure Sector														
Below 1%	23	28	33	31	32	23	25	37.7	45.9	54.1	50.8	61.5	65.7	71.4
1 to 30%	20	14	10	11	6	1	1	32.8	23.0	16.4	18.0	11.5	2.9	2.9
30 to 50%	8	6	4	6	6	2	1	13.1	9.8	6.6	9.8	11.5	5.7	2.9
50 to 100%	8	7	7	6	2	3	0	13.1	11.5	11.5	9.8	3.8	8.6	0.0
Above 100%	2	6	7	7	6	6	8	3.3	9.8	11.5	11.5	11.5	17.1	22.9
Total	61	61	61	61	52	35	35	100	100	100	100	100	100	100
Petrochemicals Sector														
Below 1%	3	2	3	2	2	2	1	37.5	25.0	37.5	25.0	25.0	28.6	14.3
1 to 30%	1	3	1	4	0	1	2	12.5	37.5	12.5	50.0	0.0	14.3	28.6
30 to 50%	3	1	3	0	2	0	0	37.5	12.5	37.5	0.0	25.0	0.0	0.0
50 to 100%	0	1	1	2	3	0	2	0.0	12.5	12.5	25.0	37.5	0.0	28.6
Above 100%	1	1	0	0	1	4	2	12.5	12.5	0.0	0.0	12.5	57.1	28.6
Total	8	8	8	8	8	7	7	100	100	100	100	100	100	100
Finance Sector														
Below 1%	3	6	7	8	7	7	5	15.0	30.0	35.0	42.1	41.2	46.7	33.3
1 to 30%	10	3	4	2	2	1	1	50.0	15.0	20.0	10.5	11.8	6.7	6.7
30 to 50%	2	3	2	0	0	2	1	10.0	15.0	10.0	0.0	0.0	13.3	6.7
50 to 100%	2	4	1	4	4	1	3	10.0	20.0	5.0	21.1	23.5	6.7	20.0
Above 100%	3	4	6	5	4	4	5	15.0	20.0	30.0	26.3	23.5	26.7	33.3
Total	20	20	20	19	17	15	15	100	100	100	100	100	100	100

present.

The results arrived here are very interesting as well as surprising. At the Total level the difference is 15 percent on listing day (1d), which doubles (31 percent) during short term period and becomes 111 percent during long term period. Thus difference increases with increase in time duration.

This difference is negligible on listing day (1d) in case of public and finance sector. It is in the range of 5 percent (petrochemicals sector) to 20 percent (manufacturing sector) on listing day across all sectors. The minimum difference is noted in petrochemical sector during short term (7 percent) and long term (75 percent) period. Across all remaining sectors, it is minimum in case of public sector (9 percent) and maximum in case of manufacturing sector (39 percent) during short term duration. During the long term period also, the maximum of difference is noted in case of manufacturing sector (126 percent) and minimum in case of finance sector (87 percent).

It is interesting to note that the negative relationship between appreciation and time frame exhibited in Table 6 and 7, becomes positive and exponential across all sectors when non-performing IPOs are not considered. These results, however, are of preliminary nature and needs further research to arrive at concrete findings.

6. Summary and Conclusion

The IPO market is considered to be the safest way to invest in stock market with assured profits. This study takes into account the post issue performance of IPOs through market price appreciation analysis of stocks across different sectors on listing day, short term duration (up to 6 months) and long term duration (beyond one year). Our results indicate inverse relationship of market price appreciation to time period meaning that the stock appreciation tends to decrease with time.

Maximum appreciation of stocks is witnessed on listing day across all sectors. Appreciation is observed ranging from 12 percent to 42 percent with average being

Table 9: Extent of Difference made by Non-Performing IPOs on Appreciation (Underpricing) in Indian IPOs

		1d	*30d*	*3m*	*6m*	*1y*	*2y*	*3y*	*Short Term*	*Long Term*
Total	*P-IPOs*	*40.63*	*49.85*	*62.35*	*74.85*	*98.82*	*138.58*	*135.20*	*55.12*	*118.40*
	Overall	25.13	24.87	23.09	22.06	20.75	6.46	-11.38	24.05	7.40
	Difference*	15.50	24.98	39.26	52.80	78.07	132.12	146.57	31.07	111.00
Public	P-IPOs	36.62	48.93	38.17	55.70	71.96	96.72	200.51	44.00	107.21
	Overall	36.14	40.08	30.13	34.78	33.86	79.95	99.40	35.28	14.86
	Difference*	0.48	8.85	8.04	20.92	38.10	16.77	101.11	8.72	92.34
Private	P-IPOs	40.93	49.91	64.30	76.26	100.46	141.19	131.35	55.93	119.08
	Overall	24.55	24.07	22.72	21.38	20.14	4.75	-14.02	23.46	6.86
	Difference*	16.37	25.85	41.58	54.88	80.32	136.44	145.38	32.47	112.22
Manufacturing	P-IPOs	43.60	44.66	66.10	91.08	120.47	139.44	152.66	57.35	133.94
	Overall	22.77	18.37	14.16	14.96	19.34	7.53	-8.36	17.88	7.20
	Difference*	20.83	26.28	51.95	76.12	101.13	131.91	161.02	39.47	126.74
IT/ITES	P-IPOs	45.82	57.98	68.20	78.39	127.36	199.02	127.47	62.11	146.99
	Overall	33.56	39.96	46.76	45.89	51.67	48.96	22.79	41.54	44.73
	Difference*	12.26	18.02	21.45	32.50	75.69	150.06	104.68	20.57	102.26
Services	P-IPOs	37.96	39.47	42.27	57.32	78.09	104.48	108.00	44.06	121.76
	Overall	23.79	15.27	15.93	26.67	31.61	-4.71	-22.40	20.42	7.94
	Difference*	14.16	24.20	26.35	30.65	46.49	109.19	130.40	23.64	113.82
Infrastructure	P-IPOs	34.55	55.12	57.60	69.74	67.27	95.26	119.09	52.83	79.94
	Overall	19.40	22.98	21.65	21.73	2.99	-20.86	-44.99	21.44	-11.05
	Difference*	15.15	32.13	35.96	48.01	64.28	116.12	164.08	31.39	90.99
Petrochemicals	P-IPOs	17.36	13.70	22.87	11.78	47.69	96.10	77.72	16.34	60.94
	Overall	12.09	7.69	11.93	6.41	38.78	51.90	73.94	9.53	-14.32
	Difference*	5.28	6.00	10.94	5.38	8.91	44.19	3.78	6.82	75.26
Finance	P-IPOs	42.60	69.57	110.22	103.27	86.24	109.20	117.56	69.14	67.86
	Overall	41.77	52.61	36.26	0.55	-27.70	-13.51	-23.80	34.34	-19.16
	Difference*	0.83	16.96	73.96	102.71	113.94	122.71	141.36	34.81	87.02

*Difference is the negative appreciation of the non-performing IPOs. It is the extent of appreciation lost by investors due to non-performing IPOs.

25 percent across all sectors. Finance and IT/ITES sectors outperform the average level of appreciation. Petrochemical and Infrastructure sector stocks gain poorly on listing day.

Positive cumulative gains are also visible during short term duration of up to 6 months across all sectors. Majority of the stocks across all sectors tend to generate appreciation levels of 30 percent or more with few delivering appreciation of more than 100 percent. Selectively Public sector stocks and Finance sector remain safest investment for high growth during short term period. Our results indicate that appreciation tends to dilute and become negative over long term period across all sectors. However, Public sector stocks followed by Petrochemical and Finance stocks out perform all other sector stocks during long term duration. However, caution is required while investing in Manufacturing sector IPO stocks since as per our results they remain poorest performers on all parameters.

In our study we attempted to find the extent of non-performing IPOs in Indian market. Our results indicate that on an average 34 percent stocks yield less than 1 percent appreciation on listing day which swells over time to 65 percent after 3 years. These non-performing IPOs dilute the appreciation of stocks ranging from 15 percent on listing day to 146 percent after 3 years period. Additional study is required to assess whether the recently introduced grading of IPOs has had any impact on the

levels of non-performing IPOs.

Investors would be more benefitted if they book their profits on listing day itself or during the initial period of listing. The more time they take to book their profits, lesser will be the return. Maximum gains are achieved if the stock is sold on its listing day itself. In most of the sectors clear gains are visible at least during first six months period. However, the stocks across all sectors tend to loose their ability to sustain profitability over the time. Public sector stocks are safer than private sector stocks and they remain safest bet amongst all sectors during both short as well as long term periods. Selectively, petrochemical and finance sector stocks could be chosen for short as well as long term gains.

The assessment made here is of preliminary nature and needs further research particularly in case of non-performing IPOs as well as comparison of stock values to the values of the index.

References

Acharya, B. (2009). *Only Three IPOs Out of 10 Deliver Positive Returns*. Hindu Business Line (21 ed.). Vishakhapatnam.

Aggarwal, S. K. (2008). Under-pricing of Initial Public Offerings: An Empirical Analysis of Indian IPO Market. *International Journal of Strategic Management*.

Allen, F. & Gerald, R. F. (1989). Signaling by Under-pricing in the IPO Market. *Journal of Financial Economics*, August, 23(2), pp. 303-323.

Barry, C. B. & Jennings, R. H. (1993).The Opening Price Performance of Initial Public Offerings of Common Stock. *Financial Management*, 22(1), pp. 54-63.

Brown, J. M. (1970). Post-Offering Experience of Companies Going Public. *Journal of Business*, January, 43(1), pp. 10-18.

Deb, S. (2010). Risk-Adjusted Performance of IPOs. Paper Presented in International Conference at IIM. Calcutta.

Deb, S. G. (2009). Some Insights into IPO Underpricing in India. *Vilakshan*, September, 6(2), pp. 1-14

Garg, A., Arora, P. & Singla, R. (2008). IPO Underpricing in India. *ICFAI Journal of Applied Finance*, March, 14(3), pp. 33-42.

Ghosh, S. (2004). Revisiting IPO Underpricing in India. Retrieved from SSRN: http://ssrn.com/abstract=703501.

Ghosh, S. (2005). Underpricing of Initial Public Offerings. *Emerging Markets, Finance & Trade*, Nov/Dec, 41(6), pp. 45-57.

Jain, B. & Kini, O. (1994). The Post-Issue Operating Performance of IPO Firms. *Journal of Finance*, December, 49(5), pp. 1699-1726.

Jain, N. (2009). Underpricing in Indian Capital Market. Paper Presented in International Conference on Economics & Finance, IBS. Bangalore. SSRN-id1748546.

Jaitly, S. & Sharma, R. (2004). Pricing of IPOs and their After Issue Performance in the Indian Equity Market. *Managerial Finance*, 30(1), pp. 29-45.

Janakiramanan, S. (2008). Under-pricing and Long Run Performance of Initial Public Offerings in Indian Stock Market, National Stock Exchange of India Research Papers. National Stock Exchange of India.

Kakati, M. (1999). Price Performance of Initial Public Offerings. *International Journal of Development Banking*, 17(2), pp. 59-75.

Krishnamurti, C. & Kumar, P. (2002). The Initial Listing Performance of Indian IPOs. *Managerial Finance*, Vol. 28(2), pp. 39-51.

Kumar, K. C. J. S. & Vikaraman, P. (2009). Investor's Preference on IPO's in India. Paper presented in Second International GBMF Conference.

Kumar, S. S. S. (2007). Short and Long Run Performance of Book Built IPOs in India. *International Journal of Management Practices & Contemporary Thoughts*, July-December, 2(2), pp. 20-29.

Loughran, T., Ritter, J. R. & Rydqvist, K. (1994). Initial Public Offerings: International Insights. *Pacific-Basin Finance Journal*, 2(2-3), pp. 165-99.

Madhusoodanan, T. P. & Thiripalraju, M. (1997). Underpricing in Initial Public Offerings: The Indian Evidence. *Vikalpa*, 22(4), pp. 17-30.

Mayur, M. & Mittal, S. (2011). Relationship between Underpricing and Post IPO Performance: Evidence from Indian IPOs. Unpublished Paper Retrieved From *SSRN*: http://ssrn.com/abstract=1768725

McDonald, J. G. & Fisher, A. K. (1969). New Issue Stock Price Behaviour. *Journal of Finance*, 27(1), pp. 97-102.

Mishra, B. & Rahman, M. (2008). Evaluating Portfolio Performance: LPM-Based Risk Measures and the Mean-Equivalence Approach", In Frank Fabozzi (Ed.). *Handbook of Finance* (2, pp 229-236). USA: John Wiley.

Nanda, M. S. & Sawyer, K. R. (2002). Ex-Ante Uncertainty in Initial Public Offerings: The Indian Market. *Finance India*, September, 16(3), pp. 961-976.

Reilley, F. K. and Hatfield, K. (1969). Investor Experience with New Stock Issues. *Financial Analysts' Journal*, September-October, 25, pp. 73-80.

Ritter, J. R. (1991). The Long-Run Performance of Initial Public Offerings. *The Journal of Finance*, 46(1), pp. 3-27.

Shah, A. (1995). The Indian IPO Market: Empirical Facts, Technical Report. Mumbai: Centre For Monitoring Indian Economy.

Shah, A. & Thomas, S. (2001). Policy Issues in the Indian Securities Market. Working Paper No. 106. Stanford University.

Shelly. & Singh, B. (2008). Over-subscription and IPO Under-pricing: Evidence from India. *ICFAI Journal of Applied Finance*, December, 14(12), pp. 65-73.