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Exploring the Factors Influencing the Underpricing of Initial Public Offerings (IPOs) in Bangladesh

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ABSTRACT

Purpose: This paper attempts to demonstrate the specific characteristics and factors that affect Initial Public Offerings (IPOs) underpricing in an emerging Capital Market, Bangladesh.

Methodology: The study developed a conceptual framework and tested hypotheses using multiple linear regression analysis. It collected data from 132 IPO companies in Bangladesh from 2011 to 2024.

Findings: The analysis indicates significant effects and a positive relationship between underpricing and the explanatory variables: Market Lot and oversubscription. However, Subscription period, Pre- IPO paid-up Capital, IPO size, and Offer Price have a negative relationship with the level of stock underpricing. Along with these factors, Premium, Earnings per share (EPS), Credit Rating, and Audit Quality do not significantly link to IPO but have a positive relationship with IPO Underpricing.

Implications: The study has explored the existing scenario of IPOs in Bangladesh, which will help regulators undertake the proper course of action in developing the stock market in Bangladesh. It also significantly impacts satisfying the needs of investors, issuers, and other stakeholders.

Originality: The study examined a larger sample and covered many sectors of IPO firms. The evidence relates to a new conceptual framework and an expanded model to identify and analyze the various elements contributing to the underpricing of IPOs in Bangladesh's capital market.

Keywords: Initial Public Offering (IPO), Underpricing, Market Lot, Earnings per Share (EPS), Oversubscription, IPO size, Subscription Period.

Paper type: Research paper

INTRODUCTION

Businesses must stay in shape to survive within significant economic uncertainty. They need to succeed and often require expansion and improvement, and a substantial amount of money is necessary for a business to continue growing and developing over time. Therefore, getting such funds could be accomplished by going public (Razafindrambinina & Kwan, 2013). Initial Public Offerings (IPOs) are securities made available to the public through the capital market for the first time (Rudianto, 2021). Since an IPO represents a noteworthy turning point in a company's financial strategy (Yalçin & Ünlü, 2017). Therefore, the first time stocks are sold to the general public or third-party investors through a stock exchange is known as an IPO (Mehmood et al., 2021). IPOs are typically used by younger, smaller private companies to generate funds for expansion. However, it can also benefit the larger private organizations looking to become publicly traded. According to issuers, cash is an apparent motive for companies to go public. This money can be essential for developing new items, hiring skilled workers, building basic facilities, and increasing inventories.

A publicly listed company's credibility can be increased through IPOs. This is particularly crucial for them to draw in additional customers. Going public will result in a reduction in the company's cost of capital from a financing standpoint. Investors pointed out that IPOs allow investors to take a sizable position in a stock, an

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option that would often be more costly and take a long time to perform in the secondary market (Rudianto, 2021). Furthermore, because IPOs are unexpected, buying one could be risky for interested individuals. This is why most businesses offer an IPO discount when they initially go public, making them more appealing to investors and peer competitors (Tian, 2012).

Through an IPO, an investor can contribute capital to the company's expansion (Ritter, 1987). However, determining the price for offering a company's shares below their market value or the price they are anticipated to trade once listed is known as underpricing in the context of an IPO. This results in a "first-day pop," in which the stock price suddenly increases above the IPO price as soon as the shares go public sale. By enhancing investor interest and improving market sentiment, underpricing is often considered a viable option for ensuring a successful offering (Ritter, 1984). Another way to demonstrate that is the initial price of a company's shares during the IPO practice, below its current market value, is known as underpricing. Underpricing of IPOs or strong returns on IPOs is a phenomenon that is prevalent in most stock markets, be it developed or emerging economies (Ritter, 1984). Thus, investors who purchased the stock at the offering price take advantage of the substantial rise in price on the first day of trading (Allen & Faulhaber, 1989; Ljungqvist, 2007). Therefore, the study aims to demonstrate specific characteristics and factors that affect the underpricing of IPOs in Bangladesh's Capital Market.

This study investigated the degree of underpricing in the Dhaka Stock Exchange and the Chittagong Stock Exchange by examining 132 issues listed in Bangladesh from 2011 to 2024. The study developed a conceptual framework to analyze the root causes of underpricing and provided a predictive model involving core statistical indicators. The study examined a larger sample and covered many sectors of IPO firms. The evidence relates to a new conceptual framework and an expanded model to identify and analyze the various elements contributing to the IPOs' underpricing in Bangladesh's capital market.

After presenting the introduction, this paper will be structured in the following way. Section two presents the literature review and hypotheses development to show empirical evidence of the existence of IPO underpricing situations in other studies and the influencing factors behind these IPO underpricing situations. Section three presents the research methodology. Then, section four presents the empirical results recorded with interpretations. Moreover, the last section includes the main findings with some concluding comments.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The main incentives for undertaking an IPO include raising capital, enhancing public image, providing liquidity to founders and early investors, and capitalizing on a higher valuation. Many economic, market and country specific factors such as the market capitalization, issue premium, face value of the share, issue price, oversubscription, issue size, systematic risk, debt ratio, offer size, offer time, size of the firm, industry type, financial leverage, indigenous population ownership, substantial shareholder losses, underwriters' prestige may influence IPO Underpricing (Abdullah & Mohd, 2004; Islam et al., 2010; Jampala et al., 2016; Kenourgios et al., 2007; Mumtaz & Ahmed, 2014; Sochi & Islam, 2018; Tian, 2012)

Following the past research and our opinion, the present study mainly considered some factors. Nonetheless, based on the normality test and the sample size, we chose eight independent variables and two control variables that could affect IPO underpricing in Bangladesh. We reviewed various literature below these variables, along with their hypothesis:

Factors Affecting IPOs Underpricing

Subscription Period

Investors can reserve shares in the stock market during the subscription period at a price fixed before the issue. At this time, IPOs and other stock offerings are significant since they let companies gauge interest from buyers. If many investors ask for shares, the issuer can set an early closure date; otherwise, they can use the greenshoe option to give the subscription a more extended period. Prior studies, such as Islam et al. (2010), studied the timing of the offer to explain the lack of significant influence on the degree of IPO underpricing in

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the Chittagong Stock Exchange. Sochi & Islam (2018) have shown that the offer time negatively influences the level of underpricing. Therefore, the study tested the following hypothesis:

H1: Subscription periods are positive and significant associated with IPO underpricing.

IPO size

The IPO size is the worth of all the shares a company offers when it initiates its IPO. To determine it, we multiply the total number of shares offered by the price they are being sold for. When a company has a large IPO, investors and others see it as raising more money, which could interest investors more. A company selects how big an IPO should be by considering its financial requirements, what the market is doing, and how much interest investors have. The number of shares determines the company's current overall value and what its stock could be worth over time. Investors examine an IPO's overall size to assess the risks and benefits they may encounter when purchasing the shares. (Yaakub & Sherif, 2019; Yazdani & Aris, 2015) found that the analysis results on the initial performance of the IPOs provide a positive relationship between IPO size and initial underpricing. (Burhop, 2011) found that IPO Size had an insignificant relationship with underpricing on the Berlin Stock Exchange. Hence, the study developed the following hypothesis:

H2: IPO size has a significant effect and is positively related to the IPO Underpricing.

Pre- IPO paid-up Capital

Before going public, pre-IPO paid-up capital (PIC) describes all the money a company has gathered from its investors. It is created using investors' funds, contributions from business founders, or through smaller funding circles. It means the company raised money from investors before issuing those shares to the public. Whereas authorized capital represents the company's maximum potential for fundraising, paid-up capital reflects the actual investment made by investors. It is important to study this figure to determine whether a company is financially ready for the stock market. IPO size is a variable well known to be utilized in the research related to IPO underpricing. We believed that the IPO size is negatively/positively associated with underpricing. In this case, the liquidity of IPO investors is just a consideration. However, the present paper considers PIC as an independent IPO underpricing variable. The argument is that, rather than the size of the IPO, pre-IPO capital is a more accurate reflection of a firm's market capitalization. Investors choose companies with small market capitalization due to possible positive flipping (Rahman et al., 2020). On the contrary, investors may not be interested in investing in the primary shares of companies with huge PICs. Thus, PIC and IPO underpricing should have a positive/negative relationship. Therefore, the alternative hypothesis in the above backdrop is as follows:

H3: Pre- IPO paid-up Capital significantly affects the IPO Underpricing.

Offer Price per Share

The offer price per share is the price at which a company's shares are sold to its investors when it goes public for the first time. Underwriters determine this price depending on market demand, what the company is worth, and the state of the economy. That is because the offer price stimulates investor interest (as reflected in subsequent investment) and determines the company's ability to raise capital. Once the trading begins, however, the market forces determine the share price, which can increase or decrease based on how well the investors perceive the company's expectations to perform on its prospects. A successful IPO and good post- listing trading require a well-calculated offer price. Prior studies have shown that offer prices are the true factors that significantly influence IPO underpricing (Jampala et al., 2016; Mumtaz & Ahmed, 2014). Furthermore, another study found that issue prices are negatively related to the IPO underpricing in the Malaysian Stock Market (Wei & Marsidi, 2019). Hence, the study developed the following hypothesis:

H4: The Offer Price per share significantly affects the IPO underpricing.

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Premium per Share

Premium per share means the share's issue price is higher than its face or par value. Premium is the name given to the extra amount paid above a share's nominal value. When a company issues shares, it records the premium in the share premium account, which belongs to shareholders' equity. The extra capital is commonly allocated towards business growth, company debt, or operational expenses. An increase in share premium leads investors to view the market and company more positively. Jampala et al. (2016) found that the premiums play a significant role in influencing IPO underpricing. Therefore, the study developed the following hypothesis:

H5: Premium has significant effects and a positive relationship with the IPO underpricing

Market Lot

Prior studies have shown that offer size is a factor influencing IPO underpricing. Tian (2012) indicates in his article that the London Stock Exchange has a 6.89% level of underpricing. The results of this study reveal that the size of the issue influences the underpricing of IPOs.

Sochi & Islam (2018) found that the offer size positively influences IPO underpricing at DSE. Islam et al. (2010) demonstrated that the offer size is negatively correlated with the degree of underpricing. Market lot is also called the offer size. Market Lot refers to the number of shares that must be traded as a single order in the stock market. By doing so, it makes trading uniform and preserves liquidity. How big a market lot will depend on the exchange and the security involved. The secondary share minimum market lot in the secondary market of Bangladesh is currently one (01) with no maximum limit. However, the lot size of IPO shares is usually 100, 200, 250, or 500. We defined a LOT of 500 shares as large and any other size as not large. Hence, the hypothesis in the alternative format is as follows:

H6: Market Lot is positively related to the IPO underpricing.

Earnings per Share (EPS)

Brau & Fawcett (2006) state that strong historical earnings are a high positive signal to IPO investors. EPS is also considered the most widely used yardstick to measure the profitability of companies. EPS is an independent variable to describe the factors influencing IPO underpricing (Daeli & Wijaya, 2020; Oktananda & Gantyowati, 2023). However, Irawan & Nasution (2023) found a significant negative impact on IPO underpricing. Earnings per Share (EPS) reflects how much of a company's profit is given to each common share when reported. The formula to calculate corporate profit is:

EPS=Net Income−Preferred Dividends / End-of-Period Common Shares Outstanding.

Earnings per Share (EPS) helps investors understand how much profit a company earns per share and how effectively it can grow. Public companies issue both basic EPS and diluted EPS, as the first excludes shares from convertible securities, and the second includes them just in case. The period of the current study is not the same; therefore, the results may vary. In the current research, the most recent EPS has been taken immediately before the commencement of the IPO underpricing according to the prospectus. We suppose that EPS mentioned in the prospectus can affect IPO investors. So, it may happen that the companies that succeeded in reporting the higher EPS could have gained more underpricing and vice versa. In a different format, therefore, the hypothesis regarding EPS is as follows:

H7: Earnings Per Share has a positive relationship with the IPO underpricing.

Over Subscription

An issue of over-subscription in the share market occurs when the number of people seeking to purchase shares is higher than what the company offers during an IPO or other stock sale. Interest and confidence in the company from the market are high, as reflected by this. With lots of demand, the underwriters might adjust the share price or divide the available shares equally among the underwriters. Oversubscription roles substantially

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influence their IPO performance (Jampala et al., 2016). Prior studies found that the study's results reveal that the oversubscription rate positively influences IPO underpricing (Kenourgios et al., 2007); Sochi & Islam, 2018). On the other hand, Bakar & Uzaki, (2013) studies indicate that the regression analysis on the IPO underpricing has shown that oversubscription had an insignificant influence on the degree of IPO underpricing. Thus, the hypothesis concerning Over-subscription in an alternative format is as under:

H8: Over-subscription has a positive and significant effect on the IPO underpricing.

Conceptual framework:

According to the variables applied in the study the conceptual framework can be built as given below:

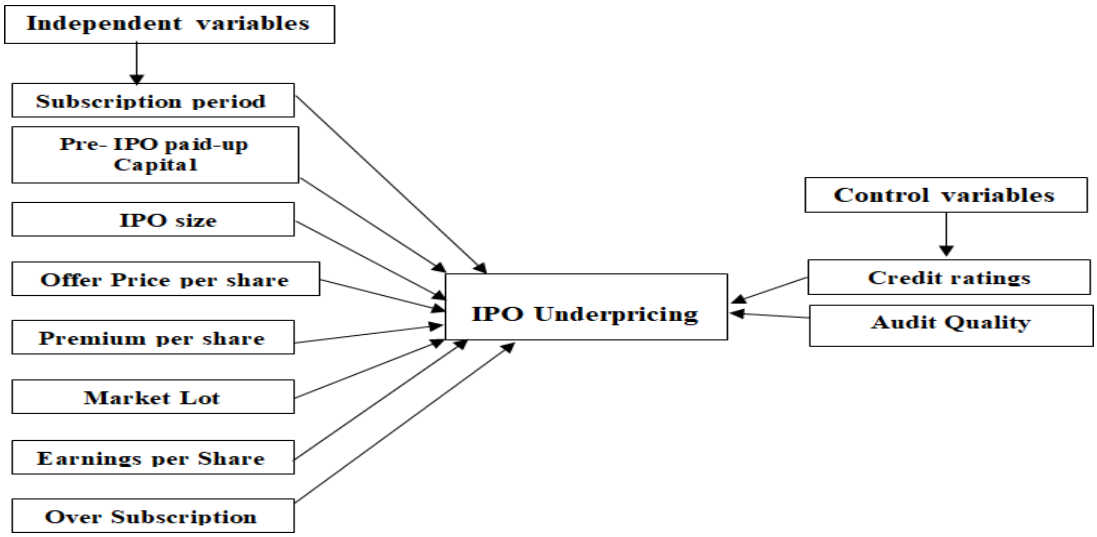

Figure: Conceptual Framework (Authors' Preparation).

RESEARCH METHODOLOGY

In line with previous studies, we used panel data to measure the study's variables and provide reliable and valid results.

Sample Techniques

This study employs a quantitative design, focusing on companies that conducted IPOs from 2011 to 2024. The Dhaka Stock Exchange (DSE) and the Chattogram Stock Exchange (CSE) are the main data sources. A sample of 132 companies related to new listings on the DSE and CSE from July, 2011, to June, 2024, was collected to examine the characteristics and factors influencing IPO underpricing in the Bangladeshi capital market. The study utilizes two methods: the fixed method and the book-building method. Data for each IPO was gathered from the stock exchanges' websites, the firms' prospectuses, and newspapers.

Table 1: Summary of Sample Companies

S.No.	Description	No of Issues
1	Newly listed issues during the study period	157
2	Less: Mutual fund	23
3	Less: Corporate bond	2
	Sample Companies	132

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Source: Authors' compilations

Regression Models

To achieve the study's objectives, we treat underpricing as a dependent variable, subscription period, pre-IPO paid-up Capital, IPO size, Offer Price per share, Premium per share, Market Lot, Earnings per Share (EPS), and Oversubscription as independent variables, and Credit Rating and Audit Quality as control variables for the regression analysis.

$$IPOup = \beta_0 + \beta_1 S.Period + \beta_2 P.IPOCap + \beta_3 IPOSiz + \beta_4 Off.Price + \beta_5 Premium + \beta_6 M.Lot + \beta_7 EPS + \beta_8 Over.Sub + \beta_9 C.Rating + \beta_{10} A.Quality + \varepsilon jt$$

Source: Authors' compilations

Research Variables and Variable Measurement

The dependent variable used in this study is IPO underpricing (IPOup). The hypothesized variables used in this study are Subscription period, pre-IPO paid-up Capital, IPO size, Offer Price per share, Premium per share, Market Lot, EPS, and Over-subscription. This study also incorporates several control variables established in prior researches to influence IPO underpricing. These variables include Credit Rating and Audit Quality.

Dependent Variable (IPOup)

IPOup is frequently employed to analyze the first trading day of the mispricing problem, which is termed the first-day abnormal return. The IPO underpricing is gauged by the first-day returns of stocks that have undertaken an IPO. The underpricing/overpricing was measured by taking the difference between the offering price and the closing price on that specified date, was dividing by the offering price (Islam et al., 2010; Tian, 2012). The measurement is expressed in the following way (Mulyani & Maulidya, 2021):

$$IPOup = \frac{P_{1i} - P_{0i}}{P_{0i}}$$

Description:

IPOup = IPO underpricing

P_{1i} = the first day closing price of stock i

P_{0i} = the initial offering price of stock i

If IPOup is positive, it means the IPO is underpriced

If IPOup is negative, it means the IPO is overpriced

If IPOup is zero, it means the IPO is correctly priced

Independent and Control Variables:

The hypothesized variables and control variables are described below in Table 2.

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Table 2: Description of Explanatory Variables:

Variables	Description
Dependent Variable	
IPOup	IPO underpricing is gauged by the first-day returns of stocks.
Independent Variables	
S.Period.	The subscription period for shares (from the opening day to the closing day) of the company to deposit money.
P.IPOCap	Amount of Pre-IPO paid-up Capital.
IPOSiz	IPO Size in BDT (million).
Off.Price	Offer Price per share.
Premium	Share Premium per share in BDT.
M.Lot	A market lot or lot size in the share market.
EPS	Amount of Earnings per Share.
Over.Sub	The demand for a company's shares during an IPO.
Control Variables	
C.Rating	Long-term and short-term credit rating.
A.Quality	Audit quality – Big four (1), Others (0).
εjt:	A random error of firm j in period t.

Source: Authors' compilations

RESULTS AND DATA ANALYSIS

Descriptive Statistics

Table 3 presents the descriptive statistics for the study's dependent and independent variables. The average underpricing indicator of IPOs is 1.68%. The mean values for the performance indicators—Subscription Period, Pre-IPO Paid-up Capital, IPO Size, Offer Price, Premium, Market Lot, EPS, Over-Subscription, Credit Rating, and Audit Quality—are 7.48%, 6.55%, 5.79%, 2.88%, 3.23%, 4.79%, 2.30%, 21.70%, 5.28%, and 16%, respectively. The standard deviation for IPOup in the sample is 2.25%, reflecting variability among the 132 IPOs of listed firms in Bangladesh. Additionally, the standard deviations for the indicators—Subscription Period, Pre-IPO Paid-up Capital, IPO Size, Offer Price, Premium, Market Lot, EPS, Over-Subscription, Credit Rating, and Audit Quality—are 2.97, 0.91, 0.83, 0.74, 0.68, 2.18, 3.06, 17.14, 2.81, and 0.37, respectively. During the study period, out of 132 companies listed on the Stock Exchange, 58 IPO were issued at a premium, with a mean of 3.23% and a standard deviation of 0.686. The figures in the table indicate significant differences among the variables.

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Table 3: Descriptive Statistics of dependent and independent variables

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
IPOup	132	-0.56	15.74	1.6845	2.24622	3.169	15.081
LnIPOup	132	-3.36	2.76	-0.0910	1.29707	-0.480	-0.310
S.Period	132	5.00	15.00	7.4848	2.97184	1.135	0.336
P.IPOCap	132	4.95	10.50	6.5507	0.90184	1.303	2.726
IPOSize	132	4.79	8.56	5.7933	0.83200	1.258	1.313
Off.Price	132	2.30	5.75	2.8784	0.74089	1.111	0.841
Premium	58	2.08	5.72	3.2369	.68630	1.196	2.247
M.Lot	132	0.00	6.21	4.7937	2.17901	-1.599	0.956
EPS	132	0.04	5.98	2.3017	1.51362	0.834	-0.031
Over.Sub	132	0.74	73.93	21.6995	17.13553	0.855	0.217
C.Rating	132	0.00	11.00	5.2803	2.81846	-0.160	-0.339
A.Quality	132	0.00	1.00	0.1591	0.36715	1.886	1.579
Valid N (listwise)	132						

Source: Authors' calculation using financial data from the IPO Company.

The table also shows that this study evaluated the acceptable range for skewness and kurtosis of all variables. For skewness, values between -2 and +2 are generally considered acceptable for normality, with values closer to zero indicating better normality. For kurtosis, a range of -7 to +7 is commonly accepted as normal. Therefore, all variables display fairly good skewness and kurtosis values. The study suggests an acceptable level of model reliability. Logarithmic transformation was applied to normalize the data and counter the effects of outliers. This ensures a more standardized interpretation of values and improves the validity of the statistical analysis.

Correlation Analysis

Table 4 shows the correlation between independent and dependent variables. The table indicates that the IPO underpricing of companies has negative correlations with pre-IPO paid-up capital, IPO size, Offer Price, Premium, Earnings per Share (EPS), and Audit Quality. At the same time, subscription period, Market Lot, Over-Subscription, and Credit Rating are positively correlated with IPO underpricing, with r values of (-0.272, -0.362, -0.339, -0.338, -0.085, -0.08) and (0.049, 0.309, 0.483, 0.224). However, Pre-IPO paid-up capital, IPO size, Offer Price, Premium, Market Lot, Over-Subscription, and Credit Rating significantly correlate with IPO underpricing. The data show no correlation between the control variable, Audit Quality, and the underpricing of listed IPO firms in Bangladesh. A positive and statistically significant relationship exists between Credit Rating and IPO underpricing, with the R-squared value of 0.224. Additionally, the table presents how the relationship patterns between the independent variables are positively or negatively interrelated.

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Table 4: Pearson Correlation Test

	IPOup	S.Period	P.IPOCap	IPOSize	Off.Price	Premium	M.Lot	EPS	Over. Sub	C.Rating	A.Quality
LnIPOup	1										
S.Period	0.049	1									
P.IPOCap	-.272**	-0.019	1								
IPOSize	-.362**	-0.04	.657**	1							
Off.Price	-.339**	-0.158	.187*	.339**	1						
Premium	-.338**	-.177*	0.149	.331**	.975**	1					
M.Lot	.309**	.196*	-.210*	-.339**	-0.119	-0.109	1				
EPS	-0.085	-0.107	0.093	0.1	.486**	.412**	0	1			
Over.Sub	.483**	0.106	-.342**	-.547**	-.552**	-.587**	.267**	-0.09	1		
C.Rating	.224**	0.121	-0.152	-.230**	-.172*	-0.142	0.119	-0.033	.336**	1	
A.Quality	-0.081	-0.089	.189*	0.127	.221*	.241**	0.003	0.058	-.191*	-0.11	1
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

Source: Extracted from selected IPO companies.

Regression Analysis and Empirical Results

The paper used data analysis methods to test the hypothesis: multiple linear regression. Multiple linear regression is employed to determine the influence of each independent variable on a dependent variable. Hypothesis testing includes three types: partial, simultaneous, and determination testing.

Determination Test

Table 5 shows that the R, R^2, and adjusted R square values are calculated as 63.8%, 40.8%, and 35.9%, respectively. The data indicates that the independent variable accounts for 40.8% of the variation in IPO underpricing, while other factors explain the remaining 59.2%. The 35.9% adjusted R-squared value signifies that the independent variables explain 35.9% of the variation in the dependent variable among the sampled firms.

Based on the determination test results, the Adjusted R Square value is 0.408, as shown in Table 5. This indicates that the Subscription period, pre-IPO paid-up Capital, IPO size, Offer Price, Premium, Market Lot, EPS, over-subscription, Credit Rating, and Audit Quality collectively explain 35.9% of the variation in the dependent variable, underpricing. Their combined effect helps explain the relationship between these variables and the variation in underpricing.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square	F	df1	df2	Sig. F	

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					Change	Change			Change	
1	.638[a]	0.408	0.359	1.03876	0.408	8.325	10	121	0.000	1.986
a. Predictors: (Constant), A.Quality, M.Lot, EPS, C.Rating, S.Period, P.IPOCap, Over.Sub, Premium, IPOSize, Off. Price										
b. Dependent Variable: LnIPOup										

Source: Compiled from selected IPO companies

Durbin-Watson Test

Table 5 shows that the Durbin-Watson value for each model was calculated to assess autocorrelation in the regression residuals. The result indicates a value of 1.986. There are upper and lower limits for Durbin-Watson values. The acceptable range is between 0.5 and 1.5. A value of 2 indicates no multicollinearity; a value higher than 2 suggests negative correlation, while a value lower than 2 suggests positive correlation. The value of d=1.986 indicates no autocorrelation issues in the models. Based on this study, the Durbin-Watson test result was <2.00, within the acceptable range. Furthermore, we can conclude there is no significant correlation between the results.

F Test

The simultaneous test helps determine the effect of all independent variables on the dependent variable. The results of the simultaneous test are given in Table 6. Hence, a significant level of 0.00 <0.05 is obtained based on the F Test determined in Table 6, and it may be concluded that the selected model is suitable and feasible (fit).

Table 6: Significance Test Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.832	10	8.983	8.325	.000[b]
	Residual	130.562	121	1.079		
	Total	220.394	131			
a. Dependent Variable:LnIPOup						
b. Predictors: (Constant), A.Quality, M.Lot, EPS, C.Rating, S.Period, P.IPOCap, Over.Sub, Premium, IPOSize, Off.Price						

Source: Authors' compilations

Multicollinearity Test

Two primary techniques (Variance Inflation Factor and Tolerance) were employed to determine whether there was multicollinearity among the independent variables applied in this study. The Variance Inflation Factor (VIF) presented in Table 7 indicates whether a predictor indicates a high linear association with other predictors. Associated with the VIF is the tolerance statistic, that is, its inverse (1/VIF). If the VIF is greater than 10, there is a problem**.** Tolerance below 0.1 indicates that there is a cause for concern. Above are the results of the analysis.

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All the variables except offer price and premium exhibit fairly good tolerance and VIF values. From the above table, the study tested the existence of multicollinearity by determining that the VIF value for the other independent variables is minimal and less than 10. However, the Tolerance level was not equal to or less than 0.1. In summary, this study exhibits a lower level of multicollinearity amongst the independent variables.

Hypothesis Test (Regression Analysis)

Regression tests are carried out to determine whether each independent variable affects the dependent. When the significance value is below 0.05, the results can prove influential, whereas when it is above 0.05, they are determined to have no effect.

Table 7: Regression results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	2.614	3.128		0.836	0.405		
	S.Period	-0.022	0.037	-0.048	-0.592	0.555	0.902	1.109
	P.IPOCap	-0.218	0.261	-0.088	-0.834	0.406	0.523	1.914
	IPOSize	-0.045	0.317	-0.017	-0.141	0.888	0.424	2.358
	Off.Price	-0.430	1.224	-0.142	-0.351	0.726	0.041	24.251
	Premium	0.013	0.540	0.010	0.025	0.980	0.039	25.57
	M.Lot	0.194	0.087	0.188	2.233	**0.027****	0.827	1.210
	EPS	0.010	0.069	0.013	0.141	0.888	0.658	1.521
	Over.Sub	0.041	0.015	0.311	2.697	**0.008***	0.441	2.266
	C.Rating	0.053	0.067	0.067	0.791	0.430	0.826	1.211
	A.Quality	0.167	0.495	0.027	0.337	0.737	0.893	1.120
a. Dependent Variable: IPOup								

Source: Authors' calculation using financial data

Note: * and ** denote statistically significance at 1% and 5% significance, respectively.

Table 7 shows that the test results indicate that the Market Lot and over subscription variables positively affect underpricing, with a significance value of 0.027 and 0.008, smaller than 0.05. This is consistent with the study (Jampala et al., 2016; Kenourgios et al., 2007; Sochi & Islam, 2018; Tian, 2012). The result of this study reveals that Market lot and oversubscription are positive and significantly influenced on the underpricing of IPOs. However, this result is not in line with research comportment (Islam et al., 2010), which states that Market lot has a negative effect on underpricing. On the other hand, Bakar & Uzaki (2013) studies indicate that the regression analysis on the IPO underpricing has shown that oversubscription was an insignificant influence on the degree of IPO underpricing. Market lot and oversubscription have a significant impact on underpricing by directly indicating demand pressure and accessibility of the capital market in the relatively shallow Bangladesh market. These results indicate that underpricing is not only determined by universal information

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asymmetry and signaling theory, but also by country specific institutional structure, trading rules and demographics of investors.

The Subscription period, Pre- IPO paid-up Capital, IPO size, and Offer Price do not affect underpricing, as shown in Table 7 based on the preceding equation. The test results demonstrate that these four variables negatively affect underpricing with an insignificance value of 0.555, 0.406, 0.888, and 0.726, greater than 0.05. According to the study that was done (Burhop, 2011; Islam et al., 2010; Sochi & Islam, 2018; Wei & Marsidi, 2019) assert the timing of the offer does not explain the lack no significant influence on the degree of IPOs underpricing in the Chittagong Stock Exchange. Moreover, the subscription period negatively influences the level of underpricing. Burhop (2011b) found that IPO Size had an insignificant relationship with underpricing. Moreover, other studies found that offer prices are negatively related to the IPO underpricing in the Malaysian Stock Market. Nonetheless, this finding is not similar to the study done by (Jampala et al., 2016; Mumtaz & Ahmed, 2014; Yazdani & Aris, 2015) which states that the results of the analysis on the initial performance of the IPOs provide significant influence and Positive relationship between IPO size, offer price and initial underpricing. The other variables are rejected according to Table 7, whose results of the test state that the Premium, Earnings per share (EPS), Credit Rating and Audit Quality variable positively affect the IPO underpricing but statistically insignificance with value of 0.980, 0.888, 0.430 and 0.737, which is more than significant level 0.05.

Summary of Hypotheses

Table 8: The summary of hypothesis testing of this study is shown in the following table

NO.	Hypotheses	Results
H1	Subscription periods are positive and significant associated with IPO underpricing.	Rejected
H2	IPO size has a significant effect and is positively related to the IPO Underpricing.	Rejected
H3	Pre- IPO paid-up Capital has a significant effect on the IPO Underpricing.	Rejected
H4	The Offer Price per share has a significant effect on the IPO underpricing.	Rejected
H5	Premium has significant effects and a positive relationship with the IPO underpricing.	Rejected
H6	Market Lot is positively related to the IPO underpricing.	Accepted
H7	Earnings per Share has a positive relationship with the IPO underpricing.	Rejected
H8	Over-subscription has a positive and significant effect on the IPO underpricing.	Accepted

Source: Authors' compilations.

CONCLUSION

The study's aim to explain the underpricing of IPOs in a developing economy, specifically in the Capital Market of Bangladesh. We include some firm-specific and problem-related factors. The study period spans from July 2011 to June 2024. Our research identifies concepts of overpricing and underpricing and the gap between them. Our model differentiates dependent and independent variables using multiple linear regression techniques. We selected 132 listed companies during this period. Among these, 121 firms are underpriced, and only 11 are overpriced.

This study found that subscription period, pre-IPO paid-up capital, IPO size, and offer price have an insignificant and negative relationship with underpricing. At the same time, market lot and oversubscription positively and significantly influence IPO underpricing. Furthermore, the results indicate that the premium,

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earnings per share (EPS), credit rating, and audit quality positively impact underpricing. In contrast, these variables show an insignificant relationship with IPO underpricing.

This paper provides additional evidence on the underpricing of IPOs in Bangladesh. We analyzed ten explanatory variables and found only two consistently and significantly affected underpricing. This research contributes to the existing literature by exploring the factors determining IPO underpricing, supported by a new conceptual framework that identifies and assesses various causes of IPO underpricing in Bangladesh's capital market in recent years. The study also seeks to develop a model to predict IPO underpricing in Bangladesh's capital market, focusing on the key independent variables identified through statistical analysis.

The research hypothesizes and confirms a new theoretical framework combining ten explanatory variables, such as subscription period, pre-IPO paid-up capital, IPO size, offer price, premium, market lot, earnings per share, and oversubscription, and control variables, such as credit rating and audit quality. This contrasts with previous studies, which examined these factors in isolation; this framework offers a comprehensive model that brings about the interaction of firm-specific, issue-specific, and market-specific attributes. The study adds a more detailed theoretical framework on which to analyze underpricing in emerging economies.

This research is important for educating people about the basics of the capital market, particularly issues related to going public, the levels of underpricing or overpricing of IPOs across different industry sectors, and their determining factors. This study will provide insights for future investors on which IPOs to consider investing in, as it includes a detailed analysis of underpricing and the dynamic behavior of stock prices. Varying rates of underpricing in different countries suggest that specific characteristics in each country may influence underpricing. Pricing and share allocations differ among institutions, which is a key factor in understanding the extent of underpricing (Loughran et al., 1994). Bangladesh's capital market is unique, with a notable feature allowing IPOs to be listed in two ways. It is observed that 95% of IPOs listed on the CSE are also listed on the DSE. Therefore, exploring the level of underpricing and its determinants in Bangladesh's capital market will be interesting.

This research accounts for 40.8% of the variations in IPO underpricing, while the remaining 59.2% is affected by other factors. Future researchers can examine additional factors that may influence underpricing, and it is anticipated that further findings on this topic will emerge. The study has been conducted only using secondary data from the stock market reports of the listed companies. Therefore, to find the perceptions of general investors, practitioners, or regulators regarding the factors affecting the IPO underpricing, further study can conduct a survey the perceptions of information users.

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