

EMPLOYABILITY OF A STATISTICAL ANALYSIS ON IPO GRADING AND ITS RESULTANT IMPACT ON RETURNS ON INVESTMENT USING SELECTED IPO'S

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1. INTRODUCTION

First sale of stock (IPO), likewise alluded to just as an "open offering", is the point at which an organization issues normal stock or offers to the general population out of the blue. They are regularly issued by little, more youthful organizations looking for funding to extend, or by large privately-owned to wind up huge profits.

The historical backdrop of IPO system can be followed back to time of C.C.I administration i.e. Controller of Capital Issues. Preceding nineties all people in general issues need to take the authorization of C.C.I. .The workplace of C.C.I. was canceled in 1993 after the arrangement of SEBI amid 1992. SEBI was respected to manage all parts of Capital market, including essential market and IPO's.

The Indian securities exchange controller, SEBI, commanded the evaluating of all IPOs by a FICO assessment office from May 1, 2007. SEBI is the main controller on the planet to command the evaluating of IPOs. As per SEBI, "The review speaks to an appraisal of the basics of that issue in respect to the next recorded values in India".The review is relied upon to give incremental, promptly interpretable and autonomous data about IPOs to financial specialists and accordingly claims to enable them to better survey the speculation capability of IPOs.

1.1 PRICING OF IPO'S

Estimating the instrument is the most basic component of an issue. Since the cancelation of CCI, the onus of valuing the issue has fallen on vendor financiers. Organizations are presently permitted to unreservedly value their issues.

Prior to the presentation of obligatory reviewing, the controller had presented discretionary evaluating of IPOs in April 2006.

The thought behind free valuing was that if organizations overrated their issues, the market would punish them by not buying in and by under estimating; the organizations would need to forego the potential premium. In the CCI administration, when every one of the issues accompanying an open issue needed to value their issue in view of the CCI equation, was an instance of hostile to

advertise rehearse, where all organizations whether in a general sense sound or not needed to value their issues cautiously.

The sound organizations with great essentials could tap reserves from the capital market at a premium. Then again, organizations with questionable qualifications issued capital with blushing projections and fleeced the ignorant financial specialists. The shipper keeping money group excessively moved into the numbers diversion and turned out to be less worried about the nature of issues. This brought about the overpricing of many issues which regularly gave negative beginning comes back to the speculators.

1.2 IPO GRADING

It is an administration went for encouraging the evaluation of value shares or whatever other security which might be changed over into or traded with value shares at a later date. The review relegated to any individual issue speaks to a relative appraisal of the 'basics' of that issue in connection to the universe of other recorded value securities in India.

Such reviewing is relegated on a five-point scale as demonstrated as follows:

- IPO review 1: Poor basics
- IPO review 2: Below-normal essentials
- IPO review 3: Average essentials
- IPO review 4: Above-normal essentials
- IPO review 5: Strong essentials

2. OBJECTIVES

The project will focus on analyzing the IPOs which were launched in 2012-13 in the frame work of Indian Financial Markets on various parameters and will combine the below topics -

- IPO Grading : Whether higher Grading leads to greater rate of return
- Statistical Analysis : Correlation between the grading obtained by a company and retail investors appetite for that issue
- To statistically analyze returns of all the IPOs launched in 2012-13 (periodically) and finding their average return

- To critically analyze the IPOs launched in 2012 sector wise.

Section 4: THEORY FRAMEWORK

The models utilized as a part of this investigation are multivariate regression models. The method of reasoning behind utilizing these models is to depict the connection amongst independent and dependent factors picked in the study. It likewise helps portraying the reliance of one variable over other. We have utilized log straight and basic numerous regression models.

Linear Regression Model

In statistics, linear regression is a way to deal with demonstrating the connection between a scalar dependent variable y and at least one logical factors signified X . The instance of one illustrative variable is called simple regression. More than one illustrative variable is called multiple regression models. In linear regression, information is demonstrated utilizing direct indicator capacities, and obscure model parameters are evaluated from the information. Such models are called linear models.

$$y_i = \beta_1 x_{i1} + \dots + \beta_p x_{ip} + \epsilon_i$$

where

y_i is called the regressand, endogenous variable, response variable, measured variable, or dependent variable

x_i are called regressors, exogenous variables, explanatory variables, covariates, input variables, predictor variables, or independent variables

β is a p -dimensional parameter vector. Its elements are also called effects, or regression coefficients. Statistical estimation and inference in linear regression focuses on β .

3. DATA MODELS USED IN OUR STUDY

- 1) This model is used to test hypothesis-II that higher the grade better are the returns. Only graded IPOs are considered for this hypothesis.

The returns of graded and IPOs are analyzed over a period of 3 months. The following model estimates the same

RateOfReturn

$$\begin{aligned} &= \beta_0 + \beta_1 \text{Log}(\text{IssueSize}) + \beta_2 \text{Log}(\text{IssuePrice}) + \beta_3 \text{Age} \\ &+ \beta_4 \text{Log}(\text{subscrptn}) + \beta_5 \text{Grade_Dum2} + \beta_6 \text{Grade_Dum3} \\ &+ \beta_7 \text{Grade_Dum4} + \beta_8 \text{Grade_Dum5} \end{aligned}$$

Where,

Rate Of Return: Rate of return for a particular IPO after 3 Months.

$$\text{RateOfReturn} = (P_f - P_l)/P_l$$

P_f : Closing Price after 3 months from listing day

P_l : IPO Listing Price

Age: It is the time span between company's inception date and the listing date of its IPO (measured in years)

Subscriptn: No. of times the issue is subscribed

IssuePrice: Price at which a particular ipo is issued to the investor (In Rs./per equity share)

IssueSize: Size of the particular IPO issue (In Rs. Crores)

Grade_Dum2: Take value '1' if IPO is graded 2 else '0'

Grade_Dum3: Take value '1' if IPO is graded 3 else '0'

Grade_Dum4: Take value '1' if IPO is graded 4 else '0'

Grade_Dum5: Take value '1' if IPO is graded 5 else '0'

2) The second model used is a multiple linear regression model where the dependent variable is the level of QIB subscription at the time of book building and the independent variables used in the model are Issue price, Issue size and a dummy variable for grading. The equations given is stated as –

QIB_Sub

$$= \beta_0 + \beta_1 \text{IssuePrice} + \beta_2 \text{IssuSize} + \beta_3 \text{Grade_Dum2} \\ + \beta_4 \text{Grade_Dum3} + \beta_5 \text{Grade_Dum4} + \beta_6 \text{Grade_Dum5}$$

Where,

QIB_Sub : subscription levels of Qualified Institutional bidders for a particular IPO

$Grade_Dum2$: Take value '1' if IPO is graded 2 else '0'

$Grade_Dum3$: Take value '1' if IPO is graded 3 else '0'

$Grade_Dum4$: Take value '1' if IPO is graded 4 else '0'

Grade_Dum5: Take value '1' if IPO is graded 5 else '0'

IssuePrice: Price at which a particular ipo is issued to the investor (In Rs./per equity share)

IssueSize: Size of the particular IPO issue (In Rs. Crores)

Assumptions

- Perfect Market conditions are assumed and hence there is no insider trading and no information Asymmetry
- All the tests are carried at 5% significance level unless otherwise stated

4. RESEARCH METHODOLOGY AND HYPOTHESIS

It will be Quantitative as well as Qualitative study. The data will be collected from secondary sources. Following are the methodologies and hypothesis to achieve our objectives-

- IPO Grading: Whether higher Grading leads to greater rate of return.

Since grade is the reflection of company fundamentals, an IPO with higher grading is better prospect of investment than another company with lower grade. Thus Post IPO grading, we set to test whether IPOs with higher grades earn better returns in compared to IPOs with lower returns

Hypothesis I: Higher is the IPO grade, higher return on Investments

- With the help of statistical analysis, we will try to see whether there is a differential impact on the subscription level of QIB investors with higher grading. The data of 106 Book Building IPOs have been taken and analyzed. The sample is collected over a time span starting from 1st January 2011 to 31st March 2014.

After grading of an IPO, subscribing to IPOs is done and hence an after activity in which grading might play a vital role. We will also look at the correlation between grading and subscription level of retail investors.

Hypothesis II: Higher is the IPO grade, more the appetite of QIB Investors' subscription levels

- To statistically analyze returns of all the IPOs launched in 2012-13 (periodically) and finding their average return.

For the purpose of analysis IPO's issued during the period 1st January 2012 to 31st March 2013 is considered. Since the focus is to find out returns on IPO's from the point of listing day, subsequent day, one week, one month, three months and six months data were collected up to 30th Dec, 2013 so as to calculate returns for the IPO's made in the tail end of the period.

Hypothesis III: Listing day and next day returns are far higher compared to return on other days.

- Sector-wise analysis the IPOs launched in 2012.
 - 1) It will be prepared from company reports and press releases, analyst reports, financial websites etc.
 - 2) Sector wise statistical analysis of consolidated returns and find out the sector heavily affected.

5. RESULTS AND ANALYSIS

1) Hypothesis I: Higher is the IPO grade, higher return on Investments

The returns of graded and IPOs are analyzed over a period of 3 months. Sample of 180 IPOs are taken from April, 2008 to June, 2013. The following model estimates the same

RateOfReturn

$$= \beta_0 + \beta_1 \text{Log}(\text{IssueSize}) + \beta_2 \text{Log}(\text{IssuePrice}) + \beta_3 \text{Age} + \beta_4 \text{Log}(\text{subscrptn}) + \beta_5 \text{Grade_Dum2} + \beta_6 \text{Grade_Dum3} + \beta_7 \text{Grade_Dum4} + \beta_8 \text{Grade_Dum5}$$

Dependent Variable :QIB_Sub			
Independent Variables	Expected Sign of Coefficients	Actual Sign of Coefficients	Coefficient Value
MarketReturn	‘+’	‘+’	0.7502(2.52)
Issue_Price	‘+’	‘+’	5.8631(0.53)
Issue_Size	‘+’	‘+’	1.0691(0.12)
Age	‘+’	‘+’	0.3328(1.11)
Sub_Rate	‘+’	‘+’	5.0166(0.62)
GradDum2	NA	‘+’	7.7526(2.49)
GradDum3	NA	‘+’	6.4203(0.39)
GradDum4	NA	‘+’	3.8283(0.20)
GradDum5	NA	‘+’	1.3340(0.04)
Const	NA	‘-’	35.4663(-1.31)

Sample of 180 IPOs have been taken since 2008

- As clearly shown in table, higher grade does not ensure higher returns which is not in accordance with the popular belief. It can be clearly observed the Grade 2 IPOs have generated higher returns as compared to IPOs that are graded 3, 4 and 5.
- Similarly, we can see that returns generated by Grade 2 and Grade 3 IPOs do not differ by a significant amount.

The above results clearly show that higher grade IPOs not necessarily generated higher returns in the short run. And Grading do not impact the performance of IPOs.

- MarketReturn plays a significant role in the performance of IPOs and that is understandable also. With t-value of 2.52, MarketReturn is significant at 5% significance value.

2) *To study the relationship between IPO grade and QIB investors’ subscription level- Higher is the IPO grade, more the appetite of QIBInvestors’ subscription levels*

QIB_Sub

$$= \beta_0 + \beta_1 \text{IssuePrice} + \beta_2 \text{IssuSize} + \beta_3 \text{Grade_Dum2} + \beta_4 \text{Grade_Dum3} + \beta_5 \text{Grade_Dum4} + \beta_6 \text{Grade_Dum5}$$

Dependent Variable :QIB_Sub			
Independent Variable	Expected Sign of Coefficients	Actual Sign of Coefficients	Coefficient Value
IssuePrice	‘-’	‘+’	0.0178341(1.29)
IssueSize	‘+’	‘+’	0.0001947(0.10)
GradDum2	NA	‘+’	9.406079(1.06)
GradDum3	NA	‘+’	30.04338(3.33)
GradDum4	NA	‘+’	41.12755(4.08)
GradDum5	NA	‘+’	40.12755(2.23)
Const	NA	‘+’	18.56216(0.021)

Time Span – January, 2011 to July, 2013

Sample – 108 IPOs launched within the time span.

- After looking at the results above, it can be clearly seen there is always an increase in the subscription levels of QIB investors as the grading increases. The differential coefficients clearly help us to achieve our objective of finding the relationship between QIB investors and grading of IPOs.
- As per normal belief, higher price leads should lead to lower subscription level of QIB investors. But, our empirical results show that IssuePrice is positively related to QIB subscription levels.
- The subscription levels of grade 2 are higher than grade 1 by a factor of 9.40. Similarly, the subscription levels of grade 3 are higher than grade 2 by a factor of 20.64 units which is quite significant.
- But there is not much significant difference between Grade 4 and Grade 5 IPOs.

Now, after testing the above hypothesis the correlation between the subscription levels of QIB and Retail Investors with Grading is obtained.

Corr QIB Grade	0.5144
Corr RII Grade	-0.0674

There is a slight positive correlation between QIB investors' subscription levels and Grading. It clearly shows that if grading increases, the subscription level increases. Although as far as retail investors are considered, they do not pay much attention to grading given by rating agencies. It is clear from the correlation coefficient obtained.

3) Hypothesis III: Listing day and next day returns are far higher compared to return on other days.

To test whether stock has generated positive return or not on the listing day, next day, one week and three month prices quoted in the stock market on the relevant day is considered. For the purpose of analysis, day's closing price is considered. The return on IPOs has been computed as the difference between the offer price and price prevailed on the selected day.

Return is calculated as follows

$$\text{Return} = (P1 - P0) * P0 / 100$$

P1= Price prevailing on the selected day

P0=issue price

Data is also analyzed with the help of standard deviation and correlation with IPO Index.

	Average Return	Std. Deviation
Listing	7.05	3.65
Next	5.66	7.87
One week	-6.273394	8.5171
3months	-2.024	12.31016

Time Span – January, 2012 to July, 2013

Sample – 55 IPOs launched within the stipulated time frame.

Considering all the IPOs that were launched in the year 2012-13, we can clearly see that IPOs give better returns on the listing day and the subsequent day as compared to one week and three months. Standard deviation of 12.31016 shows large variations in the average returns generated from IPOs over a period of 3 months.

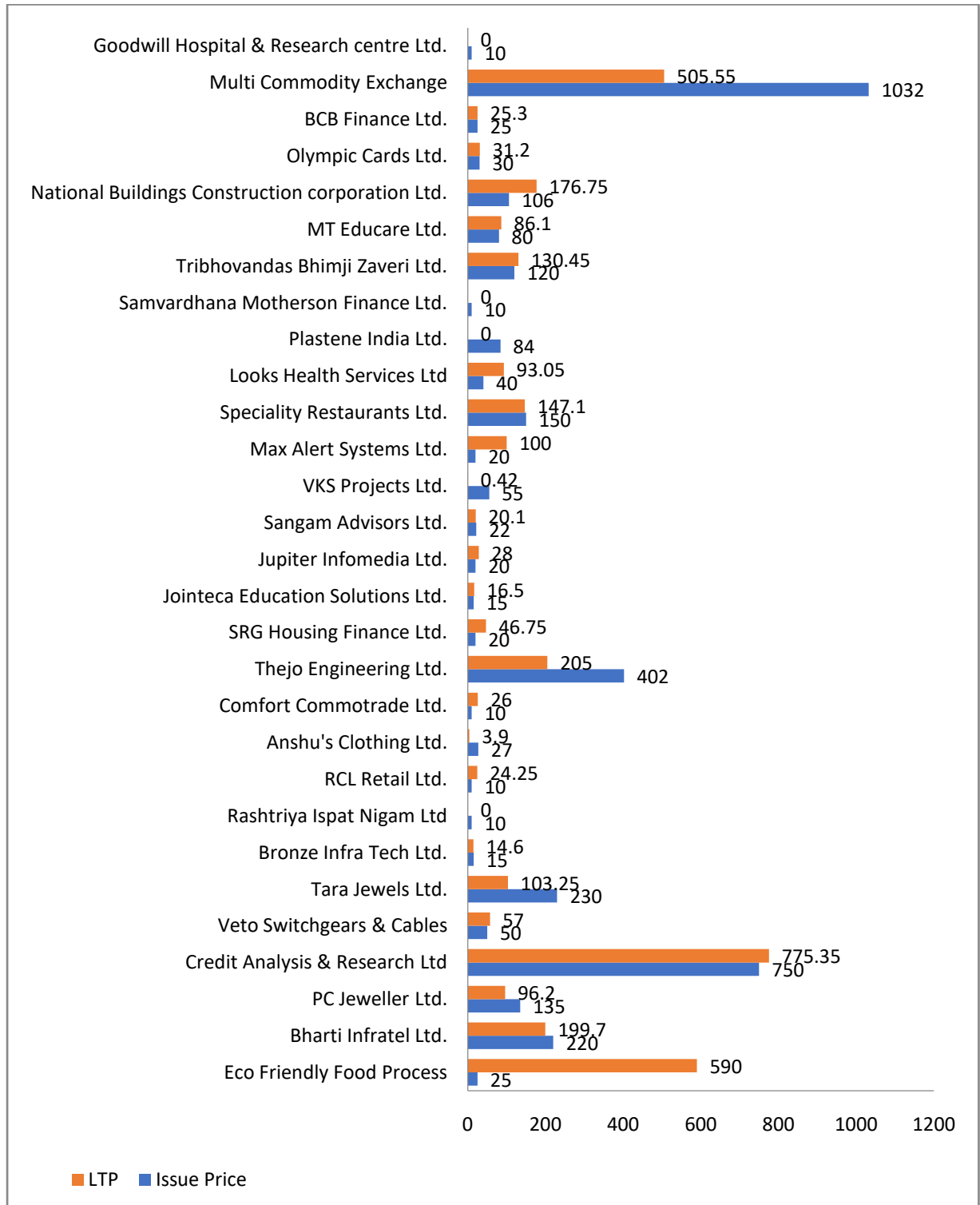
Note – **Mispricing of IPOs** is the major challenge in Indian IPO market. It clearly indicates the phenomenon of overpricing i.e. the IPOs are issued at a higher price than at what it should have been issued at.

4) For statistical analysis sector wise performance of IPOs during the year 2011-2012, industries are broadly classified into steel, engineering, finance, precious metals, services, infrastructure and miscellaneous .Analysis is made by comparing days' closing price on the listing day, next day, one week and three month.

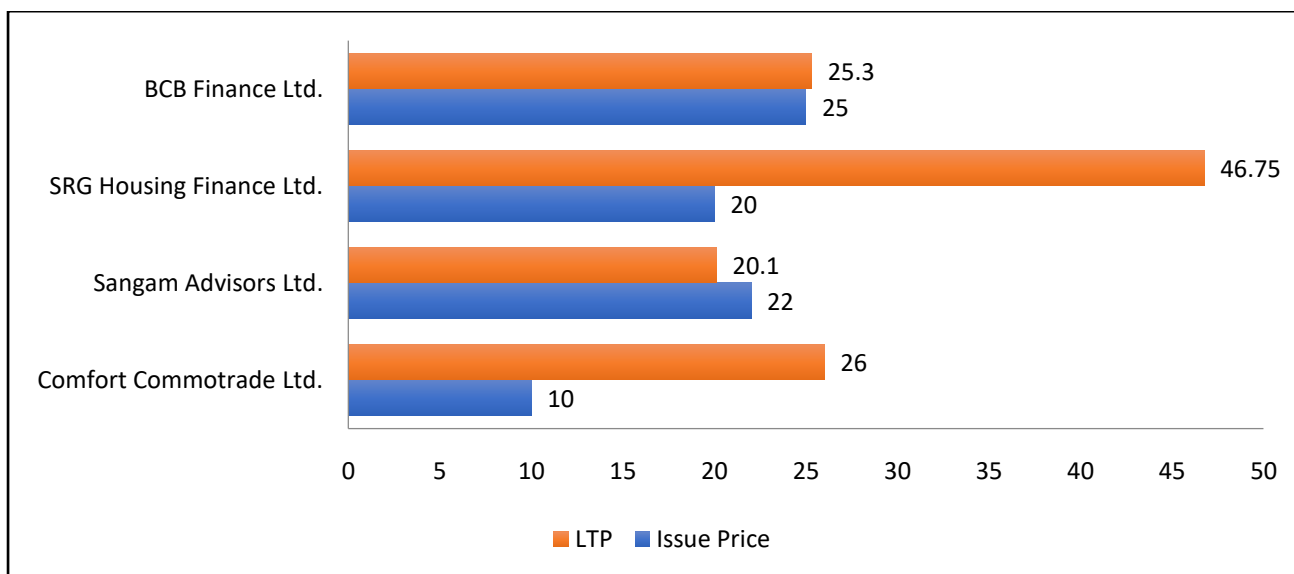
	No of Companies	Listing Day	Next Day	One week	Three months	Six months
Steel	2	8.999402	-0.46308	-3.57633	16.9313 4	17.3976 5
Engineering	2	-10.412	-40.7492	-49.3101	-49.3393	- 48.3621
Services	4	3.513889	36.7407 1	12.3576 9	18.7533 1	20.4262 8
Precious Metals	3	1.442534	1.61913	-12.877	-7.04174	- 3.22037
Finance	4	5.612245	20.1326 5	35.6734 7	145.096 9	131.117 3
Infra	3	-0.29396	28.9304 8	-46.2648	-43.6572	- 30.9608
Others	8	12.54679	-32.3251	-32.3029	-56.001	-53.159

As it can be clearly inferred from the table, engineering sector has generated the least returns according to the comparative analysis from other sectors. The sectors which have given positive returns are Finance and Services; though Finance being on the higher side. The miscellaneous sector comprising of mid-size firms of various domains have given a positive return only on the listing day as it can be attributed to the fact that companies had either poor fundamentals or mispriced their IPOs.

5) An overview of the IPO market in India in the year 2012 gives us a mediocre picture wherein 15 out of the 29 IPO's that came in 2012 are trading at premium levels whereas the rest 10 are trading at discounting levels. The extent to which these stocks had been discounting themselves was a matter of concern for investors as well as the regulatory board till the year before. Despite having valid SEBI approval in hand to enter the capital market with an initial IPO, 22 companies pulled out of the primary market in calendar year 2012. About four IPOs were withdrawn due to poor response after the opening of the public issue. A clear picture of the IPO market can be represented from the graph below:

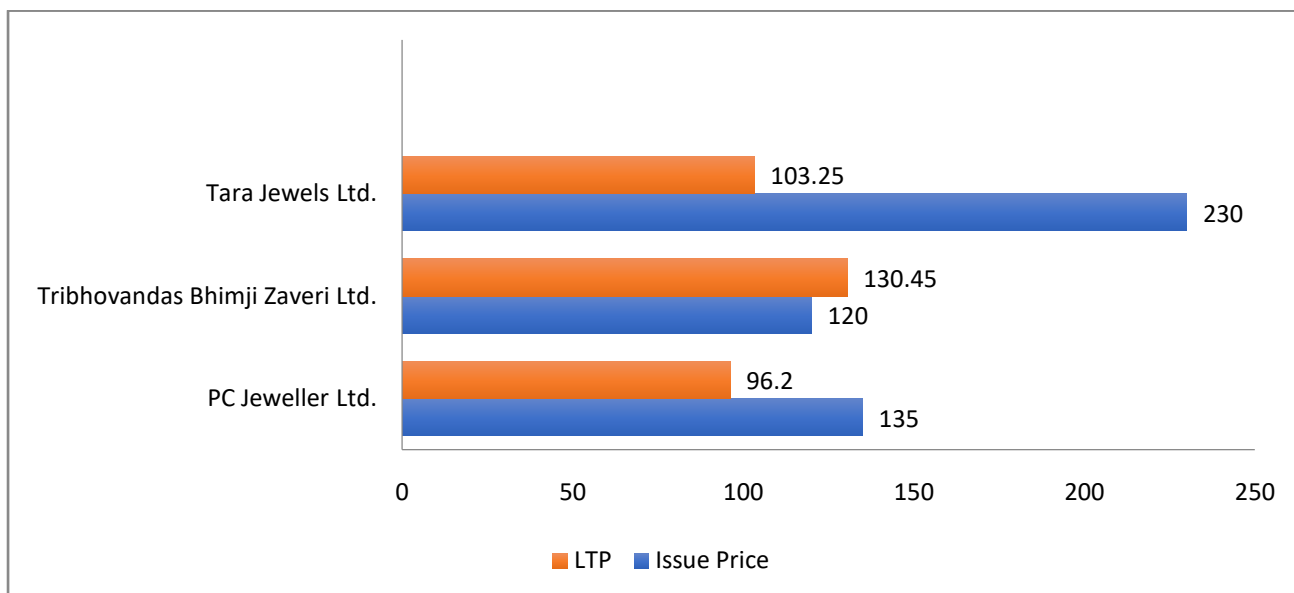


SECTOR: FINANCE



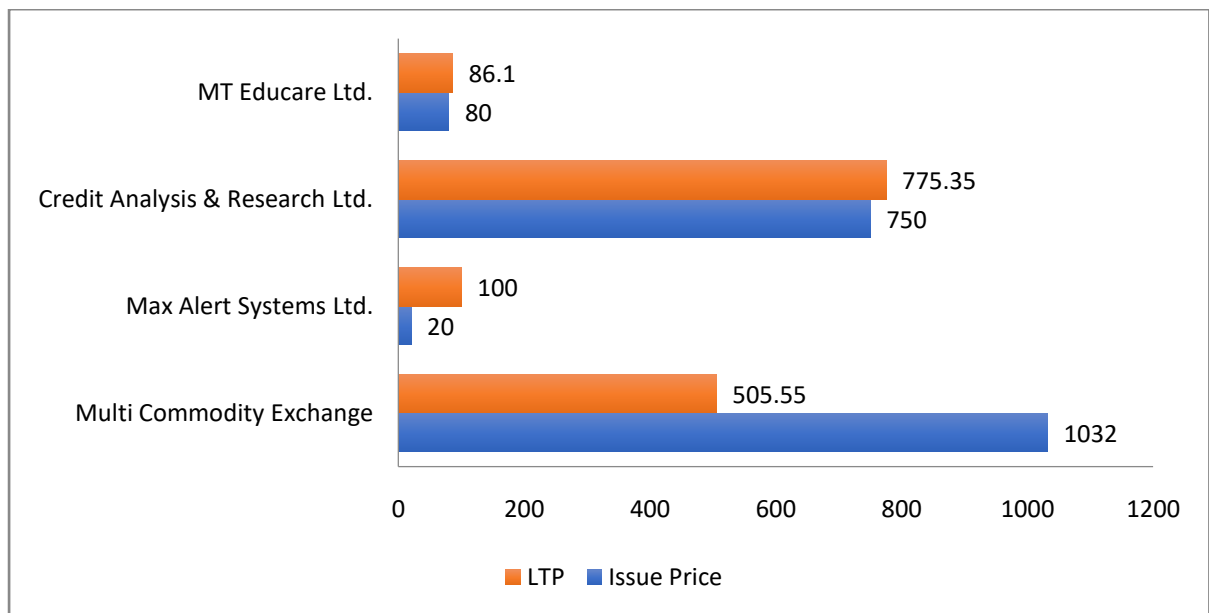
Finance sector is booming as it has performed well in the last year. One common reason that could be attributed to all the players is the market conditions prevailing in this particular sector. It can be observed that most IPOs are trading at premium levels. This can be attributed to the strong fundamentals of the sector.

SECTOR: PRECIOUS METALS



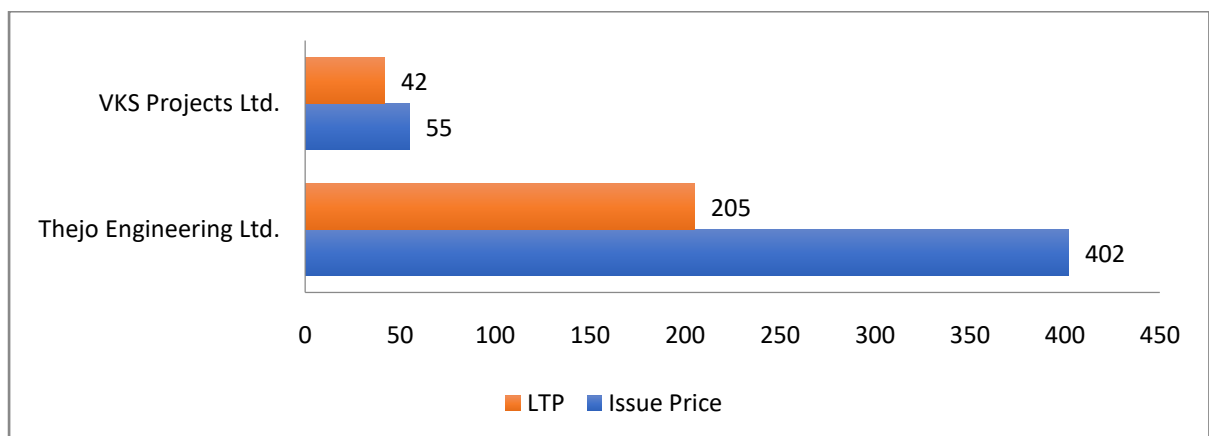
Of the three companies listed in this sector TBZ has been trading at premium levels because of strong fundamental factors, lucrative business segment and cheaper PE levels when compared to its listed peers. On the other hand Tara Jewels Ltd. issue was a matter of mispricing with PE levels at a much higher value when compared to peers which are well established brands.

SECTOR: SERVICES

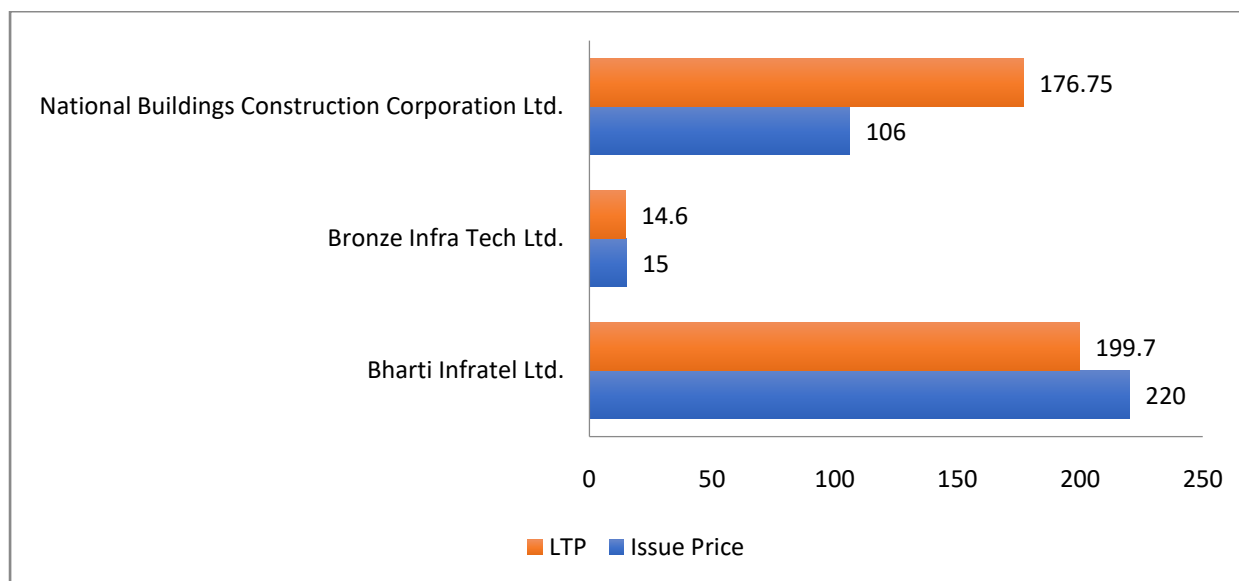


- The overall sector performance can be said to be satisfactory as most companies are trading at premium levels.
- Multi Commodity Exchange, though, looks susceptible to price volatility because the company had poor fundamental factors as a result of which it has dipped down by half.

SECTOR: ENGINEERING



- Thejo Engineering Ltd had poor fundamental factors and an extremely mispriced issue. Due to this the stock corrected itself just after a year and is currently trading at almost half of its issue price.
- VKS Project has also shown a downfall by almost 23.6%

SECTOR: INFRASTRUCTURE

The Indian infrastructure sector continues its sluggish journey in 2012, marked by poor macroeconomic forces, policy gridlock and political instability. Delays in land acquisition and environmental clearances continue to be key areas of concern, while the poor enforcement of contracts, ineffective monitoring and high input costs are also factors that are hindering growth. Two out of the three IPOs launched in this sector have shown a dip in their prices. National Buildings Construction Corporation Ltd. has been trading at higher prices at which it was issued. This can be owed to its fundamental polices and the fact that it had been looking overseas too to hunt for expansion opportunities.

6. CONCLUSION

After the comprehensive study of Indian IPO industry during the year 2012, we can certainly say that mispricing of the stock i.e. overpricing of IPOs is a very common practice that is done by almost 80% of the companies when they decide to go public. As an investor, one should not go only by grading and market sentiments to invest in an IPO; one should look into the company's fundamentals and can be advised to wait for sometime before investing in an IPO. Not a single company in the Engineering sector has performed well i.e. above the listing price.

Considering all the IPOs that were launched in the year 2012-13, we can see that IPOs give better returns on the listing day and the subsequent day as compared to one week and three months. So, it can be concluded that the listing day and subsequent day return for IPOs are better as compared to the 1 week or more. This reason is also attributed to the overpricing of the IPOs. Standard deviation of 12.31016 clearly shows the wide fluctuations in the profits generated. Even the variation in average returns earned on the listing day and the subsequent day is comparatively less. Thus, we can say that Listing day and next day returns are far higher compared to returns on other days.

Our analysis of grading and its impact on subscription level for Retail and QIB investors clearly indicate that Retail investors do not give much value to the grading given by credit rating agencies

while bidding for IPO issues. Although SEBI made IPO grading mandatory, primarily to facilitate quality information dissemination to these class of investors. On the other hand, Qualified Institutional Bidders seems to be more aligned to IPO grading, while making investment decisions, thus information rich investors, seems to be using additional available information more wisely.

Engineering sector and miscellaneous firms have generated the least returns according to the comparative analysis from other sectors. The sectors which have given positive returns are Finance and Services; though Finance being on higher side. Most of the companies launch IPOs at PE multiples of more than twice/thrice than prevailing PE levels of successful peer companies.