A Study on Listing Day Price Performance of BSE SME IPOs and its Determinants

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Abstract

SME exchange is a relatively new platform of raising equity finance in India. A lot of research has been done on IPOs, but there is a dearth of literature on SME IPOs in India. This paper aimed to fill this research gap, to some extent, by addressing the following questions : What is the listing day price performance of BSE SME IPOs ? Are BSE SME IPOs underpriced or overpriced ? What are the factors that determine the BSE SME IPO returns on the listing day ? The study focused on a sample of 176 BSE SME listed IPOs of equity shares issued by small and medium enterprises during the period from February 23, 2012 – March 31, 2017. The results showed that on an average, SME IPOs provided positive returns of 8.66% on the listing day. Age, subscription, issue price, listing delay, market sentiment, and financial & construction sector dummies had a significant impact on listing day price performance of SME IPOs. An important implication of the study is that it supports SEBI's initiatives to reduce the issue listing time.

Keywords : **Small and medium enterprises, initial public offering, underpricing, listing day returns, lead manager reputation**

JEL Classification : G1, G2, G10, G14, G15, G21, G23

Paper Submission Date : October 17, 2019 ; Paper sent back for Revision : April 25, 2020 ; Paper Acceptance Date : May 15, 2020

Small and medium enterprises (SMEs) have emerged as a dynamic and vital sector of the Indian economy. SMEs play a pivotal role in the socioeconomic development of the country. They provide large employment opportunities at comparatively lower capital cost and also serve as ancillary units to the big industries. The SME sector contributed 33% in the manufacturing sector and 45% in exports of the country. The contribution of manufacturing MSMEs was around 6% of GDP, while that of service sector MSMEs was around 25% of the GDP amounting to a total contribution of around 31% of GDP (Ministry of Micro, Small and Medium Enterprises, Government of India, 2017).

However, financing still remains the biggest challenge for SMEs and its scarcity is the main reason for an SME going out of business. According to a report by the International Organization of Securities Commissions (IOSCO) published in 2015, about 60% of worldwide SMEs depend upon bank loans as their chief source of financing. The report of Prime Minister's Task Force on MSMEs (2010) indicated that the availability of cost-effective, timely, and adequate credit is the most critical problem faced by this sector. Another major bottleneck hampering the growth of this sector is the lack of access to equity capital. A joint report by WFE and the Milken

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DOI : 10.17010/ijf/2020/v14i5-7/153324

Institute Center for Financial Markets concluded that the top reason for Indian SMEs to list is to enhance their creditworthiness followed by lower funding costs and diversification of investor base (Cleary, Alderighi, Irving, & Woodsome, 2017). In spite of a well-established exchange platform, SMEs find it difficult to raise public finance through the existing stock exchanges due to several factors such as strict disclosure norms as well as regulatory and financial requirements. The Prime Minister's Task Force (January, 2010) recommended to set up a dedicated stock exchange platform for SMEs to allow promising enterprises of the future to access retail capital.

Initial public offerings (IPOs) by SMEs are a new and upcoming source of finance for small entrepreneurs. In India, the stock exchanges have launched a separate platform for SMEs. National Stock Exchange (NSE), the leading stock exchange of India, offers a platform called 'NSE EMERGE,' while Bombay Stock Exchange (BSE), India's oldest stock exchange, offers a platform called 'BSE SME.'

Evidence of Performance of IPOs of Small and Medium Enterprises (SMEs)

Vong and Zhao (2008) examined the price performance of GEM IPOs on the Hong Kong Stock Exchange and reported significant underpricing on the first trading day. The underpricing level of 18.32% was comparatively higher than the 15.02% stated by Vong (2006) for the Main Board. They further found a significant relationship between the initial returns and the ex-post volatility of aftermarket returns. Chorruk and Worthington (2013) concluded that the degree of underpricing of Thai SME IPOs was modest and significantly lower than that of large-firm IPOs listed on the Stock Exchange of Thailand (SET). Singh and Kumar (2012) prepared a NSE working paper for analyzing the legal and regulatory framework for SME listing in India. A comparison was drawn between the Indian framework and established SME exchanges abroad like Growth Enterprise Market (GEM) in Hong Kong, Alternative Investment Market (AIM) in the UK, MOTHERS in Japan, and the SGX Catalist in Singapore. Dhamija and Arora (2017) found evidence of underpricing in case of 100 SME IPOs launched by BSE and NSE during the period from February 23, 2012 – March 31, 2015. The degree of underpricing was, however, lower than that of mainline IPOs. Size of issue, promoter holding, oversubscription, lead manager reputation, stock exchange of listing, and the type of offer were the key determinants of underpricing. Tripathi, Pradhan, and Pandey (2017) reinforced the fact that not only mainline IPOs, but also SME

Table 1. SME IPO Studies

Author/Year	Sample Period	Country	Board	Degree of Underpricing (Raw)
Vong & Zhao (2008)	1999–2005	Hong Kong	Growth Enterprise Market (GEM)	18.32%
Chorruk & Worthington (2013)	2001–2008	Thailand	Market for Alternative Investments (MAI)	12.69%
Anderson, Chi, & Wang (2013)	2009–2011	China	ChiNext	37.9%
Gao, Cong, & Evans (2015)	2006–2010	China	Shenzhen Stock Exchange (SZSE) SME Board	96.71%
Burrowes & Jones (2004)	June 19, 1995 and August 31, 1997	U.K	AIM	16.85%
Tripathi et al. (2017)	2012–2016	India	BSE SME & NSE EMERGE	10.6%
Dhamija & Arora (2017)	2012–2015	India	BSE SME & NSE EMERGE	10.73%

IPOs were underpriced in India. Anderson, Chi, and Wang (2013) discovered that ChiNext IPOs were more significantly underpriced than Main Board IPOs, however, the underpricing was not significantly different from the SME Board IPOs. The information asymmetry hypothesis and the behavioural theory seem to explain this underpricing. Table 1 summarizes the studies on SME IPO markets in India and abroad.

Objectives of the Study

This study aims to analyze the initial listing day returns provided by BSE SME IPOs. It further aims to identify the different factors that explain the listing day return behaviour of BSE SME IPOs, and thereby point out the IPO theories which underlie such behaviour.

Hypotheses Formulation

On the basis of the literature review, the following hypotheses are formulated :

- **H1 :** There is a significant impact of age of a firm at the time when an issue comes to the market on the initial raw returns of an IPO on the listing day.
- **H2 :** There is a significant impact of subscription of an issue on the initial raw returns of an IPO on the listing day.
- **H3 :** There is a significant impact of issue price on the initial raw returns of an IPO on the listing day.
- **H4 :** There is a significant impact of issue size on the initial raw returns of an IPO on the listing day.
- **H5 :** There is a significant impact of listing delay on the initial raw returns of an IPO on the listing day.
- **H6 :** There is a significant impact of post-issue promoters' holding on the initial raw returns of an IPO on the listing day.
- **H7(a) :** There is a significant impact of lead manager's reputation (based on total proceeds) on the initial raw returns of an IPO on the listing day.
- **H7(b) :** There is a significant impact of lead manager's reputation (based on number of issues) on the initial raw returns of an IPO on the listing day.
- **H8 :** There is a significant impact of market conditions on the initial raw returns of an IPO on the listing day.
- **H9 :** There is a significant impact of market sentiment on the initial raw returns of an IPO on the listing day.
- **H10 :** There is a significant impact of IPO firms belonging to the manufacturing sector on the initial raw returns of an IPO on the listing day.
- **H11 :** There is a significant impact of IPO firms belonging to the financial and insurance sector on the initial raw returns of an IPO on the listing day.
- **H12 :** There is a significant impact of IPO firms belonging to the wholesale and retail trade sector on the initial raw returns of an IPO on the listing day.

↳ **H13 :** There is a significant impact of IPO firms belonging to the information, communication, and education sector on the initial raw returns of an IPO on the listing day.

↳ **H14 :** There is a significant impact of IPO firms belonging to the construction sector on the initial raw returns of an IPO on the listing day.

Data and Research Methodology

(1) Sources of Data : The data for the study were collected from secondary sources such as the website of the Bombay Stock Exchange (BSE) (www.bseindia.com) and the"Basis of Allotment" document, the prospectus issued by the SME IPO company available on the official website of SEBI (www.sebi.gov.in).

(2) Sample : It comprises of 176 IPOs of equity shares issued by SMEs in India and listed on the BSE SME Exchange platform. The initial returns are computed for all 176 IPOs as the required data was available for them. The final sample size for the regression analysis for Models 1 and 2 is 174 after removing two outlier cases (initial sample size is 176).

(3) Sample Period : The sample period for the study starts from February 23, 2012 as the first IPO which got listed on the SME platform of Bombay Stock Exchange (BSE) was issued on this date. The sample period extends over 5 years from February 23, 2012 – March 31, 2017.

(4) Description of Variables

(i) Initial Returns : According to Pande and Vaidyanathan (2007), the first day or the initial returns reflect the degree of underpricing of an initial public offering. The IPO closing price on the listing day is taken for the study because it is determined by the demand and supply forces in the market and represents the price at which investors have the last chance to sell their allotted shares in the secondary market on the listing day. Thus, it is a more logical and apt price.

$$Raw\ Return = \frac{First\ day\ closing\ price - Offer\ price}{Offer\ price} \times 100$$

(ii) Age (AGE) : Age of a company at the time when an IPO comes to the market is the period from the year of incorporation of the company to the year of the IPO launch. This variable has been rounded off to whole number in years.

(iii) Subscription (SUB) : This variable reflects the number of times the issue is subscribed. It is the ratio of the number of shares applied for including the reserved portion of market maker to the number of shares offered by an IPO firm. The oversubscription rate is taken as a proxy for investors' demand for the IPO as it reflects the magnitude of response of the investors to the new issue.

(iv) Issue Price (INVIP) : Issue price is the price at which an initial public offering (IPO) is offered to the public. It is also used as an ex-ante risk proxy because a lower offer price, *ceteris paribus*, signals a higher variance in the IPO firm's cash flows, thereby resulting in uncertainty. In this study, inverse of the issue price is used as the predictor variable.

(v) Issue Size (LNSIZE) : Another variable which is taken as a risk proxy is the issue size. Issue size of the firm refers to the gross proceeds of the issue (in ₹ crores) measured by the product of the issue price and the number of shares offered through the IPO. Larger offers tend to be less underpriced as they are generally offered by more established firms which reduce the perceived risk of the IPO.

In the Indian context, Kumar (2007) and Ghosh (2005) stated that larger offerings are subject to regulatory scrutiny and are analyzed thoroughly by many analysts ; hence, they are less risky and lesser underpriced. In this study, natural logarithm of the issue size has been used.

(vi) Listing Delay (LD) : Delay is defined as the time lag between the issue closing date and the listing date. Pande and Vaidyanathan (2007) argued that underpricing increases as listing delay increases. In contrast to this view, Sehgal and Singh (2008) showed that listing delay was negatively related to the level of underpricing. The time lag between the date of registration of prospectus and the date of listing reflected the informed demand for the issue. The level of underpricing was anticipated to be higher for issues that were sold (or filled) more quickly as they had a higher level of informed demand. On the other hand, less underpricing was expected for issues with longer listing delay due to lack of interest shown by informed investors.

(vii) Post-Issue Promoters' Holding (PIPH) : It is measured as the percentage of the total equity owned and retained by the promoters and the promoters' group after the issue. This retention ratio is a credible signal of firm value. It reflects the issuer's willingness in its project and conveys information about the expected future cash flows of the firm (Reber & Fong, 2006).Jain and Padmavathi (2012) considered post-IPO promoters' holding as a proxy for liquidity of the issue in the secondary market. The higher the promoters' holding, the lesser is the liquidity of the stock as promoters' holding is subject to the mandatory lock-in period. Thus, they anticipated that IPO firms with high promoters' holding (low liquidity) will underprice more in order to attract investors.

(viii) Lead Manager Reputation (LMREP) : Generally, high prestige underwriters prefer to manage good issues. Also, firms with good financial perspectives are able to hire reputable underwriters. Hence, underwriter reputation can give a signal to the public and, therefore, impact the first day returns of the new issue. Since there is no such predefined ranking available for underwriters managing Indian IPOs, data relating to the total number of IPOs and total proceeds of issues managed by each lead manager had to be collected. Table 2 shows the ranking of lead managers based on total proceeds of all the IPOs (whether mainline or SME, BSE-listed, or NSE-listed) managed by them. In the study, lead manager reputation has been taken as a dummy variable that is set for "1" if the lead manager ranks in the top 5 on the basis of the total proceeds of their managed issues, and "0" otherwise.

To check the robustness of this measure, an alternative measure based on the number of IPOs is also taken. Table 3 shows the ranking of lead managers based on the total number of IPOs. It can be seen that a totally different ranking of underwriters is obtained. A closer examination reveals that this is due to the segmentation of the market, with the largest underwriters managing large-sized issues (and thus realizing larger issue proceeds in total) and the smaller underwriters managing small-sized issues (however, underwriting more in terms of number). Pichler and Wilhelm (2001) also expressed similar views that underwriter reputation creates market segmentation between the large and small issuances. In the study, the dummy variable takes the value "1" if the lead manager ranks in the top three on the basis of the total number of their managed issues, and "0" otherwise.

(ix) Market Condition (MKTCOLD) : This variable has been used as a proxy for the level of IPO activity prevailing at the time of the issue. The "hot issue" markets are periods with huge investor demand, strong concentration of issue activity, increasing volume of IPOs, and unusually high initial returns. On the other hand, the "cold issue"

Table 2. Ranking of Lead Managers on the Basis of Total Proceeds of Issues

Lead Manager	No. of IPOs	Total Proceeds (₹ cr.)	Rank
Aryaman Financial Services Ltd.	**29**	**399.3**	**1**
Intensive Fiscal Services Pvt. Ltd.	**7**	**363.96**	**2**
Pantomath Capital Advisors Pvt. Ltd.	**39**	**336.1**	**3**
Hem Securities Ltd.	**32**	**279.03**	**4**
Corporate Strategic Allianz Ltd.	**12**	**273.26**	**5**
Guiness Corporate Advisors Pvt. Ltd.	27	242.73	6
Comfort Securities Pvt. Ltd.	3	145.35	7
Sarthi Capital Advisors Pvt. Ltd.	20	127.07	8
Inventure Merchant Banker Services Pvt. Ltd.	11	101.72	9
First Overseas Capital Ltd.	15	69.74	10
VC Corporate Advisors Pvt. Ltd. (VCAPL)	3	58.35	11
Networth Stock Broking Ltd.	3	55.83	12
KJMC Corporate Advisors (India) Ltd.	2	43.5	13
Choice Capital Advisors Pvt. Ltd.	3	29.75	14
Monarch Networth Capital Ltd.	1	23.36	15
Navigant Corporate Advisors Ltd.	1	11.22	16
Gretex Corporate Services Pvt. Ltd.	2	10.52	17
Sobhagya Capital Options Ltd.	3	8.12	18
Quintessence Enterprises Pvt. Ltd.	1	7.04	19
VB Desai Financial Services Ltd.	2	6.35	20
Ajcon Global Services Ltd.	1	5.35	21
First Call India Equity Advisors Pvt. Ltd.	1	5.05	22
BCB Brokerage Pvt. Ltd.	1	4.31	23
Unicon Capital Services Pvt. Ltd.	1	3.02	24
Mehta Integrated Finance Ltd.	1	2	25

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Gretex Corporate Services Pvt. Ltd.	2	10.52	16
VB Desai Financial Services Ltd.	2	6.35	17
Monarch Networth Capital Ltd.	1	23.36	18
Navigant Corporate Advisors Ltd.	1	11.22	19
Quintessence Enterprises Pvt. Ltd.	1	7.04	20
Ajcon Global Services Ltd.	1	5.35	21
First Call India Equity Advisors Pvt. Ltd.	1	5.05	22
BCB Brokerage Pvt. Ltd.	1	4.31	23
Unicon Capital Services Pvt. Ltd.	1	3.02	24
Mehta Integrated Finance Ltd.	1	2	25

markets, with relatively low initial returns, tend to occur toward the end of the high IPO volume periods. Following Dhamija and Arora (2017), IPOs launched in the month in which the number of issues is more than the monthly average are termed as the "hot market" and IPOs launched in the month in which the number of issues is less than the monthly average are termed as "cold market." Dummy variable "1" is taken as a proxy for IPOs issued during the cold IPO market conditions and "0" is taken for IPOs issued during the hot market conditions.

(x) Market Sentiment (SENTPOS) : This variable reflects the market sentiment between the IPO closing date and its eventual listing on the stock exchange. The market sentiment is said to be positive if the market index has risen between these two dates and negative if it has declined. BSE Sensex has been taken as the market index in the study. Dummy variable "1" is used for IPOs issued during the period in which the market sentiment is positive ; whereas, "0" is used for IPOs issued during the period in which the market sentiment is negative.

(5) Sectoral Classification Effects : In this study, National Industrial Classification (NIC-2008) has been followed to categorize the SMEs issuing IPOs into 14 categories of sectors as shown in Table 4. For the purpose of this

Table 4. Frequencies and Amount Raised by SME IPOs that Belong to 14 Sector Categories

S. No.	Sector	Number of Issues	Amount Raised (₹ Cr)
1	Accommodation& Food Service activities	3	5.47
2	Administrative and support service activities	2	9.56
3	Agriculture, Forestry, & Fishing	6	58.94
4	Construction	15	139.00
5	Education	2	44.4
6	Financial & Insurance activities	27	241.43
7	Human health & social work activities	2	14.43

8	Information & communication	16	125.56
9	Manufacturing	57	412.358
10	Other service activities	1	7.20
11	Professional, scientific, and technical activities	7	40.35
12	Real Estate activities	1	39.96
13	Transport & Storage	4	19.69
14	Wholesale & Retail Trade	33	240.46
	TOTAL	**176**	**1398.808**

Table 5. Frequencies and Amount Raised by SME IPOs that Belong to Six Broad Sector Categories

S. No.	Sector	Number of Issues	Amount raised (₹ Cr)
1	Manufacturing	57	412.358
2	Financial & Insurance activities	27	241.43
3	Wholesale & Retail Trade	33	240.46
4	Information, Communication,& Education	18	169.96
5	Construction& Real Estate	16	178.96
6	Others	25	155.64
	TOTAL	**176**	**1398.808**

study, five broad sectors have been identified. The remaining sectors which individually represent very few SME IPOs are grouped into one broad category named "Others." Thus, with respect to sectoral effects, SME IPO firms are classified into six categories as shown in Table 5. To capture the sector specific differences in explaining underpricing, five dummy variables have been used. Dummy variable "1" is used for IPOs that belong to these sectors, else "0". The sector 'Others' has been taken as the reference category here.

(6) Multivariate Regression Model : Multiple regression analysis has been applied to analyze the determinants of initial returns of BSE SME IPOs. Two OLS regression models are estimated taking raw initial return (IR) as the dependent variable. The general form of OLS regression equation for Models 1 and 2 is as follows :

Model 1 :

$$IR = \beta_0 + \beta_1(AGE) + \beta_2\,(SUB) + \beta_3(INVIP) + \beta_4 ln\,(SIZE) + \beta_5(LD) + \beta_6(PIPH) + \beta_7(LMREPTOP5) + \beta_8\,(MKTCOLD) + \beta_9(SENTPOS) + \beta_{10}(SECMAN) + \beta_{11}(SECFIN) + \beta_{12}(SECTRADE) + \beta_{13}(SECIT) + \beta_{14}\,(SECCONS) + \varepsilon_i \quad \ldots\ldots (1)$$

Model 2 : This model is the same as Model 1 except that lead manager reputation is measured on the basis of number of SME IPOs organized by the lead managers.

$$IR = \beta_0 + \beta_1(AGE) + \beta_2\,(SUB) + \beta_3\,(INVIP) + \beta_4 \ln\,(SIZE) + \beta_5\,(LD) + \beta_6\,(PIPH) + \beta_7\,(LMREPTOP3) + \beta_8\,(MKTCOLD) + \beta_9\,(SENTPOS) + \beta_{10}\,(SECMAN) + \beta_{11}\,(SECFIN) + \beta_{12}\,(SECTRADE) + \beta_{13}\,(SECIT) + \beta_{14}\,(SECCONS) + \varepsilon_i \quad \ldots\ldots (2)$$

Analysis and Results

The descriptive statistics and frequency distribution of SME initial public offerings are depicted in Table 6 and Table 7.

Table 6. Descriptive Statistics of the Variables Employed in the Study of the Original Sample of 176 SME IPOs

Variables	*N* Stat.	Range	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
		Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Std. Error
IR	176	269.25	–28.000	241.25	8.657	24.708	6.051	0.183	49.845	0.364
AGE	176	32.0	1.0	33.0	11.307	7.6798	0.752	0.183	–0.243	0.364
SUB	176	54.292	0.698	54.990	2.195	4.7322	8.978	0.183	92.580	0.364
IP	176	350.00	10.00	360.00	33.544	38.885	4.692	0.183	31.322	0.364
SIZE	176	48.310	1.190	49.500	7.948	7.769	2.686	0.183	8.944	0.364
LD	176	15.0	4.0	19.0	12.364	2.9147	–0.371	0.183	–0.696	0.364
PIPH	176	73.62	0.00	73.62	52.7601	18.114	–0.570	0.183	–0.868	0.364

Table 7. Frequency Distribution and Initial Returns of the SME IPOs Based on Issue Characteristics

Variable	Categorization	No. of IPOs (Frequency)	Initial Returns (%)
Age	Q1	48	9.31
	Q2	42	9.997
	Q3	42	5.124
	Q4	44	10.04
Subscription	Q1	44	3.064
	Q2	48	7.4
	Q3	42	5.676
	Q4	42	18.934
Issue Price	Q1	45	8.43
	Q2	44	15.94
	Q3	51	7.46
	Q4	36	1.744
Issue Size	Q1	44	7.78
	Q2	44	6.043
	Q3	44	10.485
	Q4	44	10.32
Listing Delay	Q1	51	3.17
	Q2	37	10.731
	Q3	49	8.65
	Q4	39	13.875
Post-Issue Promoters' Holding	Q1	44	9.421
	Q2	44	14.783
	Q3	44	4.1
	Q4	44	6.325

Lead Manager Reputation	Top 5	87	7.557
(Based on total proceeds of issues)	Others	89	9.732
Lead Manager Reputation	Top 3	76	7.902
(Based on number of issues)	Others	100	9.231
IPO Market Condition	Hot	134	8.963
	Cold	42	7.68
Market Sentiment	Positive	100	9.178
	Negative	76	7.972
Sector	Manufacturing	57	7.066
	Financial & Insurance activities	27	12.397
	Wholesale & Retail Trade	33	5.739
	Information, Communication,& Education	18	7.208
	Construction & Real Estate	16	4.169
	Others	25	16.014

(1) Testing Assumptions of OLS Regression

(i) Detection of Outliers and Influential Cases : In the study, two data points stand out as having large residuals, namely : GCM Securities Ltd. and Max Alert Systems Ltd. Thus, these two outliers are deleted from the regression model to produce unbiased results.

(ii) Test for Multicollinearity : Table 8 shows that across both the models, the variance inflation factor (VIF) values

Table 8. Collinearity Statistics for Regression Models 1 and 2

	Collinearity Statistics Model 1			Collinearity Statistics Model 2	
VARIABLES	**TOLERANCE**	**VIF**	**VARIABLES**	**TOLERANCE**	**VIF**
AGE	0.874	1.144	*AGE*	0.870	1.150
SUB	0.883	1.133	*SUB*	0.881	1.135
INVIP	0.520	1.925	*INVIP*	0.520	1.922
LNSIZE	0.520	1.924	*LNSIZE*	0.509	1.963
LD	0.818	1.223	*LD*	0.821	1.219
PIPH	0.672	1.489	*PIPH*	0.642	1.558
LMREPTOP5	0.741	1.350	*LMREPTOP3*	0.708	1.412
MKTCOLD	0.914	1.094	*MKTCOLD*	0.910	1.099
SENTPOS	0.862	1.160	*SENTPOS*	0.855	1.169
SECMAN	0.405	2.469	*SECMAN*	0.404	2.474
SECFIN	0.515	1.941	*SECFIN*	0.515	1.940
SECTRADE	0.474	2.111	*SECTRADE*	0.476	2.100
SECIT	0.588	1.700	*SECIT*	0.586	1.708
SECCONS	0.614	1.629	*SECCONS*	0.614	1.628

Table 9. Heteroskedasticity Tests for Models 1 and 2

Heteroskedasticity Test : Breusch–Pagan–Godfrey					
	Model 1	**Model 2**		**Model 1**	**Model 2**
F-statistic	0.961	0.971	Prob. *F*(14,159)	0.496	0.485
Obs**R*-squared	13.574	13.705	Prob. Chi-Square(14)	0.482	0.472
Heteroskedasticity Test : White					
F-statistic	0.854	0.864	Prob. *F*(14,159)	0.609	0.598
Obs**R*-squared	12.175	12.307	Prob. Chi-Square(14)	0.592	0.582

Table 10. Autocorrelation Test for Regression Models 1 & 2

Model	Dependent Variable	Durbin–Watson Statistic
1	*IR*	2.046
2	*IR*	2.040

of most of the regressors are less than 2 and the tolerance levels are well above 0.20. Therefore, it can be concluded that there is no major problem of multicollinearity.

(iii) Test for Heteroscedasticity : In the study, the Breusch–Pagan–Godfrey test and White's heteroscedasticity test are employed using EViews 10. By looking at the *p*-values in Table 9, it can be said that there is not enough evidence to reject the null hypothesis of homoscedasticity.

(iv) Test for Autocorrelation : In the study, the Durbin–Watson test is used to test for serial correlations between errors. As shown in Table 10, the Durbin–Watson statistic for both regression models is very close to 2. This indicates that there is not a major problem of autocorrelation in the sample. are well above 0.20. Therefore, it can be concluded that there is no major problem of multicollinearity.

(2) Determinants of Listing Day Performance of BSE SME Initial Public Offerings : Empirical results for Models 1 and 2 indicate that the taken explanatory variables collectively explain 19.1% and 19.7% of the variation in initial raw returns (underpricing) (see Tables 11 and 13). The *F*-statistic for both the models is highly significant at the 1% level of significance. This shows that the regression models provide a good fit to the data.

(I) Age and Initial Raw Returns : At the 10% level of significance, there is enough evidence to accept H1 for both Models 1 and 2. As shown in Tables 12 and 14, the negative coefficient estimates of AGE indicate that young SME

Table 11. Summary and ANOVA of Model 1

R	0.437
R-Square	0.191
Adjusted *R*-Square	0.119
Standard Error of the Estimate	12.964
F-statistic	2.674***
Probability (*F*-statistic)	0.002

Note. *** Significant at 1% level of significance.

Table 12. Estimates of Parameters of Model 1 and Their Significance

Dependent Variable : Initial Return (*IR*)

Sample Size (*n*) : 174

	Unstandardized Coefficients		Standardized Coefficients	Sig. (*p*-value)
	B	**Std. Error**	**Beta**	
Constant	–8.065	8.886	-	0.365
AGE	–0.239	0.137	–0.133*	0.082
SUB	0.548	0.220	0.189**	0.014
INVIP	94.122	46.151	0.202**	0.043
LNSIZE	2.807	1.724	0.161	0.106
LD	0.885	0.374	0.187**	0.019
PIPH	–0.080	0.066	–0.105	0.230
LMREPTOP5	3.339	2.284	0.121	0.146
MKTCOLD	–3.233	2.422	–0.100	0.184
SENTPOS	4.518	2.141	0.162**	0.036
SECMAN	–2.733	3.290	–0.093	0.407
SECFIN	–7.577	3.841	–0.196*	0.0503
SECTRADE	–3.574	3.643	–0.102	0.328
SECIT	–4.277	4.208	–0.095	0.311
SECCONS	–7.455	4.340	–0.156*	0.088

Note. *** Significant at 1% level of significance; ** Significant at 5% level of significance; * Significant at 10% level of significance.

Table 13. Summary and ANOVA of Model 2

R	0.443
R-Square	0.197
Adjusted *R*-Square	0.126
Standard Error of the Estimate	12.916
F-statistic	2.779***
Probability (*F*-statistic)	0.001

Note.*** Significant at 1% level of significance.

firms, which are supposed to be riskier, underprice their new issues more in order to compensate the investors for undertaking risk. Age is one of the typical proxies for ex-ante uncertainty as it reflects the operational history of a firm. The more established firms, which are older, have lower ex-ante uncertainty and are less underpriced. This is consistent with the hypothesis that IPOs with greater uncertainty will be underpriced more (Rock, 1986). Similar findings were also reported by Sehgal and Singh (2008) for mainline IPOs.

(ii) Subscription and Initial Raw Returns : At the 5% level of significance, there is enough evidence to accept H2 for both Models 1 and 2. The significant positive coefficient estimates of SUB show that the SME IPOs which

Table 14. Estimates of Parameters of Model 2 and Their Significance

Dependent Variable : *IR*

Sample Size (*n*) : 174

	Unstandardized Coefficients		Standardized Coefficients	Sig. (*p*-value)
	B	**Std. Error**	**Beta**	
Constant	–7.496	8.829	-	0.397
AGE	–0.250	0.137	–0.140*	0.069
SUB	0.538	0.220	0.185**	0.016
INVIP	95.600	45.943	0.205**	0.039
LNSIZE	3.119	1.735	0.179*	0.074
LD	0.881	0.372	0.186**	0.019
PIPH	–0.095	0.067	–0.125	0.159
LMREPTOP3	4.288	2.346	0.154*	0.069
MKTCOLD	–3.439	2.418	–0.106	0.157
SENTPOS	4.273	2.141	0.153**	0.048
SECMAN	–2.908	3.281	–0.099	0.377
SECFIN	–7.632	3.826	–0.198**	0.048
SECTRADE	–3.752	3.619	–0.107	0.301
SECIT	–4.666	4.202	–0.103	0.268
SECCONS	–7.894	4.324	–0.166*	0.070

Note. *** Significant at 1% level of significance; ** Significant at 5% level of significance; * Significant at 10% level of significance.

are more oversubscribed provide higher listing day returns. This is because a high subscription rate indicates high demand for the issue. However, since the number of shares offered is limited and the investors' demand is not fully met, there might be a lot of buying interest on the listing day, as a result of which they value the issue more (in terms of high closing price on the listing day). Positive relationship between subscription and initial returns supports the winner's curse hypothesis (Rock, 1986), which shows oversubscription of good issues by all investors. Similar findings were reported by Sehgal and Singh (2008) as well as Singh and Kumar (2012). Jain and Padmavathi (2012) provided evidence supporting the signalling hypothesis in the Indian capital markets. They found that underpricing increases with high subscription that signals high value of a firm in the market.

(iii) Issue Price and Initial Raw Returns : At the 5% level of significance, there is enough evidence to accept the hypothesis H3, and hence, it can be concluded that there is a significant relationship between issue price and initial listing day returns of SME IPOs. This holds true for both Models 1 and 2. SME issues with lower offer price have higher listing day returns compared to SME issues with higher offer price. This is consistent with the mainline IPO literature which documents greater underpricing by firms offering their IPOs at lower issue price. A lower issue price also leaves more room for investors to earn higher returns on the listing day.

(iv) Issue Size and Initial Raw Returns : On the basis of the empirical results shown in Table 12 for Model 1, we fail to accept the hypothesis H4. In contrast, the results of Model 2 show that at the 10% level of significance, there is a

significant relationship between issue size and initial listing day returns of SME IPOs. As shown in Table 14, the coefficient estimate of LNSIZE implies that a 1% increase in issue size of the SME IPO would result in a 0.03 (3.119/100) percentage point increase in the initial listing day returns. Thus, SME issues with higher issue size have higher listing day returns. This finding contradicts a large section of existing literature on mainline IPOs. A possible reason for this positive relationship could be that large-sized issues create greater investor interest, and therefore, high investor demand. They may create positive sentiments towards the SME offerings, and hence, a greater demand on the listing day leading to higher initial returns.

(v) Listing Delay and Initial Raw Returns : At the 5% level of significance, there is enough evidence to accept the hypothesis H5, and hence, it can be concluded that SME IPOs that take more time to list after the offering are more underpriced (provide higher initial returns) as compared to those for which the time gap between offer and listing is less. This holds true for both Models 1 and 2 as shown in Tables 12 and 14. These results are in line with the findings of Mok and Hui (1998), who argued that underpricing increases as listing delay increases. This is because the market begins revising its expectation about the IPO firm during this period, resulting in higher uncertainty and investors demanding higher initial returns. Besides, investors also must be compensated for the longer duration of illiquidity of their stocks due to long listing delay. Pande and Vaidyanathan (2007) found that a one day's delay in listing would increase the underpricing by 2.88% as investors demand more premium for their locked-in money.

(vi) Lead Manager's Reputation (Based on Number of Issues) and Initial Raw Returns : At the 10% level of significance, there is enough evidence to accept H7(b), and hence, it can be concluded that there is a significant relationship between lead manager's reputation (based on number of issues) and initial listing day returns of SME IPOs. The significant positive coefficient of the dummy variable suggests that the initial raw returns of SME IPOs that are managed by the 'Top-3' lead managers is significantly higher relative to those of IPOs managed by the 'Other' lead managers (reference category), holding the other predictor variables constant. Hoberg (2007) revealed for a sample of U.S IPOs from 1984–2000 that among established underwriters, those that underpriced more benefited by experiencing growing market share. Liu and Ritter (2011) also claimed that U.S. IPOs were more under-priced when their underwriters had high quality and more industry expertise.

(vii) Market Sentiment and Initial Raw Returns : At the 5% level of significance, there is enough evidence to accept the hypothesis H9 for both Models 1 and 2. The significant positive coefficient of the dummy variable suggests that the initial raw returns of SME IPOs that come when the market sentiment is 'positive' is significantly higher relative to those of IPOs that come when the market sentiment is 'negative' (reference category), holding the other predictor variables constant. Initial returns are expected to be higher when the market sentiment is positive because the market overvalues the stock on the listing day, thus increasing the gap between the offer price and the listing day close price.

(viii) Financial and Insurance Sectors and Initial Raw Returns : At 10% (Model 1) and 5% (Model 2) levels of significance, there is enough evidence to accept the hypothesis H11. Since financial institutions are monitored by regulatory agencies, the ex-ante uncertainty problem about the value of the new SME issues is less severe at the time of an IPO as compared to the other non-regulated firms. Thus, the degree of underpricing is least for IPOs of financial SMEs (in Model 1) and lower relative to all except the construction sector (in Model 2). This argument is in line with the one used by Alli, Yau, and Yung (1994) who found that IPOs of financial institutions were significantly less underpriced than the IPOs of non-financial institutions.

(ix) Construction Sector and Real Estate and Initial Raw Returns : At the 10% level of significance, there is enough evidence to accept the hypothesis H14 for both Models 1 and 2. The creation of physical assets by this sector and the growth in construction activity during the sample period reduces the ex-ante uncertainty surrounding the issues brought by SMEs belonging to this sector. Thus, the degree of underpricing is lower for the construction sector IPOs relative to all others, except the financial sector (in Model 1) and the lowest of all (in Model 2).

It may be noted that on the basis of the empirical results shown in Table 12 and Table 14, we fail to accept the hypotheses H6, H7(a), H8, H10, H12, and H13, thereby implying the insignificance of impact of these variables on initial listing day returns of SME IPOs.

Summary, Conclusion, and Implications

The study primarily focusses on IPOs of equity shares made in India and listed on the SME platform of Bombay Stock Exchange (BSE). The listing day performance of SME IPOs is assessed from the initial raw returns provided by it on the listing day. The results show that, on an average, SME IPOs provide positive returns on the listing day. This evidence is in line with that of mainline IPOs as well as with international experience. The results across both the models show that young SMEs, which are supposed to be riskier, underprice their new issues more in order to compensate the investors for undertaking risk. Further, the results show that SME issues with lower offer price have higher listing day returns compared to SME issues with higher offer price. Pandey and Pattanayak (2018) also concluded that among the firm-specific factors, firm age and issue price significantly influenced the level of underpricing.

SME IPOs which are more oversubscribed provide higher listing day returns. There is a positive impact of listing delay on listing day returns, indicating that SME IPOs that take more time to list after the offering are more underpriced (provide higher initial returns). The positive coefficient of the variable 'market sentiment' implies that the initial returns are expected to be higher when the market sentiment is positive.

SME issues with higher issue size have higher listing day returns compared to SME issues with lower issue size. However, this holds true only for regression Model 2. Another important conclusion that can be drawn from this study is that high reputation underwriters underprice more (when reputation is measured based on number of issues managed). A possible reason behind this is that it is mandatory for SME IPOs to be 100% underwritten by lead managers. As the high-reputation lead managers are managing a large number of issues, they price it in such a way that they are not burdened by the responsibility of buying the unsubscribed portion in future. Thus, underpricing is done to ensure that the SME issue is a success and lead managers do not lose due to under subscription.

For the benefit of IPO investors and firms, SEBI has made continuous efforts to reduce the IPO listing timeline over the years. Recently, SEBI made plans to further reduce the IPO listing delay to 4 days from 6 days in order to minimize the investors' exposure to market volatility. One of the most important implications of this study is that it strengthens the motive behind SEBI's initiatives to reduce the issue listing time. The more the time lag between the issue closing date and listing date, the greater is the speculation about the IPO during this period resulting in greater deviations from the true intrinsic value of the share. Thus, in order to reduce this problem, steps should be taken by the regulators to shorten the listing delay.

Limitations of the Study and Directions for Future Research

Other explanatory variables like firm size (measured by total assets prior to going public), method of pricing, type

of sale, etc. can also be incorporated in the regression model to test their impact on listing day returns. The sample period under the study covers over 5 years ; so, further studies can extend this period and study a larger sample of SME IPOs.

One can study the impact of corporate governance on SME IPO underpricing as examined by Singh and Maurya (2018) for mainline IPOs. Other factors like dividend yields and IPO grading as studied by Singh, Kalra, and Jham (2018) for mainline IPOs can be extended to SME IPOs. Moreover, the return performance of SME IPOs vis-à-vis the market index can also be evaluated as done by Jindal (2017) for mainline IPOs listed on NSE. In addition to this, the long-run price performance of SME IPOs over a period of 3 and 5 years and their determinants can also be examined.

Authors' Contribution

Dr. Amit Kumar Singh conceived the idea and developed the research design to undertake the empirical study. Ashween Anand collected and analyzed the data as well as conducted numerical computations using SPSS 23.0 and EViews 10. Dr. Amit Kumar Singh verified the analytical methods and supervised the findings of this study. Both the authors discussed the results and contributed to the final manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

Funding Acknowledgement

The authors received no financial support for the research, authorship, and/or for the publication of this article.

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