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Impact of Risk Disclosures on IPO performance: Evidence from India

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ABSTRACT

The main **aim** of the paper is to explore the performance of Indian IPOs in the context of risk disclosures in the offer documents. For the purpose of assessing the impact of risk disclosure factors on initial returns, subsequent returns and post issue risk of IPOs, the study has implemented ordinary least square regression. The study has analysed 109 IPOs that were listed in two main Indian stock exchanges (BSE and NSE) from 2015–2019. Outcomes of the present study are contrary to the previous studies which showed that information disclosure reduces the asymmetry, which is touted as the main reason for underpricing, the present study did not find any association between risk disclosures and underpricing. Quantitative risk measures showed positive association with 1-year returns, but qualitative measures failed to show any association. The post issue risk of the firms showed positive association with external risk factors listed in prospectus and negative association with liquidity. The results of this study are useful for the investors as based on the results they can make decisions about investing in Indian IPOs. Besides, the managers of issuing companies and lead managers of issues can use the results of this study to improve the pricing of issues. To the best of the authors' knowledge no study has been done before in the Indian context which is specific to risk disclosures (quantitative and qualitative measures) and IPO performance. The present study seeks to fill this gap and contribute to the existing literature.

Keywords: risk disclosure; IPO; initial return; subsequent return; risk; India

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INTRODUCTION

In the emerging economy of India, the financial markets are also growing rapidly. The global pandemic caused by COVID-19 led to a slump in the market in the initial phase, in 2020, but nonetheless, the markets recovered in the later part of the year. Especially, the Indian stock markets showed great recovery with the stock markets achieving their lifetime highs in January 2021. This sentiment of stock markets was visible in the Initial Public Offering (IPO) market as well, which showed strong momentum in late 2020 and early 2021. The number of IPOs in the last quarter of 2020 increased by 100 percent as compared to the last quarter of 2019. In terms of the number of IPOs, Indian stock markets ranked 9th in the world, in the year 2020 [1]. In 2021, till 20th March, 10 mainboard IPOs got listed on the Indian stock exchanges. On average, each of these IPOs got oversubscribed 16 times by the retail individual investors.[1] This shows high involvement of even retail investors in the Indian stock markets. To safeguard investors' interests and to boost their confidence, the Indian Government has created certain laws and rules for IPOs. Mainly, The Companies Act, 2013, Securities and Exchange Board of India's (SEBI) ICDR (Issue of Capital and Disclosure Requirements) regulations of 2009 and SEBI (Listing Obligations and Disclosure Requirements), Regulations 2015 govern the new issues as well as the later operations of the listed companies. When a company comes with an IPO, information about its operations and performance is not publicly available. It is made available through offer documents like prospectus, which are made and presented as per the above mentioned rules and

[1] Moneycontrol (2021): IPO historic table, available at: IPO Historic Table — IPO listing, IPO market, IPO issue, Subscription (moneycontrol.com).

laws, so that the prospective investors can make an informed decision. Investors' interest and confidence in an IPO can be judged from the subscription rate and from the prices after listing. From the 10 IPOs that got listed till 20th March 2021, the average listing day gains were more than 37 percent. This means the offer prices found through the book building process were around 37 percent less than the price that the investors decided on the first day of listing. Some authors have attributed this trend of positive first day returns to the difficulty faced by the issuers and underwriters in setting IPO prices, which makes them 'underprice' the issues, leading to this apparent error in pricing [2]. K.W Hanley., G. Hoberg [3] showed that quality and substantial disclosure of information in the prospectus reduces pricing error of IPOs.

In India, SEBI ICDR regulations of 2009 detail the provisions and conditions of different types of public issues as well as the disclosure requirements in the offer documents. Main contents of the different offer documents (like red herring prospectus, prospectus and shelf prospectus) are the cover page, risk factors, introduction of the issuer, objects of the issue, financial information, management's discussion and litigation and defaults[1]. Many past studies have been conducted to study the IPOs performance and many have studied the impact of information disclosure on IPO performance [4–6]. Relatively few studies have specifically focused on risk disclosures and IPO performance [7–8]. The purpose of the current paper is to examine the performance of Indian IPOs in the light of risk disclosures in the offer documents. The first objective is to investigate whether the risk disclosures impact the pricing or initial returns of the IPOs. Secondly, the comprehensiveness of the risk disclosures is judged by testing their impact on long term returns. Finally, the relationship between risk disclosures in prospectus and the subsequent market measures of risk is examined so that the investors can use the risk variables from the prospectus as proxy for market measures of risk. Additionally, reasons for underpricing are also explored considering the relationship of initial returns with some other offer related factors.

The remainder of the paper is structured as follows: Section 2 discusses the review of literature; Section 3 explains the sample and statistical techniques used for empirical analysis; Section 4 discusses the findings of the analysis; Section 5 concludes the study and gives out the implications; and Section 6 details the limitations and future scope of the study.

REVIEW OF LITERATURE

Much research has been done in the area of IPOs. The review of past studies is organised in the following three sections.

Studies about short term performance

Many previous studies have tried to find out the reasons for the listing gains caused by IPO underpricing, i.e., issue price being lower than the price on the 1st day of listing of shares. This has been explained with the help of 'asymmetric information'. As per this phenomenon, the issuers of shares, the investors and the underwriters, all have certain information that the other parties do not. This gives them an undue advantage in the price discovery process in an IPO. K.B. Libison and N.V. Narasimham [9] empirically tested for information asymmetry in the Indian market. They bifurcated the IPOs by the level of holdings by sophisticated (informed investors like foreign institutional investors) and unsophisticated investors (like domestic retail investors). They concluded that the IPOs which had higher holdings by informed investors performed better in the post IPO market, as compared to the ones which had lower holdings because the informed investors have access to more information. They suggested retail investors to stay away from those IPOs which have zero or low holdings by the informed investors. This study supports the information asymmetry explanation. This information asymmetry has proved to be associated with the underpricing of IPOs [10]. Underpricing of IPOs is a huge cost for the issuers, which they can try to reduce. Past studies have shown that information disclosure reduces information asymmetry leading to a reduction in underpricing [11–12]. J.M. Friedlan [13] showed that the firms which showed more detailed information in the prospectus had lower underpricing. A similar relationship was obtained with underpricing when V. Jog, B.J. McConomy [14] studied the voluntary disclosure of management forecasts; and R.P. Beatty, I. Welch [15] studied the number of risk factors mentioned in prospectus. A.J. Leone *et al.* [16] reported that more specific disclosure of the use of IPO proceeds leads to reduction in underpricing. Following these studies, it can be postulated that if the risk disclosures are more in the offer documents of IPOs, information asymmetry will be reduced and in turn, underpricing will be reduced. Few studies have shown a reverse relationship as well. J.L.M. Van

Der Zahn *et al.* [17] studied the relationship between intellectual capital disclosure and initial returns and showed a positive relationship between the two. They attributed this relationship "fads" or over optimistic behaviour of investors towards the IPOs causing high initial returns. Then there is a third prediction relating to the relationship between underpricing and risk factor disclosures. Some researchers predict no relationship between the two because of the lack of informativeness of the disclosures. They argue that the managers coming out with IPOs may themselves not be fully aware of all the possible risks to the firm. Further, the managers may try to withhold negative information from their prospective investors [18]. The managers may also choose to withhold information to avoid disclosing any proprietary information [19].

Besides the prospectus disclosures, some studies have tried to find out other reasons for underpricing. H.W. Leow and W.Y. Lau [20] conducted research on 310 IPOs listed on the Malaysian stock exchange from 2006 to 2016. Empirical analysis of the first three days' returns showed that oversubscription was positively related to initial return while trading volume showed no relationship. Venture capitalists are believed to value the firms on their true intrinsic value and hence it's expected that the IPOs backed by venture capitalists will not be underpriced. B. Kirkulak [21] compared the initial returns of Venture Capitalists (VC) backed firms with non-venture capitalists backed firms of Japan. On the basis of 433 IPOs listed from 1998 to 2001, the study revealed no significant difference between the two; thus, disproving the "VC certification hypothesis". P.K. Samanta *et al.* [22] calculated the Market Abnormal Excess Returns (MAER) to measure the short-term performance of Indian IPOs between 2009 and 2013. Their analysis showed that MAER increased in the period from 2009 to 2013 and infrastructure IPOs performed better than other firms. They also tried to find out the impact of issue size, price and subscription duration on the short term returns but found no statistically significant relationship.

Studies about long term performance

Not only underpricing, but the disclosures can also have spillover effects on the subsequent performance of IPOs. Past research shows that most IPOs perform well on the first day of listing but their returns become negative over a period of time. J.R. Ritter [23], T. Loughran and J.R. Ritter [24], V. Jog and B.J. McConomy [14], all support this observation. J.R. Ritter [23] attributed the negative long-term performance to sheer bad luck, over optimism of investors about IPOs (fads) and mismeasurement of risk. Many studies have been able to relate the IPO prospectus disclosures with their long run performance. M. Sherif *et al.* [25] showed that the motives for raising capital through IPO, disclosed in the prospectus, affect the initial as well as subsequent performance of the companies in the Thailand stock markets. Similarly, T. Arnold *et al.* [26] in their study on US IPOs from 1999 to 2004, revealed a significant relationship between prospectus disclosures of risk and initial returns, long run return and return volatility. J.L.M. Van Der Zahn *et al.* [17] studied the long term performance of IPOs with respect to intellectual capital disclosure in the prospectuses of Singapore's 228 IPOs from 1997 to 2003. Their empirical analysis revealed a negative relationship between the two. They explained this with the over optimism of investors for companies that disclosed more information about the intellectual capital. Post issue, when the expectations aren't immediately met, the investors discount their long term prices. Similar results were found in Japan, as the IPOs underperformed in the long run [21].

Studies specific to risk disclosures

Offer documents give detailed information about the business of the offering company. Potential investors can make an informed decision using the information from the offer documents. To judge the riskiness of any opportunity, traditional measures like ratios of profitability, liquidity and operating efficiency are considered. However, the recent literature shows the usage of qualitative measures of risk. R.P. Beatty and J.R. Ritter [11] were probably the first ones to use qualitative information obtained from the prospectus. They used the number of "uses of proceed" to estimate ex ante uncertainty. R.P. Beatty and I. Welch [15] counted the captions in the risk factors section of prospectuses to measure the cautiousness of management. R. Kuswanto [8] used both qualitative as well as quantitative measures of risk and studied their impact on the initial return of IPOs in the Indonesian stock exchange. The results showed negative impact of risk disclosures on initial return. S.H. Ng and C.S. Lee [27] used content analysis for risk measurement. They used categorical principal component analysis to obtain

risk measures which they used to see whether they reflect the actual risks. For this, they regressed the post issue measures of market risk (total risk, systematic risk and failure risk), on the risk measures obtained from prospectuses. The prospectus-based measures of risk were unable to predict market measures of risk. S. Wasiuzzaman *et al.* [7] also conducted a content analysis on the prospectuses of 96 Malaysian IPOs to measure overall risk, internal risk, external risk and investment risk. Then they analysed their impact on initial returns using regression. The regression results revealed that the firms which disclosed more risk generated higher initial returns, however, only the investment risk was found to be significant. R. Ding [28] did a content analysis on prospectuses to measure the informativeness of risk disclosures. This was achieved by finding out the disclosures that were different from the standard disclosures done by all the firms. They found out that as the informativeness of risk disclosures increased, the underpricing, as well as the uncertainty, reduced. Exactly same results were shown by X.C. Hao and Z.X. Su [29].

RESEARCH GAP

As discussed in the review of literature various studies in the past have been conducted to study the IPOs performance and many have studied the impact of information disclosure on IPO performance [4–6]. Relatively few studies have specifically focused on risk disclosures and IPO performance [7, 8]. As far as studies in India are concerned, there are some that have focused on short term and long term performance of Indian IPOs [30, 31]. There are some studies that have sought to explain the reasons for underpricing [32]. However, to the best of the authors' knowledge, no study has been done before in the Indian context which is specific to risk disclosures and IPO performance. The present study seeks to fill this gap and contribute to the existing literature. With this background, the hypotheses for the study can be listed as follows:

$H1(a, b, c)_0$: liquidity does not affect initial return, subsequent return and market measure of risk;

$H2(a, b, c)_0$: sales growth does not affect initial return, subsequent return and market measure of risk;

$H3(a, b, c)_0$: earnings variability does not affect initial return, subsequent return and market measure of risk;

$H4(a, b, c)_0$: cash flow volatility does not affect initial return, subsequent return and market measure of risk;

$H5(a, b, c)_0$: internal risk factors do not affect initial return, subsequent return and market measure of risk;

$H6(a, b, c)_0$: external risk factors do not affect initial return, subsequent return and market measure of risk;

$H7(a, b, c)_0$: offer related risk factors do not affect initial return, subsequent return and market measure of risk;

$H8(a, b, c)_0$: total risk disclosure does not affect initial return, subsequent return and market measure of risk;

$H9(a, b, c)_0$: disclosure quality does not affect initial return, subsequent return and market measure of risk;

$H10(a)_0$: offered capital does not affect initial return;

$H11(a)_0$: market return does not affect initial return;

$H12(a)_0$: market risk does not affect initial return;

$H13(a)_0$: subscription does not affect initial return.

RESEARCH METHODOLOGY

The present section set forth the objectives, research model, variables, empirical models and data source used for the research.

Objectives and Research Model

The main aim of the paper is to explore the performance of Indian IPOs in the context of risk disclosures in the offer documents. The sub-objectives are as follows:

- To examine whether the risk disclosures impact the pricing and hence initial returns of the IPOs.
- To examine whether the risk disclosures impact the long term returns (one year returns post issue).
- To examine whether the risk disclosures impact the *ex post* market measure of risk.
- To examine whether there are some other offer specific variables that impact the pricing or initial returns of the IPOs.

In order to achieve the aforementioned objectives of the paper, research model has been framed (*Fig.*).

Description of Variables

The variables used to investigate the relationships between risk disclosure factors and returns and market risk are presented in *Table 1*. The study has used three predicted variables, namely, initial return, subsequent return and market measure of risk. Post issue share prices are used in the calculation of these variables. *Initial return* is calculated as the percentage change in the first day listing price of a company from its offer price. T. Arnold *et al.* [26], S. Wasiuzzaman

[7] and R. Kuswanto [8] followed this same method of calculating initial returns. *Subsequent returns* are calculated as the percentage change in price from 1st day of listing to the last day of 1st year. In other words, it is the holding period return from the 1st day to the last day of the year [26]. As can be inferred from the literature, information asymmetry and over optimism of investors play a huge role in IPO underpricing and long run performance of IPOs. Higher information disclosure should be able to reduce the asymmetry and should match the intrinsic and actual values of shares. Hence, it is expected that initial returns will be negatively related to risk disclosures and no significant relation between subsequent returns and risk disclosures will be found. This is based on the hypothesis that if the risk disclosures are comprehensive, then the initial returns will reflect this risk and hence the long term returns will be unrelated to the risks disclosed in the prospectus. Further, the performance of stocks after listing should depend on actual performance of firms in the respective time periods [26]. *Market measure of Risk* (*ex post* measure of risk) is the standard deviation of daily returns for 11 months after the first month of listing. This measures of the risk of the stock after the IPO. Since it is calculated on the basis of market price after the issue, it is named as the market measure of risk. The first month is excluded so that the initial volatility is settled and doesn't distort the real risk [26]. A positive relationship between risk disclosure and the *ex post* measure of risk is expected. The firms that disclose more risk factors and show higher risk prior to the IPO are expected to turn out relatively riskier post the issue. If the information related to risk, in the prospectus, is not relevant or is insufficient, then the disclosures should not have any relation with the market measure of risk post issue [28].

The variables explaining risk disclosure measures are classified into quantitative measures, qualitative measures and offer related measures.

Quantitative measures

Four measures of risk are taken in this study — *liquidity* [8], *sales growth* [8], *earnings variability* [8, 33] and *cash flow variability* [33]. Liquidity, measured by the current ratio, shows the ability of a firm to meet its current liabilities using its current assets. Lower liquidity shows a riskier position. Sales growth measured by percentage change in sales in one year prior to issue, shows the revenue growth of a firm. Firms with good revenues growth are considered less risky. Earnings variability and cash flow variability are both measures to check the stability of business pre issue. Higher stability implies lower risk.

Qualitative measures

SEBI ICDR regulations require disclosure of *internal* as well as *external* risk factors for the company. The management must carefully assess the risk factors and disclose them in the offer document in the order of materiality for the benefit of the investors. They are further supposed to detail their risk management system. In the prospectus of each IPO, there is a section titled 'Risk Factors'. Generally, the companies list their risk factors in 3 categories: internal risk, external risk and risks related to the issue. The 'Internal Risk' covers all the risks specific to the business of the firm. 'External Risk' covers risks related to the industry the business operates in, the economy as well as the international factors that can have a bearing on the firm. The social and political factors are also listed in this section. '*Risks related to the issue*' includes the factors of risk for the investors if they invest in the offer. The 'Risk Factors' section of the prospectuses is used to formulate the measures of qualitative risk. The count of factors listed in each of the headings/categories are directly used to measure them individually [4]. To measure the *total risk disclosure*, the percentage of word count in 'Risk Factors' section to total word count in the whole prospectus is calculated [26]. There is a possibility that the companies might intentionally increase their number of risk disclosures. To control for the quality of these disclosures, the average number of words per listed factor is calculated as a measure of *Disclosure Quality* [26].

Other Offer Related Measures

Four offer related measures are considered for the present study. *Offered Capital* is the percentage of capital offered in the IPO to the existing issued capital. *Market Return* is measured by average daily returns of S&P BSE Sensex, for 3 months prior to the issue date. S&P BSE Sensex is India's 'most tracked bellwether index' and hence it is taken as the proxy for market. *Market Volatility* is the standard deviation of daily returns of S&P BSE Sensex. MARRTN and MARVOL are measures of market condition at the time of the IPO. *Subscription*

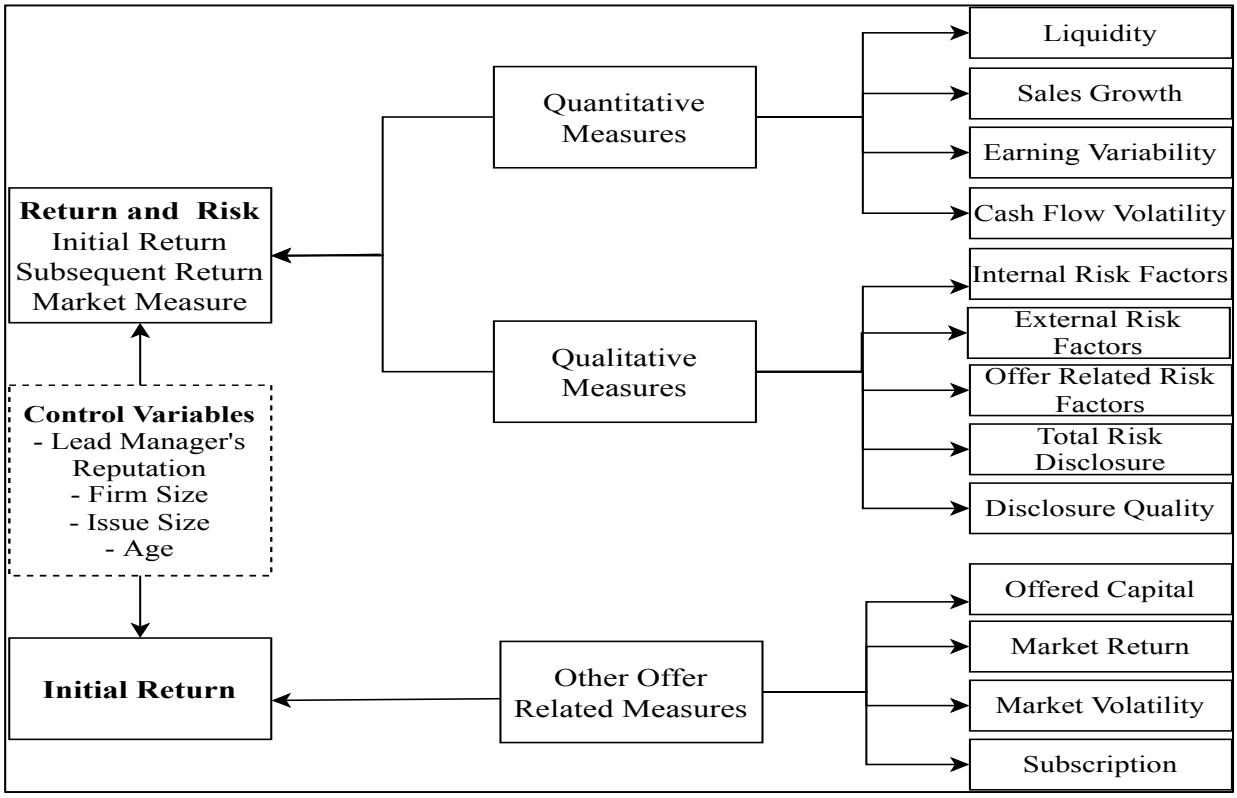

Fig. **Research Model**

Source: authors' compilation.

shows how many times the offer is subscribed. This shows the demand for the shares in the IPO.

Control Variables

The study has also incorporated four control variables so as to control their influence on returns and risk. In past studies, common control variables are firm size, firm age, offer size and lead managers' reputation [7, 34]. The calculations of these control variables are shown in *Table 1*.

Empirical Models

For assessing the impact of risk disclosure factors on initial returns, subsequent return and market measure of risk, the study has employed cross-sectional Ordinary Least Square (OLS) regression method. The present study tests four regression models. Model 1, 2 and 3 examine the impact of quantitative and qualitative measures of risk along with four control variables. To increase the robustness, the study also examines the impact of some other offer specific variables on initial returns of Indian IPOs. The following equations have been formulated to test the aforementioned relationships:

$$\textbf{\textit{Model 1:}}\ IR = \alpha + \beta_1(LIQ) + \beta_2(SG) + \beta_3(EV) + \\ + \beta_4(CFV) + \beta_5(IRF) + \beta_6(ERF) + \beta_7(ORRF) + \beta_8(TRD) + \\ + \beta_9(DQ) + \beta_{10}(LMREP) + \beta_{11}(SIZE) + \beta_{12}(ISSUESIZE) + \\ + \beta_{13}(AGE) + \varepsilon$$

$$\textbf{Model 2:}\ SUBRTN = \alpha + \beta_1(LIQ) + \beta_2(SG) + \beta_3(EV) + \\ + \beta_4(CFV) + \beta_5(IRF) + \beta_6(ERF) + \beta_7(ORRF) + \beta_8(TRD) + \\ + \beta_9(DQ) + \beta_{10}(LMREP) + \beta_{11}(SIZE) + \beta_{12}(ISSUESIZE) + \\ + \beta_{13}(AGE) + \varepsilon$$

$$\textbf{\textit{Model 3:}}\ MMR = \alpha + \beta_1(LIQ) + \beta_2(SG) + \beta_3(EV) + \\ + \beta_4(CFV) + \beta_5(IRF) + \beta_6(ERF) + \beta_7(ORRF) + \beta_8(TRD) + \\ + \beta_9(DQ) + \beta_{10}(LMREP) + \beta_{11}(SIZE) + \beta_{12}(ISSUESIZE) + \\ + \beta_{13}(AGE) + \varepsilon$$

$$\textbf{Model 4:}\ IR = \alpha + \beta_1(OFFCAP) + \beta_2(MARRTN) + \\ + \beta_3(MARVOL) + \beta_4(SUBSCRP) + \beta_5(LMREP) + \beta_6(SIZE) \\ + \beta_7(ISSUESIZE) + \beta_8(AGE) + \varepsilon$$

Where, α is constant term; $\beta_1 \ldots \beta_{13}$ are coefficient for explanatory variables; ε is the error term and other variables are discussed in detail above.

Table 1

List of Variables and their Description

Predicted Variables	Measurement	Description
Initial Return (IR)	(1st day closing price-offer price) / offer price	IR shows the short term/immediate performance of an IPO
Subsequent Returns (SUBRTN)	(Price at end of 12 months-Price at end of 1st day) / price at end of 1st day	Returns over one-year post issue excluding the initial returns, to gauge the subsequent performance of IPO after issue
Market Measure of Risk (MMR)	Standard deviation of daily returns for 11 months after 1st month of listing	After controlling for initial volatility, MMR represents the total risk of the company post issue
Explanatory Variables	**Measurement**	**Description**
Quantitative Measures		
Current Ratio (LIQ)	Current Assets / Current Liabilities	Current ratio is a measure of liquidity. A firm with high liquidity is believed to be less risky
Sales Growth (SG)	(Sales current year – Sales previous year) / Sales previous year	Higher growth in revenues shows good prospects of business and lesser risk
Earning Variability (EV)	Coefficient of variation of net income of 3 years prior to listing	More variations in earnings are risky for sustenance of business
Cash Flow Volatility (CFV)	Standard deviation of cash flow to total assets ratio calculated for 3 years prior to listing	High variations in cash flows puts the organization in a risky position
Qualitative Measures		
Internal Risk Factors (IRF)	Number of risks listed under this head in the "Risk Factors" section of the prospectus	Shows the risks related to the business
External Risk Factors (ERF)	Number of risks listed under this head in the "Risk Factors" section of the prospectus	Shows the risks external to the company, i.e. related to the economy
Offer Related Risk Factors (ORRF)	Number of risks listed under this head in the "Risk Factors" section of the prospectus	Shows the risks specific to the investors due to the issue
Total Risk Disclosure (TRD)	Percentage of word count in "Risk Factors" section to total word count of prospectus	Shows the total risk disclosure in every prospectus
Disclosure Quality (DQ)	Word count in "Risk Factors" section/ total number of risks listed in "Risk Factors" section	Average words per risk factor shows the quality of disclosure
Other Offer Related Measures		
Offered Capital (OFFCAP)	Percentage of offered capital in IPO to total issued capital	Shows whether the amount to be raised is significant for the offering company
Market Return (MARRTN)	Average of daily log returns of S&P BSE Sensex of 3 months prior to the date of issue	Shows the general market sentiment
Market Volatility (MARVOL)	Standard deviation of daily log returns of S&P BSE Sensex of 3 months prior to the date of issue	Shows the general market sentiment through daily variations in the market index
Subscription (SUBSCRP)	Percentage of total subscription received for the IPO to offered capital	Shows the investors' sentiment towards the IPO
Control Variables		
Lead Managers Reputation (LMREP)	Number of public issues handled by the lead managers in the past 3 years	The reputation of lead managers associated with the issue
Firm Size (SIZE)	Log of Total Assets	Size of assets held by each firm
Issue Size (ISSUESIZE)	Total issued capital in Rupees Crores	Total amount of capital to be raised by each company
Age (AGE)	Age of firm (in years) from date of incorporation to date of listing	Time period for which the company has been operating

Source: authors' compilation.

Data Collection

The study has considered IPOs listed in both NSE (National Stock Exchange) and BSE (Bombay Stock Exchange) for analysis. Only the mainboard IPOs are considered, and not the Small and Medium Enterprises (SMEs). S.K. Sharma and M.S. Wazal [35] compared the performance of Indian Mainboard IPOs and SME IPOs and showed that SME IPOs were more efficient in terms of pricing of issues. The present study seeks to find the reasons for inefficiencies in pricing of mainboard IPOs. Further, only the book-built IPOs are considered as book building is seen as a better way of issue as the price is discovered through the market mechanism. 122 IPOs were found, which satisfied these criteria. 13 IPOs were then excluded from the sample because of unavailability of data, and finally 109 IPOs formed the final sample size for the study. The year-wise number of IPOs is listed in *Table 2*. For calculation of initial return, subsequent return and market measure of risk, post issue share prices are used, which are retrieved from BSE and NSE websites. All the data for calculating measures of independent variables are collected from offer documents, mainly the prospectuses and issue advertisements. These documents are taken from the SEBI, BSE and NSE websites. Historical values of S&P BSE Sensex are retrieved from the BSE website and the return and volatility calculations are done, which are used as independent variables in the last regression model. Subscription values are retrieved from the money control website.

Table 2

IPO's per year

Year	No. of newly listed companies on BSE/NSE	Unavailability of Data	Final Sample Size
2019	16	3	13
2018	24	1	23
2017	35	6	29
2016	27	2	25
2015	20	1	19
Total	122	13	109

Source: authors' compilation.

FINDINGS AND DISCUSSION

Descriptive Statistics

Descriptive statistics are tabulated in *Table 3*. The table exhibits the total number of observations, mean, standard deviation, minimum and maximum values. It can be seen from the results that the average initial return from IPOs in the sample is 13.6 percent, while the average subsequent return is 12 percent. This result is contrary to most previous studies like J.R. Ritter [23] and T. Arnold *et al.* [26], which showed a negative long run return. This shows that the returns in the Indian IPOs have declined subsequently as compared to their initial returns, but have still been positive. The average of standard deviation of daily returns of IPOs post issue i.e., the market measure of risk is 2.5 percent. All the independent and control variables do not have any unusual patterns. An interesting aspect of the Indian new-issues market can be seen from the average subscription of 31.28. This shows that on average every IPO is oversubscribed to the extent of 31.28 times. Investors' great confidence can be gauged from this.

Correlation analysis

The correlation matrix between dependent and independent variables is displayed in Appendix. The correlation matrix shows no significant relationship between any variable and initial returns. However, subsequent returns show a significant negative correlation with risk disclosure quality, issue size and lead managers' reputation, while a significant positive correlation with market volatility. The firms' market measure of risk shows no correlation with any variable except a negative correlation with the issue size. Also, the association between independent variables can also be seen. High correlation among independent variables i.e., more than 0.8 or 0.9 is considered to create a problem of multicollinearity [36]. The findings clearly show that the highest degree of association is 0.590 between market volatility and market return which is less than the threshold limit. Hence, a conclusion can be drawn for no problem of multicollinearity in the models. In addition, Variance Inflation Factors (VIF) are also computed to verify multicollinearity among independent variables (*Table 4*).

Table 3

Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
IR	109	0.136	0.275	−0.681	1.277
SUBRTN	109	0.12	0.522	−1	1.844
MMR	109	0.025	0.009	0.002	0.061
LIQ	109	1.549	1.139	0.323	7.723
SG	109	0.35	1.212	−0.116	12.668
EV	109	0.528	2.181	−5.256	17.573
CFV	109	0.058	0.045	0.001	0.198
IRF	109	50.404	9.785	30	103
ERF	109	9.679	3.761	2	22
ORRF	109	8.349	6.63	3	72
TRD	109	0.085	0.015	0.047	0.119
DQ	109	311.769	45.643	169.386	431.606
OFFCAP	109	26.642	14.311	3.329	102.345
MARRTN	109	0	0.001	−0.002	0.002
MARVOL	109	0.008	0.002	0.005	0.013
SUBSCRP	109	31.288	46.73	0.76	248.51
LMREP	109	24.468	16.126	0	66
SIZE	109	9.607	1.278	6.841	13.153
ISSUESIZE	109	6.392	0.918	3.135	8.329
AGE	109	21.382	13.769	2.447	84.677

Source: authors' calculations.

Diagnostic Tests

Before running regression it is vital to apply diagnostic tests so as the accurate regression model is implemented to get appropriate results. To test heteroscedasticity, the study has used the Breusch-Pagan test by calculating the residuals of each model and then the impact of all explanatory variables has been seen on the predicted residuals of the models. The results of the test (*Table 5*) reveal that F-statistics is not significant and hence, the study fails to reject the null hypothesis and conclusions can be drawn that all the models have constant variance i.e., absence of heteroscedasticity [37]. Moreover, VIF scores have been calculated where if the VIF score is below 10 and tolerance i.e., 1/VIF is below 0.10 then there is no problem of multicollinearity in the models [38, 39]. The results clearly depict that there is no problem of multicollinearity.

Regression Analysis

To investigate the impact of quantitative risk measures extracted from prospectuses and qualitative risk measures formed on the basis of "Risk Factors" section of the prospectuses on IR, SUBRTN and MMR, OLS regression was implemented. As discussed earlier, the present paper has used four control variables namely; LMREP, SIZE, ISSUESIZE and AGE so as to control their influence on the short-term and long-term return and market risk measures. With a view to assessing the impact of risk disclosures, three regression models were developed. The findings of Model 1, 2 and 3 are tabulated in *Table 6*. Model 1, 2 and 3 tests the effect

on quantitative and qualitative measures of risk on IR, SUBRTN and MMR along with control variables. The results show that the overall model 1 is not fit as the F-statistics for the model is not significant at a 5 percent significance level. The explanatory power of the model is 9 percent which is quite low. The regression results show that no variable showed any significant relationship with initial returns. Hypotheses H1(a), H2(a), H3(a), H4(a), H5(a), H6(a), H7(A), H8(a) and H9(a) are not rejected. Previous researchers in finance believed that information asymmetry is the main reason for IPO underpricing. This means the prices that the offering company and the lead managers believe to be true and the prices that the investors believe to be true are different, because of information that some parties may possess while others do not. So, information disclosure should reduce the asymmetry and hence the initial returns. Past studies have empirically proved this [8, 11, 28]. Contrary to this belief, the present study did not find any association between risk disclosures and underpricing. A possible explanation is that when an IPO is priced, the already known risks are taken into consideration by the book running lead managers, so the disclosures do not affect investors' perceptions about pricing. Besides, some disclosures are statutory and some are standard disclosures done by all companies. So, this portion of risk disclosures is insignificant in the evaluation of risk by the investors. Another explanation for no relation is that the risk disclosures could be just meaningless and not informative. Reasons for this could be that the managers themselves aren't aware of the possible risks associated with their business, or they could purposely withhold negative information or they may withhold the risk information to eliminate the possibility of disclosing proprietary information along with it [28].

Model 2 expresses the relationship of subsequent returns (one year returns post issue) with quantitative and qualitative risk measures. The findings clearly show that the overall model is fit at a 5 percent significance level and risk disclosure measures explain about 13 percent of long-term returns. The results reveal that no qualitative measure of risk disclosure showed any association with subsequent returns. So, H5(b), H6(b), H7(b), H8(b) and H9(b) are not rejected. After the issue, the performance of a firm in stock markets is expected to be in line with its operating performance. Further, the risk disclosures in the prospectus are supposed to be imbibed in the offer price and first day stock price. So, the past performance and expected risks disclosed in the offer documents are not anticipated to be related to the subsequent returns after the issue [26]. The results are in line with the theory as most risk measures did not show a significant relationship with 1-year returns post the issue. Only sales growth showed a significant negative relationship and earnings variability showed a significant positive relationship. This means hypotheses H1(b) and H4(b) are also not rejected; while H2(b) and H3(b) are rejected. The results imply that quantitative measures of risk disclosed in the prospectus affect the subsequent returns positively. The finance historical records show that higher risk is rewarded with higher returns [40, p. 377]. In case of IPOs, it can be said that the investors are being compensated for the higher risk they assume when investing in risky ventures.

Table 4

Multicollinearity Test Results — VIF and Tolerance

Variables	VIF	1/VIF
LIQ	1.387	0.721
SG	1.15	0.87
EV	1.113	0.898
CFV	1.297	0.771
IRF	1.402	0.713
ERF	1.191	0.84
ORRF	1.261	0.793
TRD	1.361	0.735
DQ	1.851	0.54
OFFCAP	1.453	0.688
MARRTN	1.79	0.559
MARVOL	1.999	0.5
SUBSCRP	1.148	0.871
LMREP	2.067	0.484
SIZE	1.466	0.682
ISSUESIZE	2.009	0.498
AGE	1.247	0.802

Source: authors' calculations.

Table 5

Diagnostic Tests

Tests	Model 1		Model 2		Model 3		Model 4	
Breusch Pagan (Heteroscedas-ticity)	F-stats 0.90	Prob > F = 0.5543	F-stats 0.93	Prob > F = 0.5303	F-stats 0.52	Prob > F = 0.9056	F-stats 0.85	Prob > F = 0.5700

Source: authors' calculation.

Table 6

Regression Results for Model 1, Model 2 and Model 3

Independent Variables	Model 1 — IR		Model 2 — SUBSRTN		Model 3 — MMR	
	Coefficient (t-value)	Standard Error	Coefficient (t-value)	Standard Error	Coefficient (t-value)	Standard Error
Constant	−0.115 (−0.38)	0.303	1.158* (1.80)	0.644	0.046*** (4.35)	0.011
LIQ	0.043 (1.45)	0.029	0.023 (0.71)	0.033	−0.001* (−1.80)	0.001
SG	0.001 (0.10)	0.008	−0.028* (−1.82)	0.015	0.000 (−1.53)	0.000
EV	0.007 (0.96)	0.007	0.034*** (2.85)	0.012	0.000 (1.63)	0.000
CFV	−0.269 (−0.51)	0.531	−0.815 (−0.75)	1.082	0.024 (1.20)	0.020
IRF	−0.004 (−1.29)	0.003	−0.002 (−0.43)	0.005	0.000 (−1.06)	0.000
ERF	0.002 (0.27)	0.007	−0.017 (−1.18)	0.014	0.000*** (−0.37)	0.000
ORRF	−0.003 (−0.93)	0.003	0.001 (0.22)	0.005	0.000 (3.04)	0.000
TRD	2.035 (0.80)	2.543	4.311 (1.02)	4.224	−0.015 (−0.30)	0.050
DQ	−0.001 (−0.77)	0.001	−0.002 (−1.30)	0.002	0.000 (0.61)	0.000
LMREP	−0.002 (−0.87)	0.002	−0.004 (−1.01)	0.004	0.000 (0.55)	0.000
SIZE	0.012 (0.59)	0.021	0.003 (0.07)	0.048	0.001 (0.72)	0.001
ISSUESIZE	0.055 (1.63)	0.034	−0.058 (−0.87)	0.067	−0.004*** (−3.93)	0.001
AGE	0.000 (0.12)	0.002	−0.003 (−0.76)	0.004	0.000 (−0.92)	0.000
F-statistics	1.083		3.198		5.123	
Prob > F	0.383		0.001		0.000	
R-squared	0.096		0.132		0.183	
n	109					

*Note:*** p < 0.01, ** p < 0.05, * p < 0.1.

Source: authors' calculations.

Model 3 elaborates the relationship of the *ex post* market-based measure of risk, i.e. standard deviation of returns post the issue, with quantitative and qualitative risk measures from offer documents. The overall model is fit as the F-statistics is significant at a 5 percent significance level and the model explains about 18 percent of the market measure of risk. The coefficient of LIQ showed a negative association, ERF disclosed showed a positive association, other factors were found to be not significant. So, hypotheses H1(c) and H6(c) are rejected while all others related to the market measure of risk are not rejected. Also, out of the control variables, the

firms with a lower issue size of their IPOs showed higher risk in the market post issue. The results show that the internal risk factors, offer related risk factors, total risk disclosure and disclosure quality were considered irrelevant by the investors. They only valued the external risk factors, which resulted into higher risk post issue. Also, the investors considered firms with lower liquidity to be of higher risk even post issue. The rest of the pre issue quantitative risk measures did not affect the post issue risk of firms.

An additional regression model was run to explore more factors that could influence initial returns i.e., Model 4. In this model, some variables related to the offer were examined to study their relationship with initial returns. The overall model is fit at a 5 percent significance level and all the offer related factors along with control variables explain about 49 percent of initial returns. The results (*Table 7*) show that hypothesis H10(a) is rejected and percentage of capital offered to the existing issued capital (OFFCAP) shows a negative association with initial returns. This is an interesting result showing a peculiar feature of Indian IPOs. Many IPOs are not only done for the purpose of raising money but for other reasons also like improving the image of the company, improving its valuation and giving its managers a better bargaining position in negotiations [41]. The improved image also helps the firm to bring more issues later on, which can sell at high values. When the percentage of offered capital is low, it can be interpreted that the motive has been not as much of raising capital as much of improving the public image of the company and other such factors. In such cases, it is especially beneficial for the company if the issue is underpriced and there are huge initial returns. This creates a positive image of the company. Hence, firms with a lower percentage of offered capital are showing higher initial returns.

Further, hypothesis H13(a) is rejected and as expected, subscription percentage (SUBSCRP) shows a positive association with initial returns. High demand for the shares during subscription converts to high demand after issue, leading to high first day returns for the shareholders. Surprisingly, hypotheses H11(a) and H12(a) are not rejected and market sentiments (measured by MARRTN and MARVOL) do not affect the initial returns from IPOs, contrary to the results of previous researches [42]. Out of the control variables issue size shows a positive association with initial returns while LMREP, measured by the number of offers handled in the past 3 years, shows a negative association.

Table 7

Regression Results for Model 4

Independent Variables	Model 4 — IR		
	Coefficient	t-value	Standard Error
Constant	−0.271	−1.54	0.176
OFFCAP	−0.002*	−1.73	0.001
MARRTN	24.651	0.98	25.088
MARVOL	12.550	1.03	12.192
SUBSCRP	0.004***	6.85	0.001
LMREP	−0.002**	−2.03	0.001
SIZE	−0.006	−0.47	0.013
ISSUESIZE	0.057***	3.51	0.016
AGE	0.000	−0.06	0.002
F−statistics	12.736		
Prob > F	0.000		
R-squared	0.492		
n	109		

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: authors' calculations.

CONCLUSION AND IMPLICATIONS

Of the 10 IPOs listed in 2021, till 20th March, 9 have yielded positive listing day returns to the investors, with gains ranging from 1 percent to 109 percent.[2] Clearly, it can be seen why IPOs are becoming such a lucrative investment avenue. The inspiration behind the current paper was to delve deeper into this field to get a better understanding behind the reasons for such massive gains from IPOs. Specifically, what part did the disclosures, in the offer documents, play in the performance of the IPOs. The primary purpose of this paper was to analyse the risk disclosures in the prospectus to examine their impact on the initial returns, subsequent returns and risk of Indian IPOs. Additionally, some IPO offer specific variables were also included in the analysis to explore the additional factors affecting initial returns. The descriptive statistics, as well as the OLS regression models, gave

[2] Moneycontrol (2021): IPO historic table, available at: IPO Historic Table — IPO listing, IPO market, IPO issue, Subscription (moneycontrol.com).

interesting results for the Indian markets. The average initial returns from 109 IPOs, for the sample period of 5 years from 2015 to 2019, was 13.6 percent. The subsequent average 1-year returns, post listing, was 12 percent. Investors showed great optimism towards Indian IPOs, as can be gauged from the average oversubscription rate of 31.28 times, which means that on average every IPO got oversubscribed to the extent of 31.28 times. The regression results of the study provide contrary evidence to the asymmetric information explanation behind IPO underpricing, as no significant relationship was found between underpricing and risk disclosures. This means that some actual risks might not be known which might not be disclosed. And those that are already known, must already have been given due consideration by the lead managers when deciding the price band of the issues. Risk disclosures might even be meaningless because the actual risks may have been intentionally withheld by managers to avoid presenting a negative picture of the firm and to avoid the chances of disclosing proprietary information. Hence, even the increased disclosures done in the prospectuses failed to reduce information asymmetry and underpricing. As for subsequent returns, quantitative measures retrieved from offer documents did affect them. The investors are rewarded for investing in firms with higher risk. However, the number of disclosures (qualitative measures) did not affect the subsequent returns. They are expected to be affected by the future market conditions and company performance and not past disclosures. Further, it can also be concluded that the investors only give importance to external risk factors and liquidity conditions of firms when judging about the risk. The *ex post* measure of risk showed association with only these two measures. Another conclusion that can be drawn from the analysis is that the Indian companies' main motives for IPO might be beyond raising capital. They come with IPOs to project a good image to the investors. A low percentage of capital offered to the existing issued capital was found to be associated with high initial returns. This shows that firms came out with underpriced IPOs to show positive first day returns which give a boost to their public image. Better image can provide them with higher negotiation power and help them raise more capital at a higher value in future. As previously shown, Indian IPOs are mostly oversubscribed. This oversubscription converts into higher demand for the shares on listing, leading to high initial returns. While some other factors have been studied besides the qualitative risk disclosures and quantitative risk measures, yet more research needs to be done to understand more reasons for underpricing in the Indian market. The results of this study are useful for the investors as based on the results they can make decisions about investing in Indian IPOs. The study also gives them an idea about long term performance of the IPOs and the factors that can affect the long-term performance. Besides, the managers of issuing companies and lead managers of issues can use the results of this study to improve the pricing of issues.

LIMITATIONS AND FUTURE RESEARCH

For qualitative risk measures, the present study has focused only on the "Risk Factors" section of the prospectuses. However, risk can be judged from other sections of a prospectus through thorough analysis. The sample size has been limited to 109 IPOs, for better generalizability, sample size can be increased in future studies.

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APPENDIX

Correlation Matrix

Variables	IR	SUBRTN	MMR	LIQ	SG	EV	CFV	IRF	ERF	ORRF	TRD	DQ	OFFCAP	MAR-RTN	MARVOL	SUB-SCRP	LMREP	SIZE	ISSUE-SIZE	AGE
IR	1.000																			
SUBRTN	−0.023	1.000																		
MMR	−0.059	−0.015	1.000																	
LIQ	0.011	0.032	−0.114	1.000																
SG	−0.023	−0.130	0.114	−0.106	1.000															
EV	−0.120	0.086	0.046	−0.007	−0.103	1.000														
CFV	−0.086	−0.022	0.174	0.136	0.033	0.131	1.000													
IRF	−0.036	−0.007	−0.086	−0.289*	−0.037	0.028	−0.176	1.000												
ERF	−0.060	−0.037	−0.039	0.062	−0.099	0.107	0.039	0.137	1.000											
ORRF	−0.038	0.063	0.102	0.178	−0.009	−0.059	−0.043	−0.055	0.049	1.000										
TRD	−0.099	0.129	0.056	0.034	−0.022	−0.041	0.061	0.164	0.153	−0.076	1.000									
DQ	0.004	−0.195*	−0.105	−0.030	−0.005	0.139	−0.129	−0.095	−0.119	−0.353*	0.117	1.000								
OFFCAP	−0.080	0.013	0.081	−0.191*	0.243*	−0.055	−0.121	0.007	−0.169	0.034	0.076	−0.217*	1.000							
MAR-RTN	−0.000	0.016	−0.004	0.141	0.016	0.028	0.024	−0.038	−0.159	0.027	0.083	0.074	0.041	1.000						
MARVOL	−0.014	0.215*	0.087	−0.121	0.046	−0.045	−0.057	0.103	0.124	0.043	0.058	−0.174	0.161	−0.590*	1.000					
SUB-SCRP	0.127	−0.060	−0.055	0.184	−0.071	0.009	−0.005	−0.118	−0.023	−0.044	0.016	0.031	−0.120	0.257*	−0.235*	1.000				
LMREP	0.079	−0.216*	−0.134	0.215*	−0.162	0.049	0.120	0.050	−0.066	0.027	−0.161	0.319*	−0.286*	0.210*	−0.389*	0.048	1.000			
SIZE	0.001	−0.151	−0.077	−0.131	0.002	0.019	−0.006	0.158	−0.053	−0.110	−0.104	0.265*	−0.250*	−0.004	−0.020	−0.014	0.322*	1.000		
ISSUE-SIZE	0.095	−0.230*	−0.331*	0.164	−0.059	0.100	−0.103	−0.035	−0.015	0.014	−0.289*	0.373*	−0.330*	0.026	−0.179	0.001	0.561*	0.391*	1.000	
AGE	0.029	−0.060	−0.082	−0.030	−0.138	0.026	0.013	−0.085	−0.084	0.015	−0.100	−0.035	−0.207*	−0.060	−0.184	0.055	0.086	0.208*	0.055	1.000

Note: * shows significance at the .05 level.

Source: authors' calculations.

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Authors' declared contribution:
Khushboo Gupta — performed critical analysis of literature, collected statistical data, contributed to the conclusions of the research.
T. V. Raman — defined the problem, developed the conceptual framework of the study.
O. S. Deol — interpreted and described the results.
Kanishka Gupta — performed empirical analysis of the data.

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