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Research Article

Performance Determinants of Initial Public Offers (IPOs) in India: Testing Window of Opportunity, Winner's Curse and Divergence of Opinion Hypotheses

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Abstract

Researches in the past have globally witnessed two anomalies in the IPO market viz. Underpricing and Underperformance. The study finds that on an average IPOs have generated 12.35% as listing gain which is less than what was reported in earlier studies. Variables like issue size, subscription rate and timing of the IPO have shown ability to impact the listing performance. As timing of IPO is a significant variable, Window of Opportunity hypothesis withstands. Performance of IPOs in long run is painfully poor. IPO returns for one year, three years and five years holding period stands at -5.40%, -15.81% and 4.19% respectively. Underpricing is negatively correlated with the long run performance. Subscription rate is also a significant determinant of the performance of IPOs. The findings validate Winner's Curse, Divergence of Opinion and Impresario Hypotheses.

Key Words: Buy and hold Return, IPO, Underpricing & Underperformance

1. Introduction

Extant literature suggests two anomalies in the IPO market i.e. underpricing and underperformance. Scholars are unanimous on the universality of underpricing but not that of underperformance. Moreover, the level of underpricing varies significantly across the counties, as reported in different studies. And, most crucial, the variables which may affect underpricing and underperformance, are not established. All these factors necessitated the present study. Since Long back, scholars have endeavoured to study the causes behind these two anomalies and have suggested some hypotheses which include information asymmetry, winner's curse, informational cascade and divergence of opinion hypotheses. The present study also attempts to validate these hypotheses. Globally a number of good researches have been done on underpricing and underperformance like (Loughran, Ritter, & Rydqvist, 1994) (Ritter, Initial Public Offerings, 1998) (Acqua, Etro, Teti, & Murri, 2014) but in India only few studies are there (Sahoo & Rajib, 2010) (Seal & Matharu, 2012) and (Dhamija & Arora, 2017) .

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Underpricing

Underpricing is defined as difference between issue price and listing price. Usually, closing price of listing day is taken as listing price. This initial return on listing gives us the raw return which should be adjusted against market return so as to arrive at real return on listing. Scholars are unanimous across globe on the evidence of underpricing, though the magnitude of underpricing differs across the country and time period. (Rock, 1986), (Ritter, Initial Public Offerings, 1998) (Krishnamurti & Kumar, 2002) and (Sehgal & Singh, 2008). The main rationale for liberalization of IPO pricing in India is to reduce the amount of underpricing. Free pricing of IPOs is expected to reduce but not completely eliminate underpricing. Mathematically, underpricing can be expressed as log difference of listing price and issue price:

Raw Underpricing = Ln (Listing Price/ Issue Price)

This raw return needs to be adjusted against market return so that we can get real access return on listing, called Market Adjusted Abnormal Return (MAAR):

MAAR = Raw Underpricing -Market Return

Market return is the log difference of closing prices of NIFTY on the date of listing and on the date of issue.

Long Run Performance

Many studies have been undertaken globally analysing long run performance of IPOs but the scholars are not unanimous on the findings. A bunch of studies suggest that IPOs underperform the broad market in long run (for at least 36 months) while other scholars are of opinion that IPOs outperform the broad market in long run. We can candidly say that, by now, long run performance of IPOs could not have been generalized unlike universality of underpricing i.e. listing gain.

(Ritter, 1991) shows that firms going public during 1975–1984 in USA, on average, underperform a sample of matching firms over a three-year period by 29%. (Loughran & Ritter, 1995) test the robustness of this finding and confirm that U.S. IPOs during 1970–1990 have been poor long-term investments for investors. For the United Kingdom, (Levis, 1993) shows that companies that went public during 1980–1988 underperform market indices by an average of 8-23% (depending on the market benchmark used) for a period of three years after their IPO.

Long-run performance here means return generated by the IPOs after listing and during a specified period of time. To measure the long run performance Buy-and-Hold Abnormal Return has been calculated for one year, three years and five years period. It is assumed that if the amount is invested and held for a specified period, what amount investors would have earned on the invested money during the holding period. This return is adjusted against market return to compute abnormal return (BHAR) i.e. return over and above the return generated by broad market. NIFTY Fifty have been used to represent broad market. (Lyon, Barber, & Tsai, 1999) argue that BHAR is more important because it precisely measures investor experience, i.e., the buy-and-hold experience. This method is also consistent with (Sahoo & Rajib, 2010) and (Dhamija & Arora, 2017).

2. Literature Review and Theoretical Building Blocks

In a very pioneer attempt (Ibbotson, 1975) studies listing as well as long term performance of IPOs which were brought in 1960s in the capital market of USA. The author reports listing gains of 11.40%. The results are generally consistent with aftermarket efficiency. Positive initial performance along with aftermarket efficiency indicate that new issue offerings are underpriced. (Ritter, 1984) studied listing gains of IPOs in USA during a hot period of 15 months from January 1980 to March 1981 and reports it to be at 48.40%. And, during a cold period of market that comprises of all rest of the IPOs floated between 1977 to 1982, average underpricing of 16.3% has been reported. (Corhay, Teo, & Rad, 2002) examine the long run performance of IPOs listed on the Kuala Lumpur Stock Exchange, Malaysia over the four-year period between 1992 and 1996. By analyzing the sample of 258 IPOs, it is concluded that IPOs tend to outperform the market with a positive cumulative adjusted market return (CAR) of 41.7% over three years from the listing day. (Yip, Su, & Ang, 2009) examine whether the choice of underwriters, venture capital (VC) support, industry and their interactions have any impact on the long-term performance of initial public offerings (IPOs). Results show that only underwriter and VC effects are found significant. This study covers, 772 IPOs for a period from January 1996 to December 2000 in USA. (Acqua, Etro, Teti, & Murri, 2014) studied a set of total 129 IPOs listed on the Italian Stock Exchange between January 2001 to December 2012. The authors find that two-third of IPOs have witnessed underpricing but the average underpricing is as low as 6.75%. This may be due to adoption of more efficient book building procedure. Authors find that some variables significantly affect the IPO underpricing level like firm size, firms' risk as measured by the beta, demand of the issue, percentage of retained shares, and the listing during the recent financial crisis period. Size, demand multiple and retained ownership are all possible proxies for ex-ante uncertainty and give a signal to the market that is then reflected on the first day return. (Cornanic & Novak, 2015) opine that IPOs are deliberately underpriced to signal the quality of the issue in case of priori information asymmetry. Authors find that contrary to the experience of developed market, firms in the emerging financial market strategically and deliberately underprice their IPOs with the motivation to come up with SEOs in future at better terms. Based upon the evidences of IPOs floated in Poland between 2005 to 2009, authors report that those firms which underprice their IPOs were more likely to float further public offers and such offers were of greater size. (Roosenboom & Giudici, 2015) investigate the determinants of the long-run performance of IPOs on Europe's new stock markets and report that the average company that went public on these markets has been a very poor long-term investment. Investors would be left with an average of only 68 cents compared to one euro invested in the local market index (NASDAQ Composite index). It was found that the stock price performance during a three-year window is inversely related to first day returns. However, the other three proxies for divergence of opinion (high-low spread, bid-ask spread and volume ratio on the first trading day) are not significantly associated with long-run stock price performance. Therefore, it is concluded that there is mixed support for the divergence of opinion hypothesis.

In India, too, scholars find evidence of underpricing and underperformance. (Kumar, 2007) examines the performance of IPOs issued through the book building process in India over the period 1999 to 2006. The sample comprises 156 firms that offered their shares through the book building route on the NSE. IPOs on an average offered positive returns (after adjusting for market movements) to investors on listing day. In the long run the IPOs offered positive returns up till twenty-four months but subsequently they underperform the market. However, author is not confident about the later finding as sample size comes down substantially. (Krishnamurti &

Kumar, 2002) and (Ghosh, 2004) also report underpricing but both are silent on long run performance. (Sehgal & Singh, 2008) analyze underpricing and the long-run performance of 438 IPOs listed on the BSE from June, 1992 to Mar, 2001. The authors witness the average underpricing as high at 99.20% which is too high if compared with international experiences. Age of the issuing company, listing delay and subscription were found significantly able to explain the evidence of underpricing. As for the determinants of long-run performance of IPOs is concerned, the initial return (except first year) has significant and negative effect on the aftermarket returns. There is a negative relation between underpricing and long-run returns. (Sahoo & Rajib, 2010) examine the post listing performance as well as underpricing of 92 IPOs that were floated during a period of five years between 2002-2006; and present evidences of underpricing and underperformance. Authors find mean underpricing of 46.55% on listing day. For the assessment of long run performance of IPOs, authors have used Buy and Hold Abnormal Return (BHAR) and Wealth Relatives (WR) and report significant underperformance up to the period of at least twelve months; thereafter this underperformance disappears which is contrary to the international experiences where mostly IPOs underperform up to 3 years to 5 years. Authors find IPO timing, leverage, underpricing, issue size and ex-ante uncertainty as determinants of long run performance. Similarly, (Seal & Matharu, 2012) and (Dhamija & Arora, 2017) also report long run underperformance; and (Jain & Padmavathi, 2012) evidence underpricing.

Scholars have also suggested few theories which might explain underpricing and underperformance in long run. These include:

Ex-ante Uncertainty

(Beatty & Ritter, 1986) argue that the amount of underpricing an IPO suffers should be related with ex-ante uncertainty. (Ibbotson, 1975) and Ritter (1984), provide convincing evidence that IPOs are on average underpriced having a direct relation with ex ante uncertainty about firm's value. An investor submitting a purchase order cannot be certain about an offering value once it starts public trade. Thus, the greater the Ex ante uncertainty, the greater is the expected underpricing.

Winner's curse theory

(Rock, 1986) claims that informed investors are knowledgeable about the future prospects of the shares being sold and will only attempt to buy when the issue is underpriced. Uninformed investors, on the other hand, are not able to discriminate between underpriced and overpriced issues. They will be allocated only a small fraction (or none at all if the demand is too strong) of the most desirable new issues, while they are certain to get full allotment of the least attractive new issues. The uninformed investors face a winner's curse, if they get all of the shares that they demand, it is due to the fact that the informed investors do not want them. Due to this adverse selection problem, the uninformed investors will exit the market unless IPOs are sufficiently underpriced on an average to recompense them.

Informational cascades

(Welch, 1992), observes that potential investors in addition to their own information also notice whether other investors are also buying shares in the issue. If an investor finds that no one else wants to buy shares, he may decide not to purchase even if he has beneficial information. To

preclude this occurrence, an issuer underprices the issue in order to persuade the first few potential investors to purchase and spawns a cascade in which other investors follow suit.

Information Asymmetry between Firms and Investment Bankers

(Baron & Holmstrom, 1980) postulate that investment bankers exploit their superior information regarding market conditions to underprice new issues, thereby allowing them to spend less effort on marketing the issue and gain the goodwill of potential clients. (Loughran and Ritter, 2002) explore the conflict of interest between underwriters and issuers and underwriters might intentionally leave more money on the table then necessary, and then allocate these shares to favored buy-side clients.

Divergence of Opinion

If there is huge uncertainty about the value of an IPO. The valuations of optimistic investors will be much higher than those of pessimistic investors. As time passes and more information becomes available, the divergence of opinion between optimistic and pessimistic investors will narrow, and consequently, the market price will drop resulting into long term underperformance. (Miller, 1977) argues that in a market with restricted short selling, such as the IPO market, market prices might exceed fundamental values because they are determined by (a minority of) overoptimistic investors who want to believe that the company is "the next Microsoft". It can be anticipated that IPO underpricing is negatively related to long-run stock price performance.

The Impresario Hypothesis

The 'impresario hypothesis' as postulated by (Shiller, 1989) suggests that the market for IPOs is subject to fads and investment banks act as 'impresarios' by underpricing to create excess demand for IPOs, just as the promoter of a rock concert attempts to make it an event. Due to a high initial return (IR), the IPOs underperform in the long run. This hypothesis can be tested by using 'underpricing' as one of the explanatory variables in the regression model.

The Windows of Opportunity Hypothesis

The 'window of opportunity hypothesis' as proposed by Ritter suggests that managers take advantage of investors' optimism which is very high during certain periods and that is reflected in a share price being higher than a fair price. Such periods may be referred to as 'hot' periods. The windows of opportunity hypothesis postulates that firms going public in high volume periods are more likely to be overvalued than other IPOs. This hypothesis suggests that IPOs made during such 'hot' periods' provide high Initial Return and low long-run returns.

3. Research Objectives

- **a.** To study the Underpricing and Long Run Performance of IPOs in India.
- **b.** To find out the variables which can explain Underpricing and Long Run Performance.

4. Hypotheses

H_0 1: There is significant relationship between underpricing of IPOs and age of the company, issue size, subscription rate & market condition.

H_0 2: Long run performance of IPOs can significantly be explained by underpricing, age of the company, pricing, subscription rate and market condition.

5. Empirical Methodology

Nature and Source of the data

This study is solely based on Secondary data which has been sourced from capitaline data base of CMIE, ACE data base and Bloomberg data base. Besides, websites like SEBI, NSE, BSE and Chittoregarh.com have been visited to collect market related data. Some of the publications of the SEBI and RBI have also been consulted.

Period of the Study

This study covers a period of 10 calendar years from 2008 to 2017 so as to present comprehensive analysis and to draw reliable conclusion. It can be presented as follows:

Table-III: Period of the Study

Purpose	Period	No of observations
Underpricing of IPOs	2008-2017	232
Long run performance of 1 Year	2008-2017	232
Long run performance of 3 Years	2008-2015	169
Long run performance of 5 Years	2008-2013	140

Statistical Tools

Multivariate regression (OLS) has been applied to analyse the variables which can explain underpricing and long run performance. All the assumptions of a multivariate regression analysis namely No Perfect Multicollinearity, Limited Magnitude of Autocorrelation / Serial Correlation, Homoscedasticity and Normality of Residuals have been validated. Thus, the model is BLUE (Best Linear Unbiased Estimator). For this purpose, tests like, VIF, Durbin Watson Test, White Test, Breusch-Pagan Test, Jarque-Bera tests have been used.

Description of the Variables

Table-IV: Description of Variables

Variables	Description
Underpricing (UP)	Underpricing is defined as difference between issue price and listing price. Usually, closing price of listing day is taken as listing price.
MAAR	Market adjusted abnormal return on listing. The initial return on listing gives us the raw return (UP) which should be adjusted against market return so as to arrive at real return on listing i.e. MAAR.

BHR	Buy and Hold Return has been calculated for one year, three years and five years holding period.
BHAR	BHR has been adjusted against market return so as to arrive at Buy and Hold Abnormal Return (BHAR). BHAR has been calculated for one year, three years and five years holding period.
Issue size	The maximum sum which issuer wants to raise i.e. product of issue price and number of shares to be issued.
Age of the Company	Total life of the company, since its incorporation to the date of issue in terms of number of years.
Subscription Rate	Number of times issue is subscribed against the shares available for allotment.
Timing of Issue	Time of issue means mood of the market, whether it's hot market or cold market. If in a quarter, more than 5 IPOs have been issued, then the quarter has been treated as 'hot period', otherwise a cold period. Dummy variable 1 has been used as proxy for IPO issued during hot period and 0 for cold IPOs. This methodology of dichotomizing as hot/cold period is consistent with (Helwege & Liang, 2004) and (Sahoo & Rajib, 2010)

2. Underpricing of IPOs

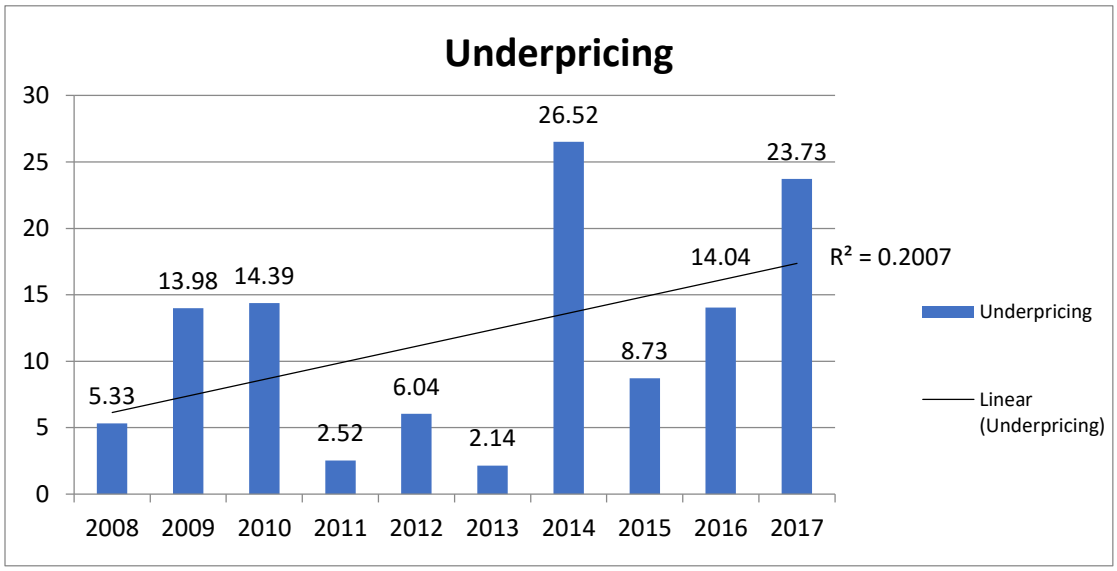
Underpricing of an IPO has been calculated as percentage gain on listing day i.e. the difference between issue price and closing price on the listing day. Underpricing of all the 232 IPOs floated during the period of study is presented below:

Descriptive statistics of underpricing of all the IPOs for each calendar year have been calculated and presented below:

Table-V: Underpricing of IPOs

Descriptive Statistics					
Year	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
2017	36	-15.92	143.06	23.7260	39.86034
2016	27	-21.56	58.71	14.0421	19.57752
2015	20	-17.38	50.00	8.7280	19.05205
2014	5	-12.05	69.79	26.5226	33.52357
2013	3	-5.93	15.54	2.1393	11.68418
2012	9	-12.89	25.65	6.0400	13.29487
2011	31	-68.72	97.76	2.5182	45.86271
2010	61	-36.71	102.63	14.3861	28.72593
2009	11	-28.60	127.33	13.9831	40.33938
2008	29	-38.82	97.61	5.3306	32.32221
2008-17	232	-68.72	143.06	12.3502	32.77716

Figure-I: Underpricing of IPOs



Average underpricing (i.e. listing gain) during the study period stands at 12.35%. Year-wise underpricing, as reported above, is sharply fluctuating and no clear upward trend can be concluded. The lowest values of underpricing are 2.13%, 2.51% and 5.33% for the years 2013, 2011 & 2008 respectively. The highest underpricing is reported at 26.52% in 2014, followed by 23.72% in 2017.

Determinants of Underpricing

With the help of following regression model an attempt has been made to find out the variables which can significantly explain the event of underpricing.

$$\mathbf{MAAR = \alpha + \beta_1\ Ln\_Age + \beta_2 Ln\_Size + \beta_3 Ln\_SR + \beta_4\ Period + \mathcal{E}i}$$

Where,

MAAR stands for Market Adjusted Abnormal Return of the IPO.
Ln_Age depicts natural log of the age (in years) of the company floating the IPO.
Ln_Size means natural log of issue size of an IPO.
Ln_SR represents natural log of the Subscription rate of an IPO.
Period is dummy variable for hot and cold IPO market conditions.

Table-VI: Regression Results

Variable	Coefficient	Std. Error	t-statistics	Prob
C	25.93508	10.12295	2.562008	0.0111
Ln_Age	0.042983	1.790528	0.024006	0.9809
Ln_Size	-4.016562	1.374843	-2.921469	0.0038
Ln_SR	7.520614	0.953258	7.889379	0.0000
Period	-8.188541	3.565298	-2.296734	0.0225
R-squared			0.220003	

Adjusted R-squared	0.206258
F-statistic	16.00668
Prob (F-statistic)	0.000000

From the above table, it is evident that variables namely issue size, subscription rate and period (hot/cold) can significantly explain underpricing. Issue size is negatively correlated with MAAR i.e. higher the issue size lesser the level of underpricing. The coefficient of subscription rate is positive and relatively high which implies higher the subscription rate, more the IPO is underpriced. Underpricing is negatively related with hot period. This regression model is statistically significant and can explain 22.00% variation in MAAR (underpricing) with the help of explanatory variables used in the model.

3. Long Run Performance of IPOs

The long run performance of IPOs has been calculated as Buy and Hold Return and the same has been adjusted against market return for the same period to arrive at Buy and Hold Abnormal Return (BHAR). Nifty fifty index has been used as proxy of market index. But, for the purpose of descriptive analysis only buy and Hold Return (BHR) has been calculated and it has not been adjusted against market return. Long run performance has been studied for one year, three years and five years.

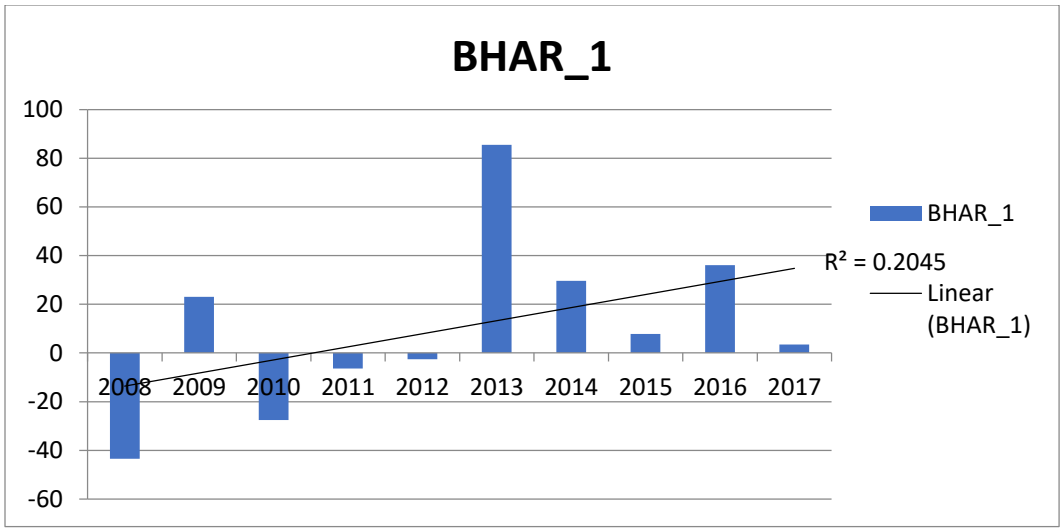
Long –Run Performance for One Year

Year wise average raw return for one year holding period has been calculated and presented below along with other descriptive statistics:

Table-VII: Buy and Hold Return for 1 year (BHR_1)

Descriptive Statistics					
Year	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
2017	36	-55.11	185.41	3.5064	53.56082
2016	27	-22.27	112.86	36.0923	40.67194
2015	20	-53.06	86.99	7.8343	33.67674
2014	5	-20.87	65.46	29.6568	35.67099
2013	3	35.37	114.12	85.5407	43.59246
2012	9	-62.59	103.47	-2.5190	48.56307
2011	31	-85.27	460.02	-6.4533	101.68273
2010	61	-88.67	133.99	-27.6166	47.57287
2009	11	-57.11	93.92	22.9993	57.26753
2008	29	-90.13	92.21	-43.4939	43.69648
2008-2017	232	-90.13	460.02	-5.4024	62.06832

Figure-II: Buy and Hold Return for One Year



From the above table and chart, it is evident that on an average, IPOs have generated negative return (-5.40%) for one year holding period. But it can be noted that raw returns in the latter years are positive. The trend line clearly shows the trend to be positive. Mean returns for the year 2015, 2016 and 2017 are positive and number of IPO is sufficiently large but the magnitude of return cannot be said to be attractive given the level of risk i.e. standard deviation.

Determinants of Long-Run performance (One Year)

Attempt is to use following regression model to find out the variables which may drive long run performance.

$$\mathbf{BHAR\_1 = \alpha + \beta_1 Ln\_Age + \beta_2 Ln\_Size + \beta_3 Ln\_SR + \beta_4 MAAR + \beta_5 Period + \mathcal{E}i}$$

Where, BHAR_1 stands for Buy and Hold return for one year

Table-VIII: Regression Result

Variable	Coefficient	Std. Error	t-statistics	Prob
C	-0.997798	0.224557	-4.443409	0.0000
LN_AGE	0.138717	0.054025	2.567640	0.0109
LN_SIZE	0.085316	0.030941	2.757388	0.0063
LN_SR	0.011036	0.026911	0.410111	0.6821
MAAR	0.002046	0.001064	1.922685	0.0558
PERIOD	-0.218077	0.090637	-2.406055	0.0169
R-squared			0.120008	
Adjusted R-squared			0.100539	
F-statistic			6.164103	
Prob (F-statistic)			0.000022	

It is evident from the above table that age of the company floating the IPO, issue size, MAAR (underpricing) and period (hot/cold) can explain one-year performance of IPOs. BHAR_1 is negatively related with hot period. Here, MAAR is positively correlated with the BHAR (though

the coefficient is small and is not significant at 5%) which is not consistent with Divergence of Opinion and Impresario Hypotheses. Overall model is significant with 12% R-squared.

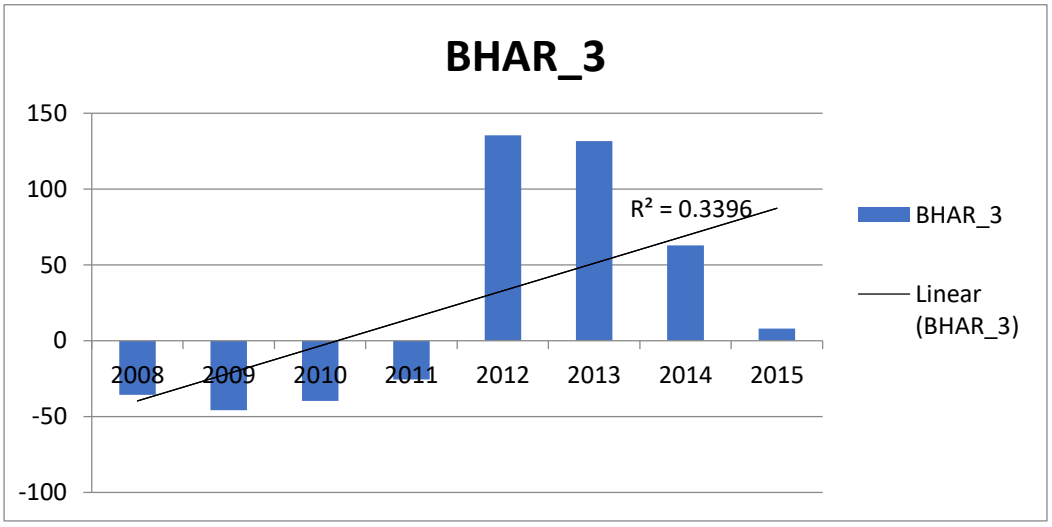
3.2. Long –Run Performance for Three Year

The raw return for three years holding period has been calculated and presented as follows:

Table-IX: Buy and Hold Return for 3 Years (BHR_3)

Descriptive Statistics					
Year	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
2015	20	-84.44	211.74	7.9555	67.45883
2014	5	-31.65	140.65	62.9442	73.14281
2013	3	8.06	259.02	131.7063	125.52223
2012	9	-81.17	919.91	135.4113	303.52158
2011	31	-97.30	222.11	-25.5752	74.92744
2010	61	-97.54	394.22	-39.8094	80.79587
2009	11	-91.97	24.18	-45.8438	37.99241
2008	29	-98.96	157.90	-35.6667	66.46655
2008-15	169	-98.96	919.91	-15.8117	107.66627

Figure-III: Buy and Hold Return for Three Years



IPOs floated between calendar year 2008 to 2015, on an average, have generated a negative return of 15.80 % for three year holding period which is a huge disappointment for the investors. Though, the positive slope of the leaner trend shows a ray of hope for the future.

Determinants of Long-Run performance (Three Years)

With the help of following regression model, effort has been made to find out the variables which may drive three years performance.

$$\mathbf{BHAR\_3 = \alpha + \beta_1 Ln\_Age + \beta_2 Ln\_Size + \beta_3 Ln\_SR + \beta_4 MAAR + \beta_5 Period + \mathcal{E}i}$$

Where, BHAR_3 stands for Buy and Hold return for three years holding period

Table-X: Regression Result

Variable	Coefficient	Std. Error	t-statistics	Prob
C	-2.086610	0.423284	-4.929580	0.0000
LN_Age	0.247364	0.105091	2.353814	0.0198
LN_Size	0.128358	0.064245	1.997941	0.0474
LN_SR	0.167572	0.065011	2.577582	0.0108
MAAR	-0.009179	0.003274	-2.803382	0.0057
Period	-0.451547	0.187219	-2.411869	0.0170
R-squared			0.158911	
Adjusted R-squared			0.132952	
F-statistic			6.121506	
Prob (F-statistic)			0.000032	

For, three years of BHAR, age of the company, issue size, subscription rate, period and MAAR, all are the able to significantly explain the variation. Age, issue size and subscription rate are positively associated whereas MAAR is negatively related with BHAR which is consistent with Divergence of Opinion and Impresario Hypotheses. F -value of the model is statistically significant with R-squared of 15.89%.

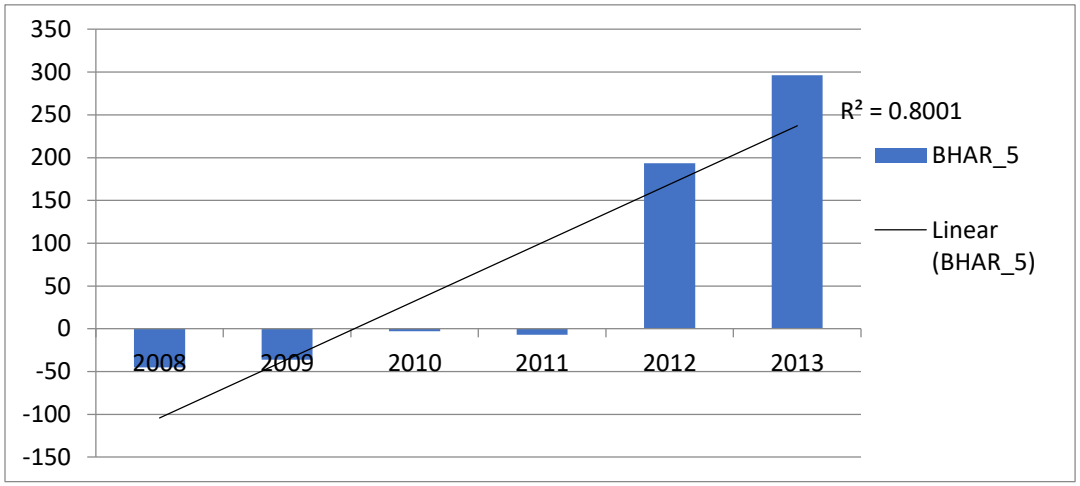
3.3. Long –Run Performance for Five Year

The raw return for the five years holding period has also been calculated so as to extend the study. The mean return along with other descriptive statistics can be tabulated as:

Table-XI: Buy and Hold Return for 5 Years (BHR_5)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
2013	3	-8.26	649.43	296.2460	331.53661
2012	9	-91.48	1278.39	193.6356	444.14590
2011	29	-100.00	269.54	-6.9623	104.61557
2010	60	-98.44	544.16	-2.9035	116.96008
2009	10	-98.41	27.86	-36.3308	48.59606
2008	29	-99.69	526.36	-44.9887	120.96427
2008-13	140	-100.00	1278.39	4.1955	169.94585

Figure-IV: Buy and Hold Return for Five Years



From 2008 to 2013, total 140 IPO were issued. These IPOs generated 4.19% Buy and Hold return for five years of holding period which is discouraging. IPOs floated during 2013 and 2013 have generated good return though the frequency is very small. We don't have data for the IPOs floated after 2014 so it is difficult to make any clear observation though the three-year performance for these IPOs is encouraging. The Trend line is again positive.

Determinants of Long-Run performance (Five Years)

Following regression model has been developed to explain the variation in BHAR of five years:

$$\mathbf{BHAR\_5 = \alpha + \beta_1\ Ln\_Age + \beta_2 Ln\_Size + \beta_3 Ln\_SR + \beta_4\ Period + \beta_5\ MAAR + \mathcal{E}i}$$

Where, BHAR_5 stands for Buy and Hold return for five years.

Table-XII: Regression Result

Variable	Coefficient	Std. Error	t-statistics	Prob
C	-2.338842	0.766970	-3.049456	0.0028
LN_AGE	0.125105	0.168844	0.740952	0.4600
LN_SIZE	0.121893	0.106689	1.142513	0.2553
LN_SR	0.284786	0.107940	2.638362	0.0093
PERIOD	-0.352543	0.344581	-1.023104	0.3081
MAAR	-0.742022	0.508702	-1.458658	0.1470
R-squared			0.092667	
Adjusted R-squared			0.058557	
F-statistic			2.716694	
Prob (F-statistic)			0.022661	

It is obvious from the above table that BHAR of five years is negatively associated with MAAR, though it is significant only at 15%. Subscription rate is again significant in explaining the BHAR with a positive coefficient. Overall model is significant with the ability to explain 9.2% variation in dependent variable.

4. Findings and Concluding Remarks

Many investors make an attempt to enter the market through IPOs but the findings of this study are not so motivating for such investors. It seems that investors are motivated not because of average return generated by these IPOs in long run but because of the exceptional performance of certain individual IPOs thereby creating hype in the market. Globally and in India too, many studies have clearly witnessed the underperformance of IPOs in the long run though the IPOs have fetched lucrative return on listing day. The present study too finds the similar evidences. IPOs have generated 12.35% of listing gains but have witnessed under performance in long run. Based upon the results of empirical analysis, following pinpointed findings are being presented:

- On listing, IPOs have generated 12.35% mean return which is less than what was reported in earlier studies (Sehgal & Singh, 2008) , (Shah & Mehta, 2015) (Sharma, Mittal, & Gupta, 2013). Variables like issue size, subscription rate and timing of the IPO have shown ability to impact the listing performance. As timing of IPO is a significant variable, Window of Opportunity hypothesis withstands.
- IPO return for one year holding period stands at -5.40% which is a disappointment for the investors. Issue size, period and initial underpricing can significantly explain one-year performance. Underpricing is positively associated with buy and hold return of one year which is a surprise. Poor long run performance also validates Winner's Curse Hypothesis (Jain & Padmavathi, 2012).
- For three years of holding period, IPOs generated -15.81 % return which is huge disappointment for the investors. Age of the company, issue size, subscription rate and timing of the IPO are the statistically significant. Underpricing is negatively associated with long run performance and is significant which validate the Divergence of Opinion and Impresario Hypotheses. The findings are consistent with (Dhamija & Arora, 2017) (Sahoo & Rajib, 2010).
- Return generated during five years holding period is only 4.19%. Subscription rate is the only significant variable at 5% level. Underpricing is negatively correlated with five-years performance with high coefficient though it is significant on at 15% level of significance; again validating the Divergence of Opinion and Impresario Hypotheses.
- The authors are of opinion that it is really very difficult to generalize about underperformance in long run. The mangnitude and longevity of underperformance keep on varying from time to time and country to country, as reported in different studies.

References

5. Acqua, A. D., Etro, L. L., Teti, E., & Murri, M. (2014). IPO Underpricing and Aftermarket Performance in Italy . International Journal of Banking Accounting and Finance, 30-45. doi:10.18533/jefs.v3i03.160
6. Bansal, R., & Khanna, A. (2013). High credit rating IPOs and determinants of underpricing. Journal of Economics and International Finance, 131-38.
7. Baron, D. P., & Holmstrom, B. (1980). The Investment Banking Contract For New Issues Under Asymmetric Information: Delegation And The Incentive Problem . The Journal of Finance, 1115-38.
8. Beatty, R. P., & Ritter, J. R. (1986). Investment Banking, Reputational and the Underpricing of Initial Public Offerings. Journal of Financial Economics , 213-232.

9. Corhay, A., Teo, S., & Rad, A. T. (2002). The long run performance of Malaysian initial public offerings (IPO):value and growth effects. Managerial Finance, 52 - 65. Retrieved from http://dx.doi.org/10.1108/03074350210767690
10. Cornanic, A., & Novak, J. (2015). signaling by Underpricing the Initial Public Offerings of Primary Listings in an Emerging Market. Finance a Uver-Czeck Journal of Economics and Finance, 307-35.
11. Deb, S. S., & Marisetty, V. B. (2010). Information Content of IPO Grading. Journal of Banking & Finance, 2294-2305.
12. Dhamija, S., & Arora, R. K. (2017). Determinants of Long-run Performance of Initial Public Offerings: Evidence from India. Vision, 1-11. doi:DOI: 10.1177/0972262916681243
13. Ghosh, S. (2004). Revisiting IPO Underpricing in India. doi:http://dx.doi.org/10.2139/ssrn.703501
14. Helwege, J., & Liang, n. (2004). Initial Public Offerings in Hot and Cols markets. Journal of financial and Quantitative Analysus, 541-569.
15. Ibbotson, R. G. (1975). Price Performance of Common Stock New Issues. Journal of Financial Economics , 235-272.
16. Jacob, J., & Agarwalla, S. K. (2012). Mandatory IPO Grading: Does It Help Pricing E_ciency? W.P. No. 2012-12-07.IIMA.
17. Jain, N., & Padmavathi, C. (2012). Underpricing of Initial Public Offerings in Indian Capital Market. VIKALPA, 37(1), 83-95.
18. Kamel, H. (2012). Earnings management and initial public offerings: a new perspective from Egypt. Journal of Accounting in Emerging Economies, 96-118.
19. Khurshed, A., Paleari, S., Pande, A., & Vismara, S. (2008). Grading in India: Does it add value to the bookbuilding process? Retrieved from www. unibg. it/dati/bacheca/530/36104. pdf
20. Krishnamurti, C., & Kumar, P. (2002). The initial listing performance of Indian IPOs. Managerial Finance, 28(2), 39-51.
21. Kumar, S. S. (2007). Short and Long-run Performance of Bookbuilt IPOs in India. International Journal of Management Practices & Contemporary Thoughts, 19-29.
22. Levis, M. (1993). The Long-Run Performance of Initial Public Offerings: The UK Experience 1980-1988. Financial Management, 22(1), 28-41.
23. Loughran, T., & Ritter, J. R. (1995). The New Issue Puzzle.
24. Loughran, T., Ritter, J. R., & Rydqvist, K. (1994). Initial Public Offerings: International Insights. Pacific Basin Finance Journal , 165-99.
25. Lyon, J. D., Barber, B. M., & Tsai, C.-L. (1999). Improved Methods for Tests of Long-Run Abnormal Stock Returns. The Journal of Finance, 165-201. doi:doi.org/10.1111/0022-1082.00101
26. Miller, E. M. (1977). RISK, UNCERTAINTY, AND DIVERGENCE OF OPINION. The Journal of Finance, 32(4), 1151-1168. doi:doi.org/10.1111/j.1540-6261.1977.tb03317.x
27. Murthy, K. B., & Singh, A. K. (2011). IPO Market: Underpricing or overpricing? Retrieved from http://www.igidr.ac.in/conf/money/mfc-12/Amit_bhanu_IPO%20Market.pdf
28. Poudyal, S. (2008). Grading Initial Public Offerings (IPOs) in India's Capital Markets: A Globally Unique Concept. W.P. No.2008-12-08.IIMA.
29. Ritter, J. R. (1984). The Hot Issue Market of 1980. The Journal of Busines, 57(2), 215-240. Retrieved from http://www.jstor.org/stable/2352736 .

30. Ritter, J. R. (1991). The Long Run Performance of Initial Public Offerings. The Journal of Finance, 1-27.
31. Ritter, J. R. (1998). Initial Public Offerings. Contemporary Finance Digest, 2(1), 5-30.
32. Rock, K. F. (1986). Why new issues are underpriced. Journal of Financial Economics, 187-212.
33. Roosenboom, P., & Giudici, G. (2015). THE LONG-TERM PERFORMANCE OF INITIAL PUBLIC OFFERINGS ON EUROPE'S NEW STOCK MARKETS. In The Rise and Fall of Europe's New Stock Markets (pp. 329-54).
34. Sahoo, S., & Rajib, P. (2010). After Market Pricing Performanceof Initial Public Offerings (IPOs):Indian IPO Market 2002-2006. VIKALPA, 35(4), 27-43.
35. Seal, J. K., & Matharu, J. S. (2012, May). Long Run Performance of Initial Public Offerings and Seasoned Equity Offerings in India. W.P.No. FI-13-19 . Indian Institute of Foreign Trade.
36. Sehgal, S., & Singh, B. (2008). Determinants of Initial and Long-Run Performance of IPOs In Indian Stock Market. Asia Pacific Business Review, IV(4), 24-37.
37. Shah, S. N., & Mehta, D. H. (2015). INITIAL PERFORMANCE OF IPOs IN INDIA: EVIDENCE FROM 2010-2014 . Samvad, 77-86.
38. Sharma, S. K., Mittal, S., & Gupta, N. K. (2013). Post-issue Performance of IPOs in India. International Journal of Financial Management, 3(1).
39. Shiller, R. (1989). Initial Public Offerings: Investor Behavior and Underpricing. National Bureau of Economic Research, Inc, NBER Working Papers.
40. Singla, H. K. (2012). IPO Grading and Short Term Performance of IPOs in India. UDYOG PRAGATI - The Journal for Practising Managers.
41. Welch, I. (1992). Sequential Sales, Learning, and Cascades. The Journal of Finance, XLVII(2), 695-32.
42. Yip, Y., Su, Y., & Ang, J. B. (2009). Effects of underwriters, venture capital and industry on long-term initial public offering performance. Managerial Finance, 700-715, 700 - 715. doi:http://dx.doi.org/10.1108/03074350910967240