

SECTOR-WISE EXPLORATION ON INDIAN IPOS DURING PRE AND POST COVID-19

ARCHANA K

Ph. D. Scholar, School of Management, Presidency University, Bangalore.

Dr. DEEPIKA KRISHNAN

Assistant Professor, School of Management Presidency University, Bangalore.

Dr. LATHA

Assistant Professor, Department of B. Com (Professional Accounting), PSG College of Arts & Science, Coimbatore, India.

Dr. B. NAVANEETHA

Assistant Professor, Department of B. Com (Professional Accounting), PSG College of Arts & Science, Coimbatore, India

Dr. JAYA SATHYA

Assistant Professor, Department of B. Com (Professional Accounting), PSGR Krishnammal College for Women, Coimbatore India

Abstract:

This paper examines the listing Day performance of IPOs in India before and during the pandemic by segmenting the IPOs into three sectors: industrial, financial, and service. The t-test was used on Market Adjusted Abnormal Return, which was calculated sector-by-sector, and it was discovered that IPOs in the Industrial sector were significantly underpriced when compared to the other two sectors. The Ordinary Least Squares Regression (OLS) model was used to examine the effect of market index return, listing gain, oversubscription, issue price, and issue size on IPO underpricing. The OLS results show that, with the exception of market index return, all of the above factors had a significant effect on underpricing. The study indicates that the short-term returns of the IPOs are considered vital by the investors because of the underlying belief of buy low and sell high. Investors believe that the stock prices would in most cases increase after an IPO and participate more in the primary market. The findings of the study will provide insights to the investors on the IPOs and its initial returns.

Keywords: Initial Public Offerings, Under-pricing, Listing Gain, Pre- Covid, Post Covid.

1. INTRODUCTION

According to the Companies Act and Practices by Ratan Nolakha, it is known as an IPO if (2015) an unlisted company issues new shares, the founder of the company puts up the shares for sale, or both are offered to the public for the first time. This is the number one opportunity for companies to raise large-scale funding for business expansion and ventures. This will allow investors to take this opportunity to participate in the market. IPOs are listed at a higher price than the issue price, helping investors make significant profits on the day of listing. This premium serves as a reward for first-time investors. Ritter and Welch (2002) explain the need for companies to come up with the Public Issue and reason for rewarding the first-time

investors. For reward reasons, companies are aiming for a lower price than the actual price of the issue. This is known as a low-price issue. By subscribing to these issues, the initial returns achieved by investors will be higher in the short term and investors will believe they have made a good choice. There is no market without low prices. Madan (1995) points to the global market, where this low price is an established phenomenon in IPOs. India's primary market is no exception and is heavily influenced by this low price. Yadav and Goel (2019) conclude that 76% of low prices are found in the primary market and multiple highs affect India's primary market. An undervalued IPO is a loss for the issuer and a win for the investor. This is because the first return on the trading day is positive and then the long-term returns, such as 1 to 3 years, are negative (Amiyatosh et al., 2004). High and low prices in the primary markets hurt the IPOs of companies that cannot afford to pay new investors. In India, many studies have been conducted to evaluate low price scenarios in different time frames, but in a pandemic situation, the IPO market and its performance is an area to investigate.

Much empirical evidence seems to confirm that the initial public offering (IPO) market worked abnormally well during the COVID 19 pandemic. Whether this extraordinary performance of an IPO during a pandemic is due to an undervalued corporate IPO because investors are attracted to rapid profits and the IPO is oversubscribed. Datar and Mao (2006) suggested that issuers deliberately underestimate IPOs to encourage broader subscriptions. To better understand this scenario, we conducted this study to analyse the performance and under-pricing of 202 IPO on Listing Day in pre-pandemic and intra-pandemic India by sector as industry, finance and services. The results of the survey showed that IPOs were under-priced in all sectors, industrial sector with high underpricing and followed by service sector during the pandemic. It was also shown that short-term returns from IPOs are considered to be more by the investors than their long-term performance.

2. REVIEW OF LITERATURE

Under-pricing indicates the positive initial returns over the offer on listing day of the new issues. IPO Under-pricing can be explained well with this model "The winner's curse". Rock (1986). If an IPO is overpriced, the informed investors will withdraw from the market and then the uninformed investors become more likely to receive a larger allocation and earn negative initial returns. Thus, uninformed investors will be winning the entire issue creating a situation called the winners' curse. By contrast, when an issue is under-priced, the uninformed investors are likely to receive a smaller allocation, Because the uninformed investors will compete with the informed investors, therefore in order to keep the uninformed investors in the IPO market, shares are issued at a discount from their expected listing price. That is, the under-pricing of IPOs is like a compensation to the uninformed investors and induces them to purchase IPO share. Many researchers have tried to study the performance of IPO market in India considering Under-pricing existence and have discussed the developments of IPOs.

IPO as Initial Public Offer (IPO) is considered as an investment tool for the stock market investor. (Kapse & Rasinghan., 2013) "IPOs are one of the largest sources of capital for the firms to invest in growth opportunities". (Jain & C Padmavathi., 2012) it encourages

investment activities in the economy by mobilizing funds from low growth opportunities to high growth opportunities". Alakkas & Farooqi (2021) took sample of 27 companies from 2016 and examined performance of IPOs on listing day and made a comparison with short term and long-term performance of IPOs and concluded that IPOs which are under-priced yielding more on listing day and helps to boost demand in the secondary market and long-term returns are more promising than short term returns. Ahmad (2021) analysed the impact of Foreign Institutional Investors on IPOs listing gain and proved Listing gain and Foreign Institutional Investors subscription is significantly related. Adwani (2020) examined the returns and variations in return of IPOs from Manufacturing Sector and Service Sector. Variation in returns was analysed based on the type of industry or on basis of ownership of the issuing company for the past seven years. Performance of the service sector companies was better than the Manufacturing Companies and based on ownership Private sector companies was performing better than public Sector units. Arora & Singh (2020) examined influence of Underwriters reputation on Under-pricing and Long run returns of SME IPOs. Results concluded that reputation of Underwriters influenced Under-pricing of IPOs but not the returns of the IPOs in the long term. Yadav & Goel (2019) Indian market are experiencing more of Under-pricing than Overpricing and the concept of Under-pricing in IPOs was examined by comparing the different pricing methods of IPOs stock. Findings of the study concluded that Book Building Method of pricing was the best strategy for evaluating IPOs and in India 76 per cent of Under-pricing is seen in primary market. Kumar et al (2018) analysed the two types of pricing IPOs along with Post-listing performance and long-term performance of the IPOs.

Results showed that Book built IPOs were under-priced the most and had a negative return in the long run when compared to Fixed Price IPOs. Poornima et al (2016) short term and long-term performance of the IPOs were analysed and concluded that IPOs perform well in long-term. Shah & Mehta (2015) examined the Listing Day Performance of the IPOs between the period of 2010 to 2015. Using Regression Model the relationship between Under-pricing with different variables like Issue price Issue size Issue Over subscription and Market Index Return were analysed. Conclusions prove that only over subscription variable have significant relations towards Under Pricing and suggested investors to go for the IPOs as they were under-priced in initial days.

Palmucci (2012) Analysed IPOs in Liquidity framework by comparing the IPOs with the sell-initiated block trade and Under-pricing as the price for liquidity and Concluded Under-pricing does not support excess liquidity, it was over subscription that causes excess liquidity which increases the Under-pricing by pushing up the prices. Mishra (2010) examined the market performance of the IPO by considering the factors like pricing of IPO, both traditional fixed price approach and book building that affect the level of Under-pricing. Concluded that Under-pricing in IPOs was there and was high during "Hot Issue market 2007". Book-building pricing method was also not able to prevent Under-pricing in IPOs. Ritter & Welch (2002) focused on IPOs based on three points 1. why companies go for a public issue 2. How pricing and Allocation is done by the company and 3. Long term performance of the IPOs. They concluded that Market conditions were very important to make the decision of going public and underwriting of shares have impact on Under-pricing, Post issue Ownership Structure and

underwriter compensation. Long term Performance of IPOs were reviewed from behavioural point of view and suggested for Cautious Investments. Madhusoodanan & Thiripalraju (1997) Both Short run and long run Under-pricing are analysed here by considering the performance of Merchant Bankers in fixing the price for the issue. Results showed Under-pricing in Indian IPOs in short run was higher and in long run they have given positive returns compared to other countries. Madan (1995) analysed IPOs pre and post Liberalization era and extent of Under-pricing during controller of capital (CCI) and SEBI times.

They concluded that the Returns on Listing and Under-pricing both were high during controller of capital issue (CCI) period. Whenever there was a reformation like disassembling of controller of capital issue in the system and introduction of Book Building in pricing methods, research have done on performance of IPOs. Many papers have explored IPOs and its performance during pandemic. Mazumder & Saha (2020) analysed the relationship between Covid fear and performance of IPOs in short term. After market Performance of the IPOs were also analysed.

Findings were that the new IPOs performance was affected more on fear of Pandemic compared to older IPOs. Surana (2021) explored investor's behaviour during pre and post Covid period considering factors like Listing Gains, Issue Size, Google trends searching statistics tool to know about grey market premium. Results showed that, during pandemic, IPOs have performed well with higher Listing gains and issue sizes of the IPOs issued were also higher compared to previous years. Kuswanto (2021) examined the phenomenon of Under-pricing in IPO of 34 listed firms in Indonesia Stock Market during pandemic considering closing price of IPO and returns on days 1, 5, 10, 15 and 20 using paired sample T Test.

Results showed that returns on T1 were high and it started to decline in other days T5 T10 T15 and T20. Ali et al (2020) analysed how global markets reacted to the epidemic and pandemic phases. The Chinese markets were comparatively calmer with lesser volatility than the markets of US, UK, Germany and South Korea. Higher per centage of wealth deterioration was there globally. Every market other than china was experiencing panic buying-selling and higher levels of volatility thereby. Bantwa (2020) Concept of Green Shoe Option process in IPOs of India was compared with the process followed in other countries and examined whether the companies need to include GSO in their Initial public Offerings and why companies and merchant bankers are not interested in this GSOs. After market performance of IPOs with GPOs was examined, the findings of the study revealed that the concept of GSO in India was only found during the beginning stage and only few companies included GPOs in their IPOs. After market performance of the IPOs with GPOs were not able to stabilize their Price.

This paper tries to fill the gap by analysing the performance of IPOs and Under-pricing of IPOs by making a comparison Sector-wise by dividing the period of study into Pre covid and During Covid. Next section speaks about Objectives and Hypothesis followed by Data and methodology in the fifth section. Finally, Results and Discussions in the Sixth section and Conclusion in the Seventh Section.

3. OBJECTIVES

1. To examine IPO's performance sector-wise on the listing day during covid and pre-covid period.
2. To find out whether IPOs are underpriced by using market adjusted abnormal returns during covid and pre-covid period.
3. To figure out the effect of factors like issue price, issue size, over subscription and market index returns on underpricing during covid and pre-covid period

4. HYPOTHESIS

H1: The Market adjusted abnormal returns are Zero.

H2: There is a significant effect of Market Return, Listing Gain, Issue Price, Issue Size and over Subscription on Under-pricing of IPOs.

5. DATA

Data of 202 IPOs was taken from website of National Stock Exchange of India. IPO issued from January 2010 to December 2021 is considered for the study. The period of study is divided into two sections like Pre covid (January 2010 to December 2019) and during covid (January 2020 to December 2021). The performance of the IPOs Sector-wise on listing day was calculated by taking the difference between the closing price on the listing day and the offer price.

5.1 Return on security

It is calculated to know the return of the IPO shares on listing day. Michaely and Shaw (1994), Lowry and Shu (2002), and Lowry and Murphy (2007) have computed under-pricing of IPOs from the issue price to the closing price on the listing day as under:

$$R_i = (P_i - P_o) / P_o$$

Where R_i = Return on security on listing day, P_i = Closing price of the security on listing day, P_o = Offer price of the security.

5.2 Index return on the listing day

It is calculated as the benchmark index return on the closing value of Nifty. Shah, S. N. and Mehta, D. H. (2015)

$$M_i = (I_i - I_o) / I_o$$

Where M_i = Market return on listing day, I_i = Closing index at listing day, I_o = Closing index at offer day.

6. METHODOLOGY

6.1 Market Adjusted Abnormal Return

Market Adjusted Abnormal Return of an IPO is measured by dividing the change in the price of an IPO from the issue price, to the change in the market level over that same period. This essentially means comparing the difference in the IPO price to the change in the market from the date of issue of the IPO till the date of listing the IPO. By doing so, MAAR captures the actual performance of an IPO associated with the overall market performance. To know the degree of under-pricing of IPOs, market adjusted abnormal return for the IPOs are calculated by using this formula. Shah, S. N. and Mehta, D. H. (2015)

$$MAAR = ((1+R_i) / (1+M_i) - 1) * 100$$

6.2 Ordinary Least Square Model

OLS is used to analyse the effect of factors like Listing Gain, Market index return, Issue price, Issue Size and oversubscription on Under-pricing of IPOs on listing day. This technique helps to understand the extent to which these independent variables have effect on Under-pricing of IPOs.

$$Y_{1i} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \epsilon_i$$

$$\text{Log } R_i = \alpha + \beta_1 \log MR + \beta_2 \log LG + \beta_3 \log IP + \beta_4 \log IS + \beta_5 \log OS + \epsilon_i$$

Log R_i = Under-pricing of security, $\beta_1 \log MR$ = Market Index Return, $\beta_2 \log LG$ = Listing gain, $\beta_3 \log IP$ = Issue price, $\beta_4 \log IS$ = Issue size, $\beta_5 \log OS$ = Over subscription and ϵ_i = Constant

Table 1: Normality Test

p-value				p-value		
	Pre covid (January10-December 19)			During Covid (January20– December 21)		
	Industrial	Service	Finance	Industrial	Service	Finance
Market Index return	.995	.054	.913	.996	.078	.402
Listing Gain	1.000	1.000	.994	.228	.955	.510
Issue price	.804	.222	.825	.882	.683	.272
Issue Size	1.00	.288	.149	.200	.063	.561
Over Subscription	.090	.509	.132	.345	.593	.140
Under pricing	.139	.200	1.000	.376	.917	.158

Source: Authors

Determining the data distribution of the variables was important for choosing the appropriate statistical procedure, as secondary data will be used in the study. Therefore, the Shapiro Wilk test was run and the results show no evidence of anomalies. Based on this result, it was decided to use a parametric test for the analysis after visually examining the histogram of the variables.

7. RESULTS AND DISCUSSION

To know about the detailed summary about each variable of the study and their co movement descriptive statistics have been done. Descriptive statistics Mean, Minimum, Maximum and Standard Deviation of variables, Market return, Listing Gain, Issue price, Issue Size and over subscription of the IPOs for the three sectors during covid and before covid was calculated to find out the performance of IPOs. Table: 2 show the descriptive statistics of the variables. The average Market index return of Industrial Sector is relatively high during pre-covid period with minimum return of 1.03 maximum return of 1.15 and standard deviation of .029 which indicates that the secondary market performed well long before the pandemic, with high average yields. The skewness and kurtosis values are negative, indicating that the data is negatively skewed and the distribution is asymmetric. This is a platykurtic. In case of Service sector also the average Market Index Return is high during pre-covid period with minimum return of 1.00 and maximum return of 1.09 with standard deviation of .015 which indicates that the secondary market performed well during pre-covid period. Negative skewness value shows that the data are negatively skewed. Positive kurtosis value indicates that the data is heavily tailed and leptokurtic with asymmetrical distribution of data. Mean of Market Index Return is low during pre-covid period in financial sector with minimum value of .92 and maximum value of .99 with standard deviation of .018 indicating average return of the market was high during covid period. Positive value of skewness shows the data are positively skewed with a data distribution which is asymmetrical. Kurtosis value implies it is leptokurtic, indicating high volatility in returns. Though the mean of Listing Gain of Industrial sector during pandemic is less compared to pre covid period, the maximum return earned is high with the standard deviation of 48.09, indicating that the returns are relatively consistent during this period. Moreover, Skewness value is positive which shows that the right tail of distribution is longer than the left tail and

Table 2: Descriptive Statistics

Market Return	Pre-covid (January10-December19)			During Covid (January 20-December 21)		
	Industrial	Service	Financial	Industrial	Service	Financial
No of Firms	59	73	23	28	11	8
Mean	1.08	1.04	.9604	1.05	1.01	1.07
Minimum	1.03	1.00	.92	1.01	1.00	1.00
Maximum	1.15	1.09	.99	1.09	1.03	1.17
St. Deviation	.029	.015	.018	.019	.007	.048
Skewness	-.046	-.508	-.427	.114	-1.57	.572
Kurtosis	-.414	.924	.056	-.490	3.40	2.5
Listing Gain						
Mean	97.90	93.70	108.13	70.84	65.58	1.92
Minimum	-4.30	-17.11	32.71	2.31	4.95	1.00
Maximum	198.50	205.55	183.14	206.76	150.48	2.54
St. Deviation	45.33	48.10	39.17	48.09	41.72	.49
Skewness	-.035	.026	.088	.851	.613	-.662
Kurtosis	-.426	-.368	-.538	.870	.355	.563

Issue Price						
Mean	3.18	3.38	3.31	3.62	3.53	3.48
Minimum	2.04	2.00	2.45	2.78	2.52	2.40
Maximum	4.25	4.12	4.22	4.49	4.24	4.09
St. Deviation	.438	.4342	.467	.437	.5396	.5260
Skewness	.191	-.758	.083	-.112	-.345	-1.3
Kurtosis	.202	.687	-.772	-.364	-.548	2.2
Issue Size						
Mean	3.21	3.45	3.87	3.78	3.88	4.20
Minimum	2.37	2.36	2.53	2.78	3.00	3.65
Maximum	5.19	4.27	4.78	4.59	4.97	5.01
St. Deviation	.537	.4528	.574	.369	.4786	.479
Skewness	.829	-.409	-.734	-.712	.743	.526
Kurtosis	1.54	.676	.652	1.56	3.00	-.736
Over Subscription						
Mean	1.68	1.73	1.66	2.03	2.07	1.65
Minimum	1.05	1.00	1.07	1.02	1.32	1.20
Maximum	2.89	2.77	2.69	2.91	2.87	2.55
St. Deviation	.421	.399	.442	.537	.514	.417
Skewness	.545	.243	.364	-.102	.332	1.57
Kurtosis	-.077	-.259	-.421	-1.08	-.732	3

Source: Authors

The data is positively skewed. Kurtosis value shows that the distribution of data is asymmetric and it is heavy-tailed which is leptokurtic indicating the returns can be highly volatile during covid and platykurtic during pre - covid period indicating less volatile. Maximum returns earned an average of the listing gain in service sector is less during covid -period compared to pre-covid period with the standard deviation of 41.72 and .49. The value of Skewness and Kurtosis are positive showing that the data are positively skewed with asymmetric distribution of data and is leptokurtic indicating volatility in returns from this sector. In Financial Sector also the average and maximum return earned during covid period is less compared to pre-covid period. The Skewness and Kurtosis value shows that the data are positively skewed with asymmetric distribution of data and is leptokurtic indicating high volatility in returns.

The average price at which the IPO was issued during pandemic was high compared to pre pandemic period indicating that IPOs issued during pandemic was with high price than those IPOs issued before pandemic. Interestingly, the pandemic did not prove to be a warning effect for the capital markets. Prime Database suggests that Rs 26,770 crore was raised through IPOs during the year of the pandemic as opposed to Rs 12,985 crore in 2019. The value of Kurtosis and skewness is negative which shows that the left tail of distribution is longer than right tail indicating data is negatively skewed and the data is distributed asymmetrically. Value of Kurtosis shows that the data is light tailed which is Platykurtic for Industrial Sector and Service Sector. But in case of Financial Sector, mean of the issue size is higher during pre-covid period

with minimum value 2.45 and maximum value of 4.22 with standard deviation of .467 indicates the issue price of IPOs of finance sector had the effect of pandemic. Positive value of skewness shows that the data are positively skewed and the distribution of data is asymmetrical during pre-covid and covid period with negatively skewed data. Data is light tailed and it is platykurtic during pre-covid and it is leptokurtic during covid with heavy tailed data.

During covid period the average of Issue size of Industrial sector is higher with the minimum value of 2.78 and maximum value of 4.59 indicating that the companies have tried to take the benefit of strong rebound in the Indian Indices and have raised huge sum of capital. In march 2021, Securities Exchange Board of India have reduced the holding period of the pre-issue capital to one year from two years for early-stage investors and the amendment towards discretionary allotments which allows the companies to allocate 60 per cent of the issue size of the IPO to an eligible investor subject to a 30 days lock in period which have encouraged the companies to go more for the issue of public shares during pandemic period. Value of Skewness is negative during covid period which shows left tail of distribution is longer than right tail and during pre-covid it is positive which shows right tail of distribution is longer than left and data distribution is asymmetric. Kurtosis value for both the period is positive, so with heavy tailed data and it is leptokurtic. In case of Service sector and the financial sector also the average of Issue size is higher during covid period indicating the same. Negative value of Skewness during pre-covid period shows that the data is negatively skewed and positive skewness value during covid period shows that the data is positively skewed with asymmetric distribution of data. Kurtosis value is positive which shows data is heavy tailed and it is leptokurtic and it is platykurtic for financial sector during covid period.

The mean value of over subscription for Industrial sector and Service sector is higher during covid period compared to pre covid period indicating that more investors were investing in IPOs during this period than the pre covid period. (Surana. S., 2021). In case of financial sector there was no much change, the average was same during both the periods. Skewness value is positive which shows data are positively skewed for both the period with asymmetrical distribution of data except Industrial sector which is having positively skewed data during pre-covid period. Value of kurtosis is light tailed which is platykurtic for all sectors for both the period except financial sector which is heavy tailed and leptokurtic during covid period.

7.1 Market Adjusted Abnormal Return Computations

H1: The Market adjusted abnormal returns are Zero.

Table 3 shows the descriptive statistics of MAAR for Industrial sector, Service sector and financial sector for both the period. To test the hypothesis, the market adjusted abnormal returns are equal to zero, t- test have been applied and Table 4 shows the results of t-test, significance value of industrial sector, service sector and financial sector is less than 0.05, so we fail to accept the null hypothesis. Therefore, the Market adjusted abnormal returns are not equal to zero which means that the IPOs of Industrial sector, Service sector and financial sector are either under-priced or Over-priced and not fairly priced during covid period as well as pre-covid period.

Table 3: Market adjusted abnormal return (MAAR)

Particulars	Pre-covid (January10-december19)			During Covid (January20–December21)		
	Industrial	Service	Financial	Industrial	Service	Financial
No of firms	59	73	23	28	11	8
Minimum	-.0005	-.0010	-.0031	.9951	.5249	.0000
Maximum	2.37	2.39	2.25	2.30	2.09	1.5093
Mean	1.8851	1.86	1.90	1.55	1.62	1.045
Standard Deviation	.39943	.410	.549	.544	.448	0.494

Source: Authors

Table 4: t-test results of MAAR

Particulars	Pre-covid (January10-December19)			During Covid (January20–December 21)		
	Industrial	Service	Financial	Industrial	Service	Financial
No of firms	59	73	23	28	11	8
Mean	1.88	1.86	1.90	1.55	1.62	1.04
Standard Deviation	.399	.410	.549	.544	.448	.494
Standard Error Mean	.052	.048	.114	.102	.135	.174
t-test	36.25	38.71	16.60	15.12	12.02	5.98
p value	.000	.000	.000	.000	.000	.001

Source: Authors

7.2 Ordinary Least Square Regression

OLS technique is used for estimating coefficients of linear regression equations which describe the relationship between independent variables, Market Return, Listing Gain, Issue Price, Issue size, oversubscription and the dependent variable under-pricing of IPOs.

H2: There is a significant effect of Market Return, Listing Gain, Issue Price, and Issue Size and over Subscription on Under-pricing of IPOs.

To test the above hypothesis multiple regression analysis has been carried out to know the significant effect of independent variables on the dependent variable Under-pricing. Table: 5 shows R value of Industrial sector, Service sector and financial sector shows that the model is 90 per cent fit for the data collected for both pre and during covid period. Value of R square indicates 90 per cent variation of dependent variable under-pricing is explained by the independent variables in Industrial Sector and 80 per cent variation in Service and Financial sector.

Table: 6 shows that the significance value of the independent variables, Market index return, Issue price, Issue size and over subscription is greater than .05 so we fail to reject the null hypothesis. Therefore, there is no significant effect of these independent variables on the dependent variable under-pricing. But in case of Listing gain, the significant value is less than .05 so we fail to accept the null hypothesis. Therefore, there is a significant effect of this

independent variable on the dependent variable under-pricing during both periods in Industrial sector.

Table 5: Regression outputs

	Pre covid (January 2010-December 2019)			During Covid (January 20–December 21)		
	Industrial	Service	Financial	Industrial	Service	Financial
R	.951	.919	.906	.983	.992	.996
R square	.904	.844	.821	.967	.985	.991
Ad. R Square	.895	.832	.778	.960	.970	.970
F-stat	100.06	72.565	19.27	129.21	65.64	45.61
p value	.000	.000	.000	.000	.000	.022

Source: Authors

Table 6: Regression Analysis for Industrial Sector

Industrial Sector	Pre covid (January 10-December 19)			During Covid (January 20– December 21)		
	β	t -test	P-value	B	t -test	P- Value
Constant	1.141	6.027	.000	.403	1.456	.160
Market Index return	-.032	-.740	.463	.074	1.828	.081
Listing gain	.934	21.080	.000	.954	20.040	.000
Issue price	-.073	-1.282	.205	.104	2.392	.026
Issue size	.105	1.788	.080	.001	.021	.984
Over subscription	.067	1.431	.158	.021	.396	.696

Source: Authors

Table: 7 shows that the significance value of the independent variables, Market index return, Issue size and over subscription is greater than .05 so we fail to reject the null hypothesis. Therefore, there is no significant effect of these independent variables on the dependent variable under-pricing. But in case of Listing gain and Issue price, the significant value is less than .05 so we fail to accept the null hypothesis. Therefore, there is a significant effect of these independent variables on the dependent variable under-pricing during pre-covid period and during covid period only listing gain has a significant effect on dependent variable under-pricing in Service sector.

Table 7: Regression Analysis for Service sector

Service Sector	Pre covid (January 10-December 19)			During Covid (January 20– December 21)		
	β	t-test	P- Value	B	t-test	P- Value
Constant	.902	3.173	.002	2.26	4.055	.010
Market index return	.081	1.652	.103	-.119	-1.662	.157
Listing gain	.916	16.615	.000	1.061	13.632	.000
Issue price	-.184	-3.193	.002	.093	1.492	.196
Issue size	.039	.640	.524	.055	.750	.487
Over subscription	-.089	-1.543	.127	-.086	-1.010	.359

Source: Authors

Table 8: Regression Analysis of financial sector

Financial Sector	Pre covid (January10-December 19)			During Covid (January20– December 21)		
	β	t -test	P - Value	β	t-test	P- Value
Constant	1.01	1.553	.135	.401	3.984	.058
Market Index return	.010	.094	.926	.353	4.221	.052
Listing gain	.873	8.033	.000	.445	4.212	.052
Issue price	-.222	-2.116	.046	-.117	-1.497	.273
Issue size	.263	2.216	.038	.326	3.208	.085
Over subscription	-.119	-1.026	.317	.602	4.803	.041

Source: Authors

Table: 8 shows that the significance value of the independent variables, Market index return and over subscription is greater than .05 so we fail to reject the null hypothesis. Therefore, there is no significant effect of these independent variables on the dependent variable under-pricing. Other independent variables Listing gain, Issue price and Issue size significance value is lesser than .05 so we fail to accept the null hypothesis. Therefore, there is a significant effect of these variables on dependent variables during the pre- covid period. During the covid period, significant value of oversubscription is less than .05 so we fail to reject the null hypothesis, so it has a significant effect on under-pricing in the financial sector.

It is clear from the above results, except Listing gain other independent variables does not have any significant effect on the dependent variable under- pricing in Industrial sector during both the period of study. In the case of the service sector, listing gain and Issue price have significant effect during pre- covid and only listing gain have significant effect during covid period. In the case of the financial sector, independent variables listing gain, issue price, issue size has significant effect on under-pricing during pre-covid period and during covid only oversubscription has significant effect on under-pricing.

8. CONCLUSION

This paper focused on IPO performance and its under-pricing sector-wise by dividing the research period into pre-Covid phase and during Covid Phase. Of the three sectors, the industrial sector performed better than the other two during the Covid phase. By calculating the Adjusted Abnormal Market Returns, we were able to determine that the IPOs of all three sectors were undervalued in Covid and the pre-Covid phase. The results of this study is consistent with the findings of Narasimhan and Ramana (1995), Madhusoodanan and Thiripalraju (1997), Karmakar (2002), Chaturvedi et al. (2006), Sehgal and Singh (2007) and Garg et al. (2008). Bora et al. (2012) reported that the Indian IPO is underpriced as measured by the offer price and the opening price on the trading day. Also, Cheung and Krinsky (1994) and Chen et al. (2004) Documented low prices with similar measures. The results of the regression analysis show that, among various factors, listing gain have significant effect on under-pricing of IPOs in all sectors during pre- covid and during covid except financial sector, as over subscription was having significant effect on under-pricing of IPOs in financial sector during covid. This is a clear indication that India's industrial

IPOs were strong during Covid's period. IPOs of all sectors were under-priced and independent variables listing gain, Issue price, Issue size and over subscription have impact on Under-pricing of IPOs of Industrial sector, Service sector and Financial Sector. So, depending on the sector the variables to be considered vary for making the investment decision on IPOs. Therefore, this indicates that the short-term returns of the IPOs are considered vital by the investors because of the underlying belief of buy low and sell high. Investors believe that the stock prices would in most cases increase after an IPO. Therefore, they are much interested to subscribe to IPOs.

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