Short run performance of initial public offerings in Nepal

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Abstract

This paper examines the underpricing and performance of IPO for six months period using the model of underpricing. Overall, 67 samples are analyzed out of 120 population identified from the period of 2014/15 to November 2020/21 using judgmental sampling and removal of outlying observations. Firm size, subscription rate, issue size, age of firm, issue manager reputation and market condition are taken as independent variables. Nepalese investors mainly prefer microfinance sector for investment and tends to be underpriced for longer period due to high demand for share. Observations are classified into two categories based on mean value of each predicting variable and NEPSE index. Significant difference on initial as well as monthly return has been observed between categories of subscription rate (high versus low) and age (matured versus young). Highly positive and significant correlation between the issue size and firm size shows large firm issue IPO in large size and negative significant correlation between issue size and subscription rate shows when issue size is low there will be high demand for shares. Significant relationship of subscription rate and age of firm for initial and first month return has been observed whereas only subscription rate was found significant after second month to sixth month. Study concludes that subscription rate is major determinant of underpricing of IPOs in the Nepalese Stock Market.

Keywords: Initial Public Offering, Short-run Performance, Underpricing

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Introduction

Underpricing of Initial Public Offerings (IPOs) is when closing price on listing day is significantly higher than issue price. Regardless of developed or emerging economies, in most stock markets, underpricing of IPOs is a global phenomenon (Ritter, 1984). Majority of the research on IPO underpricing cites an information asymmetry between underwriter, issuer, and investor - three parties participating in the IPO process - as cause of underpricing. According to Myers and Brealey (2003), IPO is the first time a corporation sells its securities in the primary market to the general public. When entering the secondary market, underpricing is difference between IPO's offer price and day's closing market price (Killins, 2019; Wang et al., 2019).

Using the notion of information asymmetry as a stand-in for shared pricing ex-ante uncertaintyis the most popular explanation to explain the underpricing of IPOs (Rathnayake et al., 2019).Emerging markets' propensity for being highly volatile and high risk, underpricing is generally stronger than it is in developed markets (Loughran & McDonald, 2013).

Kandel, Sarig and Wohl (1999) found that even in nations where IPOs are held as auctions, a minor but considerable underpricing is reported. When making stock offerings, the biggest challenge that corporations face is choosing the price on the primary market (Leow, 2020).Primary and secondary markets typically have different share prices when an IPOs occurs. The difference between price attained in secondary market and price established in primary market is an amount of loss incurred by the issuer (Nadeem, 2020).Given that the funds raised during the IPO are insufficient, underpricing results in a loss for the issuer (Souitaris, 2020).

IPOs in Nepal are mostly underpriced as the return from the first day trading is positive and are mostly oversubscribed in the Nepalese Capital Market (Subedi and Dangal, 2022). Shrestha (1992) observed stock market becomes crowded with large number of share applicants whenever public limited corporations' issue new shares. Since 2013 A.D one hundred and sixty companies have issued IPOs till end of 2022 A.D where almost all IPOs are oversubscribed and are underpriced. Though, book building has become progressively mainstream for particularly larger corporation, most IPOs are fixed-price offerings at rupee hundred and provide positive initial day return.

Although the methodology, variables and issue mechanisms are different to study performance of IPOs but the result is "short run underpricing and long-term underperformance". Findings of international market cannot be generalized on the Nepalese stock market due to mismatch on the variables of study and different types of equities in different industries and in different market. This study aims to study initial return as well as monthly returns for six-month period to determine relationship between returns and explanatory variables. Thus, main objective of study is to examine short-run performance of IPOs in Nepalese stock market.

Literature review

Asymmetric Information Model state there exists two types of investors, one informed and another is uninformed. Three models of information asymmetry are widely used by researchers. Winner's curse discussed by Rock (1986), Ex Ante Uncertain Model by Beatty and Ritter (1986) and Signaling Model by Allen and Faulhaber (1989).

Rock's model (1986) assumed based on the heterogeneity of the information classified investors into knowledgeable and less knowledgeable. Participants categorized as informed investors, have better knowledge of the value of the IPO than other participants categorized as uninformed investors. The Ex Ante Uncertainty Model is further consequence of Winner's Curse Model. Developed by Ritter (1984) and formalized by Beatty and Ritter (1986) found information asymmetry between knowledgeable and uneducated investors causes heterogeneity, which results in uncertainty about the offer's value once it begins trading known as ex ante uncertainty. Signaling price of underpricing is originated from Ibbotson (1975) and developed by Allen and Faulhaber (1989) and Welch (1989). According to signaling concept, firms have a better understanding of the present value or risk of future cash flows than investors, hence underpricing an IPO is used to indicate the firm's quality.

Short-term IPO returns that were offered on the Indian National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) are examined by Yadav, Dasgupta, and Moray (2018).Taking sample of 28 IPOs issued from 2013 to 2015 study found mean percentage performance of IPO on day of issue, 10 and 30 days after the issue is 9%, 10% and 10% respectively for NSE and 8%, 9% and 14% respectively for BSE.The Canadian market studied by Killins (2019) revealed an average underpricing of 1.45% across 73 IPO companies from 2010 to 2017. When compared to other nations, Canada's average underpricing is quite modest. Underpricing phenomenon occurs in China with an average of 42% (Huang et al., 2019).

Baldik and Yilmaz (2008) found a positive relationship between underpricing and firm size by taking a sample of 234 initial public offerings (IPOs) listed on Istanbul Stock Exchange between 1990 and 2003 similar to Li, Fower and Naughton (2008) in Chinese Stock market. Malhota and Nair (2015) found a negative association between a company's size and underpricing, similar to Kristiantari (2013). Abbas (2022) analyzed non-banking IPOs of Indonesian Stock Exchange between 2015 to 2019 and found larger the firm size, lower the amount of stock underpricing. Hermin and Murhadi (2015) stated that the business size variable has no significant impact on underpricing.

Study conducted by Guhathakurta and Sandhu (2020) taking sample of 200 IPOs listed on NSE India from 2006 to 2015 found that IPO subscription level (rates) affect a number of variables, including IPO offer price, size of IPO and degree of underpricing. Malhotra and Nair (2015) concluded there is positive and very high significance of subscription rate on underpricing consistent to Bansal and Khanna (2013), Subedi and Dangal (2022).

Bundoo (2007) taking sample of 40 Mauritius IPOs from 1989 to 2005 concluded that the statistically relevant explanatory variables determining the extent of underpricing is the issue's size. Bansal and Khanna (2013) taking 320 IPOs that were listed on Bombay Stock Exchange from 2000 to 2010 found that negative correlation between issue size and level of underpricing is consistent with finding concluded by Deb and Marisetty (2010). Pradhan and Shrestha (2016) in Nepalese stock market concluded issue size and initial return have a negative association consistent with study by Ferdous et al. (2021).

Ritter (1991) studied 1,526 American companies IPOs during 1975 to1884 found that young companies, which are thought to be riskier, have higher underpricing since age is proxy for ex-ante uncertainty similar to study by Sehgal and Singh (2003) on 438 Indian IPOs listed on Bombay Stock Exchange during 1992 to 2001.Hermin and Murhadi (2015) in study of 204 Indonesian companies IPO during period of 2004-2014 concluded that age of the firm has no significant impact on pricing of IPO consistent with Kristiantari (2013) study of 161 Indonesian companies during 1997 to 2010. Study by Mahatidana and Yunita (2017) also found firm age did not show a significant influence on level of underpricing. Killins (2019) study on 73 IPOs of Canadian firms found the age variable exhibit lower levels of underpricing which contradicts the findings of Ferdous, Withanalage and Zaman (2021) study on 211 Australian firms.

Dimovski et al. (2011) examined extent of underpricing for 380 IPOs listed between 1994 and 2004 and it was discovered that reputation of issue manager and reputation of capital sought were two well-known factors. Vong and Trigueiros (2010) taking sample of 480 IPOs in Hongkong market from 1994 to 2005 found the signaling effect of underwriter reputation in IPO underpricing and concluded IPO issued by reputed issue manager have higher level of outperformance in the first day of trading and starts to decline thereafter similar to Abbas (2022) study that stated underwriter reputation influence on underpricing.

Ritter (1984) analyzed "hot issue" market of 1980 compared to "cold issue" marketstated managers take advantage of bull market and attempt to capture attractive stock prices. Study by Darrien and Womack (2003) on the French stock market found underpricing levels are higher in hot markets and lower in cool markets. Mousa, Judit and Zoltan

(2019) found that the most crucial aspect of the IPO process is the timing of going public. This aspect is strongly tied to the success of the IPO, and one-third of companies are persuaded that this is most significant factor when thinking about an IPO. Pradhan and Shrestha (2016) found positive impact between market conditions and initial return while Dimovski et al. (2011) and Bansal and Khanna (2013) found no significant association.

Research methods

The research design adopted in study is descriptive and analytical. Nepal Rastra Bank (NRB) has stopped granting liscen to commercial bank after 2013 so this study has taken samples after 2014/15 so as to study other sectors initial performance after restriction on liscen to commercial banks *(exception: Century Commercial Bank Limited, obtained liscen on 2013 but issued IPOs from January 9 2014 to January 13, 2014 is not taken into study).* Securities Exchange Board (SEBON) has published annual report up to 2020/21 at the time of data collection of the study, so this study is limited to IPOs issued between 2014/15 to 2020/21. Sample based on judgmental selection comprised of 67 IPOs meeting criteria:

- Companies with complete data required for study.
- In addition to issuing new shares, companies must be listed and traded their shares during the study period.
- Public offerings of common shares.
- Offer price equals to rupees one hundred.

Table 1 summarizes the population and sample of study year wise. Out of total 120 samples, final sample consist of 67 IPOs which satisfies the criteria of sample selection as well as removing of observations with extreme outliers' values on each variable.

This study is based on pooled cross-sectional analysis of secondary data. The main sources of data are: SEBON annual report (information about companies that issue IPOs in particular year, issue size, issue manager of IPOs, offer price and whether issued to general public or local or both), annual report of respective company (data on age of company during issuance of IPOs, companies paid up prior to issuance of IPOs and subscription ratio of the IPOs), annual report of respective issuing company (data on paid up capital of issuing manager to classify the issuing manager as reputed or not reputed) and NEPSE website (Closing price of stocks to calculate the level of underpricing and NEPSE index to calculate the market condition as bearish or bullish).

Table 1
Population and Sample

Year of IPO	Number of IPOs (Population)	Sample in Study	Sample Selected (%)
2014/15	16	9	56.25
2015/16	11	7	63.63
2016/17	13	7	53.85
2017/18	21	9	42.86
2018/19	28	18	64.29
2019/20	9	6	66.67
2020/21	22	11	50.00
Total	**120**	**67**	**55.83**

Note: Companies are categorized in the year based on the IPO approval date rather than IPO listing date

The study used statistical tools like descriptive statistics, multi-collinearity, independent sample t-test and regression analysis test to analyze data. Data are analyzed using Excel and SPSS software.

One month is define as twenty-one trading days and if company is merge or acquired by other companies or suspension on transaction on NEPSE then preceding immediate month (in multiple of 21days) will be final month analysis for the particular IPO following the procedure of Ritter (1991). So, number of samples is not equivalent in initial day return to monthly return analysis.

Model for measuring return from IPO: Buy and hold return of the stock is calculated based on model used by Ritter (1984), Baldik and Yilmaz (2008), Killins (2019), Subedi and Dangal (2022) on their studies. Buy and hold return is calculated for initial day as well as till six-month periods on monthly interval where one month is define as twenty-one trading days following the procedure of Ritter (1991).

Model used for calculation of return from IPOs of stocks on different time period is:

$$R_{it} = \frac{P_{it} - P_{i0}}{P_{i0}} \times 100 \ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

where,

R_{it} = return of stock i at time period t

P_{i0} = offer price of common share i

P_{it} = closing price of share on trading day t

Regression model in the study: R_{it} = f (Age, FS, IS, SR, IMR, MC) ……. (ii)

Functional association between return and explanatory variables:

$R_{it} = ß_0 + ß_1 Ln(FS) + ß_2 Ln(SR) + ß_3 Ln(IS) + ß_4 Age + ß_5 IMR + ß_6 MC + ε$ ……. (iii)

where,

R_{it} = Return of stock i in time t period Ln(FS) = Natural logarithm of firm size

Ln(SR) = Natural logarithm of subscription rate Ln(IS) = Natural logarithm of issue size

Age = Age of firm IMR = Dummy variable issue manager reputation (Reputed 1 otherwise 0)

MC = Dummy variable market condition (Bullish 1 otherwise 0) ε = Error Term

Table 2

Expected Results and Related Empirical Evidences

Variables	Definitions/ Proxies	Expected Sign	Prior Studies
Age of firms	Difference between date of incorporation and date of issuance of IPO in years.	+ ve	Islam, Ali and Ahmad (2013), Malhotra and Nair (2015), Killins (2019)
Firm Size	Total paid up capital of company prior to the issuance of IPOs.	- ve	Ritter (1984), Hermin and Murhadi (2015), Abbas et al. (2022)
Subscription Rate	Ratio of application size to issue size.	+ ve	Rock (1986), Dahal (2007), Guhathakurta and Sandhu (2020)
Issue Size	Amount to be raised from the IPOs.	- ve	Ritter (1984), Malhotra and Nair (2015), Pradhan and Shrestha (2016), Sohail et al. (2018)
Issue Manager Reputation	Paid-up capital of issue manager. (Dummy Variable)	+ ve	Dimovski et al. (2011), Pradhan and Shrestha (2016), Abbas et al. (2022)
Market Condition	Rate of change in NEPSE Index. (Dummy Variable)	+ ve	Dimovski et al. (2011), Malhotra and Nair (2015), Pradhan and Shrestha (2016)

Results

Table 3 shows descriptive statistics for selected variables considered for study. The significance of the central value has been tested with p-value and is tested at three level 1%, and 5% level of significance. Hair et al. (2010) stated data as normal if skewness is within -2 to +2 and kurtosis is within -7 to +7. Value of skewness and kurtosis indicate data are normal for analysis.

Table 3

Descriptive Statistics

Variables	N	Min	Max	M	SD	Skewness	Kurtosis
Firm Size (Rs in million)	67	20.00	2150.00	481.91	513.10	1.45	1.59
Subscription Rate (times)	67	0.96	222.84	50.34	54.92	1.59	2.11
Issue Size (Rs in million)	67	8.00	354.24	103.05	99.76	1.38	.86
Age of Firm (years)	67	2.00	19.00	5.76	3.71	1.49	1.61
Issue Manager Reputation	67	0.00	1.00	0.55	0.50	-0.22	-2.02
Market Condition	67	0.00	1.00	0.63	0.48	-0.54	-1.77

Summary statistics of Table 3 shows sample for study is 67. Variables used for study are issue size, subscription rate, firm size, age of firms and dummy variables (market condition and issue manager reputation). Standard deviation of 513.10 in firm size shows that there is higher variation in samples values around mean in firm size. Lowest deviation is on age of firms that shows that most of the first issues IPOs within short period of time of operation. Value of skewness and kurtosis on selected variables indicate that data are normal for further analysis.

Table 4

Summary Statistics for Buy and Hold Returns (in %) of IPOs over different holding periods

Variable	N	Min	Max	M	SD
Initial Return	67	-5.00	1526.00	238.87	221.54
First Month Return	67	-34.00	4821.00	568.49	803.28

Second Month Return	67	-46.00	4515.00	802.64	1043.39
Third Month Return	67	-45.00	4630.00	816.33	1070.39
Forth Month Return	66	-49.00	4970.00	823.81	1079.25
Fifth Month Return	65	-44.00	4865.00	798.43	1035.54
Sixth Month Return	64	-44.00	4525.00	749.91	939.36

Table 4 shows buy and hold returns of the IPO in different holding period. Similarly monthly returns are calculated assuming 21 trading days as one month period. Since some firms are merged with other firms before 126 trading days so number of samples in all monthly returns differs. Negative minimum value indicates that some IPOs are not underpriced in the Nepal, however higher mean values on initial day as well as on monthly returns indicates IPOs in Nepal are mostly underpriced and provides high positive returns on initial day as well as up to six-month periods. Returns on the calculation are only price appreciation returns, any other forms of dividend returns are not adjusted in analysis.

Independent sample t-test

Independent Sample t-test has been conducted to test whether there is significant different on the initial day returns and different months returns based on size of firm (large versus small), subscription rate (high versus low), issue size (large versus small), age of firm (matured versus young), issue manager reputation (reputed versus less reputed), market condition (bullish versus bearish). Since p value of levene's test of equality of variances is greater than 0.05, independent sample t test is best statistical tool for analysis of the comparison of mean between two groups.

Panel A in table 5 indicates p value of mean difference between large and small firms is not significant during first day and on the one-month return, indicating there is no significant difference in the return from IPOs on initial day as well as first month return. However, mean difference between large and small firm on the second to sixth month return is negative and significant at 5 percent level that indicate small firms IPOs are largely underpriced than large firms after two months of the trading.

Panel B on table 5 indicates significant difference on level of underpricing of IPOs based on subscription of IPOs on the initial day as well as monthly returns. Positive mean difference between high and low subscribed IPOs clarifies that highly subscribed IPOs tends to outperform low subscribed IPOs.

Panel C, Panel E and Panel F on table 5 shows there is no significant difference on level of underpricing of IPOs based on issue size, issue manager reputation and market condition on initial day as well as monthly returns up to six-monthperiod. Returns of small issues are higher than large issue but difference is not significant.

Panel D on table 5 indicates significant difference on level of underpricing of IPOs classified based on age of companies on initial day return as well as monthly returns up to six months. Negative mean difference between matured and young companies indicates that young firms are highly underpriced than matured firms.

Table 5

Independent Sample T-test Based on Six Predicting Variables

	Mean Difference	**T-value**	**P-value**
Panel A: Based on size of firm (large firm vs small firm)			
Initial Return	-93.69	-1.698	.094
First month return	-305.98	-1.523	.133
Second month return	-609.52	-2.394	.020
Third month return	-628.03	-2.405	.019
Fourth month return	-675.21	-2.570	.013
Fifth month return	-624.95	-2.459	.017
Sixth month return	-527.60	-2.263	.027
Panel B: Based on subscription rate (high subscription versus low subscription)			
Initial Return	153.74	2.837	.006
First month return	533.46	2.701	.009
Second month return	1114.20	4.791	.000
Third month return	1111.89	4.617	.000
Fourth month return	1119.72	4.596	.000
Fifth month return	931.53	3.818	.000
Sixth month return	792.24	3.517	.001
Panel C: Based on issue size (large issue size versus small issue size)			
Initial Return	-82.99	-1.434	.156
First month return	-216.01	-1.021	.311
Second month return	-488.26	-1.807	.075

Third month return	-489.81	-1.765	.082
Fourth month return	-532.33	-1.904	.061
Fifth month return	-488.56	-1.810	.075
Sixth month return	-406.89	-1.649	.104
Panel D: Based on age of firm (matured versus young)			
Initial Return	-128.44	-2.226	.029
First month return	-566.99	-2.775	.007
Second month return	-761.71	-2.882	.005
Third month return	-837.19	-3.117	.003
Fourth month return	-838.57	-3.085	.003
Fifth month return	-791.45	-3.019	.004
Sixth month return	-719.28	-3.106	.004
Panel E: Based on the issue manager reputation (reputed versus lessreputed)			
Initial Return	-47.69	-.875	.385
First month return	-193.54	-.980	.331
Second month return	-74.35	-.288	.774
Third month return	-140.59	-.532	.597
Fourth month return	-115.36	-.430	.669
Fifth month return	-115.15	-.444	.658
Sixth month return	-91.47	-.386	.701
Panel F: Based on market condition (bullish versus bearish)			
Initial Return	-95.21	-1.727	.089
First month return	-242.58	-1.119	.235
Second month return	-240.82	-.913	.365
Third month return	-276.79	-1.024	.310
Fourth month return	-254.01	-.926	.358
Fifth month return	-180.71	-.682	.498
Sixth month return	-146.73	-.607	.546

Correlation analysis

Table 6 shows correlation among six predicting variables and dependent variables measured in terms of level of underpricing on initial day as well as monthly returns for six months. The strong and significant correlation between company size and issue size suggests that large companies issue a lot of shares. Negative significant relationship firm size as well as issue size and subscription rate indicates that when size of firm is large or when firm issue IPOs in large number subscription of those IPOs is lower. Positive significant correlation of age of firm with firm size and issue size shows that matured firms are larger and issue shares on large amount than younger firms.

Subscription rate has positive significant relationship with initial return as well as monthly return indicating that when subscription rate is high, returns on the initial day as well as monthly returns is also higher thus when there is higher subscription rate IPOs are underpriced for longer time period. Age of firm and returns on IPOs have significant negative association suggest IPOs of younger firms tends to be mostly underpriced for long period of time.

Multicollinearity test

Preliminary test of dependence among variables by correlation analysis in table 6 indicates there is no such higher degree of dependence among explanatory variables except for firm size and issue size.Multicollinearity test has been conducted as second test to identify relationship among the variables tested via Variance Inflation Factor (VIF). Rule of thumb isa VIF around one implies no correlation, VIF between one and five suggests moderate association, and VIF more than ten shows significant connection among variables.Values on Table 7 shows that multicollinearity is not problem in the regression model.

Table 6
Correlation Analysis

	Firm Size	Subscription Rate	Issue Size	Age	Issue Manager Reputation	Market condition
Firm Size	1					

Subscription Rate	-.466**	1				
Issue Size	.840**	-.498**	1			
Age	.423**	-.283*	.397**	1		
Issue Manager Reputation	.224	-.107	.227	.047	1	
Market Condition	.210	-.316**	.321**	-.050	.236	1
Initial Return	-.144	.406**	-.151	-.242*	-.108	-.209
1st Month Return	-.199	.332**	-.168	-.324**	-.121	-.147
2nd Month Return	-.258*	.558**	-.267*	-.344**	-.036	-.112
3rd Month Return	-.284*	.526**	-.268*	-.372**	-.066	-.126
4th Month Return	-.285*	.525**	-.271*	-.373**	-.054	-.115
5th Month Return	-.269*	.429**	-.249*	-.375**	-.056	-.086
6th Month Return	-.249*	.403**	-.225	-.374**	-.049	-.077

*** Significant at 0.01 level*
** Significant at 0.05 level*

Table 7
Multicollinearity Test

Variables	Firm Size	Subscription Rate	Issue Size	Age of firm	Issue Manager Reputation	Market Condition
VIF	3.61	1.43	3.82	1.29	1.10	1.28

Regression analysis

Regression analysis results of initial return as well as monthly returns (Table 8) indicate that model is significant. Since log transformation of predicting variable was done on the regression model, cook distance of regression diagnosis has been analyzed to identify any influencing observation in the model. Regression model with initial day return has one influencing observation so one observation has been excluded during analysis of initial day return whereas regression model on monthly return satisfied the condition so all observation has been considered thereafter. In initial day return subscription rate has positive significant coefficient and age has negative significant coefficient on initial return.

Analyzing overall analysis based on the monthly returns in table 8, shows that subscription rate is the major determining variable of the returns as coefficient of subscription rate is positive and significant on six months buy and hold returns. Informed investors bids for a greater number of shares of valuable companies IPOs that results oversubscription of share, thus, we can conclude that highly underpriced IPOs are largely oversubscribed. Age has significant negative coefficient on the first month return indicating that buy and hold returns of matured firms is less than the younger firms.

Table 8
Regression Results

Dependent Variable	Intercept	Firm Size	Subscription Rate	Issue Size	Age	Issue Manager Reputation	Market Condition	R^2	F
Initial Return	-483.04	136.88	58.24*	-110.39	-16.11*	-34.646	-31.65	.229	2.92*
1st Month Return	-3268.91	172.94	231.82*	16.38	-68.61*	-173.22	-105.15	.216	2.75*
2nd Month Return	-2118.74	-23.96	408.28**	129.48	-53.26	0.390	70.36	.297	4.23**
3rd Month Return	-1705.24	-148.04	382.82**	252.07	-61.42	-49.87	-1.29	.301	4.29**
4th Month Return	-846.34	-178.03	366.28**	236.54	-57.77	-6.93	33.60	.299	4.19**
5th Month Return	-324.32	-73.45	291.60*	108.44	-67.82	-20.18	71.92	.248	3.19**
6th Month Return	-1670.68	-9.26	284.44*	113.77	-65.50	-35.84	56.58	.241	3.01*

*** Significant at 0.01 level*
** Significant at 0.05 level*

This study finds that all IPOs are not underpriced in Nepalese Stock Market since minimum return of IPOs is less than offer price in some offerings. IPOs listed with NEPSE are underpriced on initial day as well as monthly returns for six-month period. There is significant difference on the returns of IPOs classified on the basis of subscription rate (high and low) and age (matured and young). Subscription rate has significant positive relationship with level of underpricing and age has significant negative return on the level of underpricing. Regression result on initial return

and first month return shows that two independent variables (subscription rate and age of firm) have significant relationship (positive and negative respectively). Regression results from second month return to sixth month return shows that only subscription rate has significant relationship with performance of IPOs. Subscription rate has been ranked as most important factor for degree of underpricing in Nepalese Stock Market. Size of the firm does not impact the IPOs initial return thus no significant impact of size on the degree of underpricing. The study also finds that issue manager reputation and market condition does not affect the behavior of investment decisions of investors on the IPOs.

Discussion

In this study, age of the firm exhibited significant impact on the degree of level of initial underpricing. It suggests that as a corporation gets older, information asymmetry will be less prevalent and market uncertainty would be reduced as well. The results is consistent with findings of Sehgal and Singh (2003), Kristiantari (2013) which states that younger firms are expected to have larger initial returns than matured firms and contradicts the findings of Malhota and Nair (2015) study that found positive significant relation between age of firm and level of underpricing.

Study found no association between size of firm and level of underpricing. It refers size of company does not impact IPO return thus no significant impact on degree of underpricing. This finding is consistent to Hermin and Murhadi (2015), Malhotra and Nair (2015) and Subedi and Dangal (2022) which implies size of company is not noticed by investors during investment in IPOs. Result of this study on firm size contradicts the findings of Kristiantari (2013), Sohail et al. (2018) and Ferdous et al. (2021) studies that found negative significant relationship between firm size and level of underpricing.

The study also found significant positive relationship between subscription rate and degree of underpricing. This indicates investors overreact to IPOs and their overreaction explains level of underpricing for a longer length of time. This finding is consistent with study of Malhotra and Nair (2015), Pradhan and Shrestha (2016), Sohail et al. (2018) and Subedi and Dangal (2022) that shows significant positive relationship between subscription rate and level of underpricing that expounds that the higher the extent of over subscription will lead to shortage in investors allocation so investors tend to overpay for share in order to fulfill their desired allocation. Uninformed investors also tend to follow the informed investors and results higher subscription rate for shares, thus resulting underperformance for longer duration. This result is consistent with winners' curse model discussed in Rock's (1986) model.

The study also found the amount of underpricing does not significantly relate to the size of the offer. According to this, the initial return would be smaller the higher the offer size, which would result in a low degree of underpricing. The findings is consistent with Bansal and Khanna (2013), Islam et al. (2013), Baldik and Yilmaz (2008), Pradhan and Shrestha (2016), Navyatha and Reddy (2022). Malhotra and Nair (2015) showed that larger the issue size less will be issue size because larger issue will be less risky as they are followed and analyzed by a larger set of analysts.

There was no significant association found between market situation and extent of underpricing. This indicates market condition either bullish or bearish during IPO issuance does not affect the behavior of investment decision on the investment on the IPOs. This result contradicts the findings of study of Ritter (1991) study that found IPOs issued during hot market period tends to over perform than IPOs issued during cold market period. Findings of the study is similar to Bansal and Khanna (2013), Malhotra and Nair (2015) and Pradhan and Shrestha (2016).

The study also found no relationship between issue manager reputation and degree of IPO underpricing. Studycontradicts findings of Domovskiet et al. (2011), Kristiantari (2013), Herman and Murhadi (2015), Pradhan and Shrestha (2016) whose study found a significant relationship of issue manager or underwriter with level of underpricing. When investors are homogeneous and knowledgeable investors are not faced with a winner's curse issue, level of underpricing will be noticeably reduced.

Conclusion

Primary market considered as the less risky and most profitable market, so IPOs lead to the attraction of the large number of investors in the market. This study evaluates the relationship between level of underpricing and its determinants. Most of the IPOs in Nepalese Stock Market are underpriced however not all IPOs are underpriced since initial day as well as monthly buy and hold return is lower than offer price for the IPOs of some companies.

According to the data, the subscription rate is the most important indicator for the degree of underpricing in the Nepalese stock market because investors overreact to IPOs, which explains the magnitude of underpricing. In initial return as well as monthly returns models, subscription rate consistently has a strong explanatory role, showing that companies with high subscription rates perform better on the first day and for the first six months following listing. Since young firms are riskier, they have potential to expand more than matured firms so age of firms has significant negative impact on initial return as well as first month return. However, other determinants of IPOs such as firm size,

issue size, market conditions, issue manager reputation does not show significant impact on level of underpricing. Investors do not consider size of company or size of the issue, two factors that have a high degree of correlation, when making investment decisions on IPOs. Market condition and issue manager reputation are also not considered by investors as investors tend to overpay to the all IPOs whether they are issued on bullish market or bearish market and investors are also not concerned about issue manager of the IPOs.

Implications

The implication is that primary market is less risky and more profitable investment sector for the investors. Since returns from IPOs are highly affected by subscription rate in Nepal, so investors should pay significant attention to analyze the possible rate of subscription. Investors can also take appropriate decision when to actually sell the IPOs to earn higher return on their investment. Rather than limiting study on short term performance, returns or performance of IPOs for longer period, usually three years, can be analyzed and also adjustment for dividend return can be done in future study.

References

Abbas, D. S., Rauf, A., Hidayat, I., & Sasmita, D. (2022). Determinan on Underpricing at The Initial Public Offering: Evidence Indonesia Stock Exchange. *Quantitative Economics and Management Studies*, *3*(2), 175-185.

Allen, F., & Faulhaber, G. R. (1989). Signalling by underpricing in the IPO market. *Journal of Financial Economics*, *23*(2), 303-323.

Baldik, R., & Yilmaz, M. K. (2008). The market performance of initial public offerings in the Istanbul Stock Exchange. *BDDK Bankacılıkve Finansal Piyasalar Dergisi*, *2*(2), 49-76.

Bansal, R., & Khanna, A. (2013). Vector auto-regressive analysis of determinants of IPO underpricing: Empirical evidence from Bombay stock exchange. *Global Business Review*, *14*(4), 651-689. https://doi.org/10.1177/0972150913501609

Beatty, R. P., & Ritter, J. R. (1986). Investment banking, reputation, and the underpricing of initial public offerings. *Journal of Financial Economics*, *15*(1-2), 213-232. https://doi.org/10.1016/0304-405X(86)90055-3

Bundoo, S. K. (2007). An analysis of IPOs underpricing in Mauritius. *African Journal of Accounting, Economics, Finance and Banking Research*, *1*(1), 1-12.

Dahal, G. B. (2007). The performance of Nepalese IPOs. *SEBON Journal*, 3, 30-48.

Darrien, F., & Womack, K. L. (2003). Auctions vs. book building and the control of underpricing in hot IPO markets. *The Review of Financial Studies*, *16*(1), 31-61. https://doi.org/10.1093/rfs/16.1.0031

Deb, S. S., & Marisetty, V. B. (2010). Information content of IPO grading. *Journal of Banking & Finance*, *34*(9), 2294-2305.https://doi.org/10.1016/j.jbankfin.2010.02.018

Dimovski, W., Philavanh, S., & Brooks, R. (2011). Underwriter reputation and underpricing: evidence from the Australian IPO market. *Review of Quantitative Finance and Accounting*, *37*(4), 409-426. https://doi.org/10.1007/s11156-010-0211-2

Ferdous, L. T., Withanalage, N. P., & Zaman, A. A. Q. (2021). Review of short-run performance of initial public offerings in Australia. *Corporate Ownership & Control*, *18*(2), 188-200.

Fung, S. Y. K., Ferdinand A. G., and Suresh R.K. (2014) "Investment banks' entry into new IPO markets and IPO underpricing." *Management Science 60*(5), 1297-1316. https://doi.org/10.1287/mnsc.2013.1817

Gouldey, B. K. (2006). Uncertain demand, heterogeneous expectations, and unintentional IPO underpricing. *Financial Review*, *41*(1), 33-54. https://doi.org/10.1111/j.1540-6288.2006.00132.x

Guhathakurta, K., & Sandhu, H. (2020). Effects of IPO offer price ranges on initial subscription, initial turnover and ownership structure - Evidence from Indian IPO market. *Journal of Risk and Financial Management*, *13*(11), 279-298. .https://doi.org/10.3390/jrfm13110279

Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010).*Multivariate data analysis* (7th ed.). Upper Saddle River, New Jersey: Pearson Educational International.

Hermin, S., &Murhadi, W. R. (2015).Factor affecting underpricing in the company that does IPO in BEI period 2004-2014. *Jurnal Manajemen & Bisnis Bekala Ilmiah*, *2*(10), 228-237.

Huang, Z., Liu, J., & Ma, G. (2019).Distance, transportation and the underpricing of IPOs. *Review of Quantitative Finance and Accounting*, *52*(4), 991–1009. https://dx.doi.org/10.1007/s11156-018-0733-6

Ibbotson, R.G. (1975). Price Performance of Common Stock New Issues. *Journal of Financial Economics*, *2*(3), 235-272. https://doi.org/10.1016/0304-405X(75)90015-X

Islam, M. A., Ali, R., & Ahmad, Z. (2013).Underpricing of IPOs: the case of Bangladesh. *Global Economy and Finance Journal*, *3*(1), 44-61.

Kandel, S., Sarig, O., & Wohl, A. (1999). The demand for stocks: An analysis of IPO auctions. *The Review of Financial Studies*, *12*(2), 227-247. https://doi.org/10.1093/rfs/12.2.227

Killins, R. N. (2019). An investigation of the short-term performance of the Canadian IPO market. *Research in International Business and Finance, 47*, 102-113. https://doi.org/10.1016/j.ribaf.2018.07.004

Kristiantari, I. D. A. (2013). Analisisfaktor-faktor yang mempengaruhi underpricing sahampadapenawaransahamperdana di bursa efek Indonesia. *Jurnal Ilmiah Akuntansi Dan Humanika*, *2*(2), 785-811. https://doi.org/10.23887/jinah.v2i2.1672

Leow, H. W. (2020). The interaction effect of heuristic representation on initial public offering anomaly: Evidence from flipping activity. *Australasian Accounting, Business and Finance Journal*, *14*(2), 3–15. https://doi.org/10.14453/aabfj.v14i2.2

Li, L., Fowler, J., & Naughton, T. (2008). Short term equity returns of Chinese IPOs, 1999 to 2004: excess demand, social policy and wealth effects. *Journal of Emerging Market Finance*, *7*(2), 197-214.https://doi.org/10.1177/097265270800700204

Loughran, T., & McDonald, B. (2013). IPO first-day returns, offer price revisions, volatility, and form S-1 language. *Journal of Financial Economics*, *109*(2), 307-326. https://doi.org/10.1016/j.jfineco.2013.02.017

Mahatidana, M. &Yunita, I. (2017). An examination factors influencing underpricing of IPOs on financial and manufacturing industries on the Indonesia Stock Exchange over the period of 2011-2016. *International Journal of Scientific and Research Publications*, *7*(11), 2250-3153.

Malhotra, M., & Nair, M. (2015). Initial public offerings' underpricing: A study on the short run price performance of book-built IPOs in India. *Paripex - Indian Journal of Research*, *4*(2), 197-204.

Mousa, M., Judit, S., & Zoltan, Z. (2019). Factors Influencing the Investor's Decision in Syrian Initial Public Offering Market: A Survey Study. *Journal of Business and Social Review in Emerging Economies, 5*(2), 287-294.https://doi.org/10.26710/jbsee.v5i2.814

Myers, S. & Brealey, R. (2003). *Principles of corporate finance.*(7th ed.). London: Prentice Hall.

Nadeem, M. (2020). Does board gender diversity influence voluntary disclosure of intellectual capital in initial public offering prospectuses? Evidence from China. *Corporate Governance: An International Review*, *28*(2), 100–118.

Navyatha, K., & Reddy, G. N. (2022). Performance of IPO Stocks in India: An Event Study. *IUP Journal of Accounting Research & Audit Practices*, *21*(3), 46-60.

Pradhan, P., & Shrestha, K. (2016).Performance of the initial public offering (IPO) in the Nepalese Stock Market. Retrieved from SSRN: https://ssrn.com/abstract=2793490

Rathnayake, D. N., Louembe, P. A., Kassi, D. F., Sun, G., & Ning, D. (2019). Are IPOs underpriced or overpriced? Evidence from an emerging market. *Research in International Business and Finance, 50*,171–190. https://dx.doi.org/10.1016/j.ribaf.2019.04.013

Ritter, J. R. (1984). The" hot issue" market of 1980. *Journal of Business*, *57*(2), 215-240.

Ritter, J. R. (1991). The long-run performance of initial public offerings. *The Journal of Finance*, *46*(1), 3-27.https://doi.org/10.1111/j.1540-6261.1991.tb03743.x

Rock, K. (1986). Why new issues are underpriced. *Journal of Financial Economics*, *15*(1), 187-212. https://doi.org/10.1016/0304-405X(86)90054-1

Sehgal, S., & Singh, B. (2008). Determinants of initial and long-run performance of IPOs in Indian stock market. *Asia Pacific Business Review*, *4*(4), 24-37. https://doi.org/10.1177/0973247008004004

Shrestha, M. K. (1992). Capital market in Nepal: Changing dimensions and strategies. *The Nepalese Management Review*, *8*(1), 13-27.

Sohail, M., Raheman, A., Zakaria, M., & Farhat, R. (2018). IPO underpricing phenomenon on the Karachi stock exchange. *Argumenta Oeconomica*, *41*(2), 225-255.

Souitaris, V. (2020). Should I stay or should I go? Founder power and exit via initial public offering. *Academy of Management, 63*(1), 64–95. https://doi.org/10.5465/amj.2017.0420

Subedi, P. P., & Dangal, S. (2022). The short run return of initial public offerings in Nepal. *SEBON Journal, 9*, 1-15.

Vong, A. P., & Trigueiros, D. (2010). The short-run price performance of initial public offerings in Hong Kong: New evidence. *Global Finance Journal*, *21*(3), 253-261. https://doi.org/10.1016/j.gfj.2010.09.003

Wang, X., Zhang, L., Chan, K. C., & He, J. (2019). Does underwriter rating matter? Evidence from seasoned equity offerings in an emerging market. *International Review of Economics and Finance, 61*, 17–34. https://dx.doi.org/10.1016/j.iref.2019.01.002

Welch, I. (1989). Seasoned offerings, imitation costs, and the underpricing of initial public offerings. *The Journal of Finance*, *44*(2), 421-449.

Yadav, R. N., Dasgupta, H., & Moray, R. (2018). Short term performance analysis of IPOs in India. *Asian Journal of Empirical Research, 8* (11), 292-403.