Original Research

Exploration of IPO Motives, Oversubscription and Flotation Costs: Evidence from Bangladesh

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Abstract

This study intended to explore the IPO motives and the factors that contributed to IPO oversubscription in Bangladesh. Based on hand-collected data from 101 sample IPO prospectus during 2010–19, the study found an average of 10 IPOs per year, mostly (90%) through the fixed-price method. Among the sample companies, 34.7% were in the textile sector, followed by 17.8% in the engineering sector and 12.9% in the pharmaceuticals & chemical sector. This study observed an average subscription times of 23.41, which was much lower than in some other South Asian countries. Regarding the use of IPO proceeds, loan settlement was the prime motive, followed by capital expenditure, and working capital financing. Companies expensed around 6% of the total IPO proceeds as flotation cost. Although the detailed disclosure of the use of IPO proceeds in the prospectus is a common and expected feature, it was found absent in around 12% of companies. The logistic regression model found a statistically significant influence of lot size (LOT), post-IPO capital (PIC), and flotation cost (FTC) on oversubscription times (OST). The contribution of FTC to OST was a novel finding of this study. The study also found the absence of large and reputed domestic and multinational conglomerates in the listing through IPOs. Thus, the current study recommends regulators should take proper drives to customize and familiarize the book-building method, which can entice good companies for listing in stock exchanges through IPO.

Keywords: IPO motives; Primary market; Book-building, IPO proceed utilization, Bangladesh capital market

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Introduction

Initial Public Offering (IPO), the first sale of corporate stocks to the public, has been the ultimate goal of many startup founders and angel investors of companies around the world. It is a method used by companies to be public and thus increases their leverage after listing (Silva & Bilinski, 2015). Investment in the primary market has long been a profitable business in Bangladesh that attracted millions of small investors (institutional investors also) about the market. Moreover, the havoc of the 2010–11 stock market crash in the secondary market in Bangladesh, which drives investors into the less risky primary market in Bangladesh too. Besides, companies can avail numerous benefits from listing themselves on stock exchanges through IPSs. All these have made investors, entrepreneurs, underwriters, regulators, financial analysts, academics, and other parties interested in IPO issues.

In Bangladesh, several statutes administered IPOs. Those are the Securities and Exchange Ordinance of 1969, Securities and Exchange Rule of 1987, Bangladesh Securities and Exchange Commission Act of 1993, Companies Act of 1994, and Securities and Exchange Commission (Public Issue) Rules of 2006. Out of these statutes, the 'SEC (Public Issue) Rules, 2006' is the prominent one, which has been playing the leading role in the IPO issue. According to the Public Issue Rules, the consent of the BSEC is essential for any public issue of shares. It also states that upon receiving the approval of the BSEC to the issuance of capital under these rules, the abridged version of the prospectus, as approved by the Commission, shall be published by the issuer in four national daily newspapers including two Bengali and two English newspapers within the time specified in the letter of consent issued by the Commission. The company should post the full prospectus on the websites of the BSEC, stock exchanges, issuers, and the issue managers. Like all other countries, underwriters are an integral part of any new issue. In Bangladesh, a syndicate of financial institutions, including brokerage houses, insurance companies, and members of stock exchange underwrites IPOs (Hasan & Quayes, 2008; Rahman et al. 2017). Although both disclosure-based and merit-based regulatory approvals of IPOs are prevalent in the world, keeping balance with the developed stock exchanges, Stock Exchanges in Bangladesh copied the disclosure-based IPO. Under disclosure-based IPOs, BSEC approves an IPO based on the disclosure of required information by the issuer company, but it does not conduct any physical verification before approving an IPO [Rule 8B (1) and (20) of SEC (Public Issue) Rule, 2006]. Regarding the pricing mechanism of IPOs, both fixed-price and book-building methods co-exist in Bangladesh. Although the Book Building method is the most popular worldwide, it is still in the experimental stage in Bangladesh.

As part of the regulatory requirements, IPO candidate companies have to furnish more information through the prospectus. Potential investors utilize prospectus information to identify the future potential of a company before applying for its issue and also for buying shares of that company in the secondary market. The information about the proposed use of IPO proceeds, along with other information, constitutes the main subset of prospectus information that helps investors and others assess the value of a company's stock. Disclosure about the intended use of IPO proceeds help concerned parties evaluate the explicit motive of raising funds through IPO. Although there are regulatory bindings to expose the intended motives of IPO proceeds, there is no uniform guideline concerning

how much detail the disclosure should be. Consequently, companies in Bangladesh can disclose such information arbitrarily without bothering the uniformity of disclosed information. This situation compelled us to investigate how detailed the intended plan for IPO proceeds are in the prospectus and what are the common and principal segments.

Institutional investors are usually more informed or knowledgeable about the current condition and potential future performance of any particular stock than retail investors (Arora & Singh, 2020). Consequently, general investors, mostly small investors, are to depend on mandatory disclosures in general purpose financial statements and also in the voluntary disclosure via annual reports and prospectuses. In compliance with the Bangladesh Securities and Exchange Commission (BSEC) public issue rules, firms intend to go public must prepare a prospectus that contains a plan to use IPO proceeds. This planning is necessary because any use of IPO proceeds in projects that do not add value or very negligible value could adversely affect the performance of companies. This plan may be furnished by specific information with percentage allocation or with an ambiguous statement, such as R&D, future expansion, debt payment, and so on (Amor & Kooli, 2017). Our primary observation has found variations in the utilization plan of IPO proceeds and related disclosure. But, we find no study in the context of Bangladesh that has examined whether there is any significant difference among companies regarding the IPO utilization plan and identification of various chosen motives for IPO.

The most common use of IPO proceeds is the share issue cost– popularly known as flotation cost (FTC). FTC includes listing fees, IPO fees, IPO commissions, printing and publications, post issue expense, CDBL expenses, and miscellaneous expenses (Hossain & Siddiquee, 2007). These cost components are highly attached to the factors, such as the size of the issue, issue timing, nature of the company, risk of the security issued. However, the involvement of prestigious underwriters and reputed auditors in the IPO process is required to provide certification benefits to an IPO and thus may influence oversubscription times (Dambra, Field, & Gustafson, 2015). Though issue cost is inevitable in both fixed price and book-building method, the latter one requires more marketing expenditure, such as cost for the roadshow and so on that compels smaller companies to prefer the earlier (Arora & Singh, 2020). If IPO cost falls, going public can be an attractive alternative to going public (Dambra, Field, & Gustafson, 2015). But in Bangladesh, very little evidence is available whether the overall percentage of FTC is reasonable as compared to other South Asian countries or can favorably attract companies to be listed.

Oversubscription times (OST) is an indication of investor appetite for an IPO and also an indication of influencing the post-IPO performance to a significant extent (Sahoo & Rajib, 2012; Rahman et al., 2017). A company can find its OST by dividing the number of IPO shares applied for by the number of shares offered for a public subscription (Rahim, Sapian, Yong, & Auzairy, 2013). Typically, the confidence and optimism of investors about the new issue can influence the OST (Rahman et al., 2017). However, the issuer, regulator, and investors might be interested to know whether FTC has any impact on the OST. To our knowledge, no study has yet shown the effect of FTC on OST. In the above context, this study aims to exhibit how do companies in Bangladesh utilize their IPO proceeds and what are the most preferred motive and factors that contribute to IPO oversubscription with a focus on FTC. The next section of this paper incorporates a review of the literature and

development of hypotheses followed by the methodology, results & discussion, and conclusion.

Review of Literature and Development of Hypothesis

Over the last few decades, many researchers have conducted their research at the domestic level of Bangladesh and the international level on various issues relating to corporate IPOs. Firstly, we have reviewed some notable studies conducted at the international level during the last 20 years. After that, we have focused on the literature in the context of Bangladesh to capture the literature gap. Finally, we have developed the hypothesis of the current study. Chan, Sit, Tong, Wong, & Chan (1996) studied 110 IPOs floated in the Hong Kong stock market from 1990 to 1992. They found that among various sorts of public information available for assessing the quality of IPO candidates, earnings forecast in the prospectus forms a significant subset. Chen, Firth, and Krishnanb (2001) found that companies going public through IPOs in Hong Kong often include a forecast of the profit for the following year in the prospectus that helps investors evaluate the company, decide whether to subscribe to the new issue and whether to invest on the first day of trading. Cohen and Dean (2005) noted that in the context of information asymmetry between current owners and potential IPO investors, the legitimacy of the top management team is considered as a valid signal of value to potential investors.

Instead of disclosed information in the prospectus, Brau and Fawcett (2006) compared different IPO issues between theory and practice. Based on a survey on 336 chief financial officers (CFOs) in the USA, the study found 'facilitating acquisitions' was the primary motive for IPO. The study identified EPS and then underwriters' reputation as positive signals to investors. The study also unveiled that the main argument of not becoming public is to retain control over decision making and ownership. As against the popular belief, Ball and Shivakumar (2008) observed that IPO companies are more conservative while reporting their earnings. The authors have attributed this to the demand for quality reporting by different types of financial statement users and constant monitoring by such board, auditors, analysts, and regulatory bodies. Low and Yong (2011) studied the relation between oversubscription and pre-IPO disclosure by companies listed under the fixed price method. Away from the conventional studies, this paper used the 'opportunity cost of funds' proxied by a lengthy offer period. The study argued that a long subscription period increases the opportunity cost of investors' funds and, in turn, reduces the interest of investors in an IPO. The study also found that oversubscription has a significant negative relationship with an offer price as against an insignificant relationship with the size of the issue.

In an Indian study on 172 IPOs from 2002to 2007, Sahoo and Rajib (2012) found a statistically significant positive impact of market P/E on both the offer price and listing price. Other variables like NAV, EPS, IPO activity period, the reputation of investment bankers, and post-IPO ownership retention by promoters positively influence the offer price. The study has also found an offer price under the book-building method higher than the fixed price method. Most importantly, the research found evidence of the subscription rate on the listing price. The study of Wyatt (2014) provided evidence of the value relevance of information concerning 'utilization of IPO proceeds' disclosed in the IPO prospectus. To do so, the author tried to examine the associations of different utilization

categories with underpricing, survivability, and prospects of IPO companies. The study has observed the incremental application of IPO proceeds' utilization information over other information. However, Silva and Bilinski (2015) documented a significant role of information concerning intended proceeds utilization on post-IPO performance in UK companies. Andriansyah and Messinis (2016) investigated the link between utilization of IPO proceeds and post-IPO performance of the Indonesian equity market from 2000 to 2010. The study using quantile regression found that companies having the motive of capital investment and investment in the share market showed a better post-IPO performance. However, the remaining purposes showed a statistically insignificant effect on post-IPO performance.

Amor and Kooli (2017) investigated the relationship between the pre-IPO plan for IPO proceeds utilization and after-IPO performance. In companies with investment plans, the study found a statistically insignificant growth of return in the subsequent three years. However, the companies with debt retirement plan were found as the highest underperformer during the same period. Amor and Kooli (2017) also stated that relying on information in the prospectus is not enough; execute a control device to see what the companies are doing with the proceeds. To our knowledge, this study is the first that formally analyzes the effect of FTC on subscription times. Fan (2019) found that highly leveraged firms are more interested in the IPO since it enables companies to reduce fixed interest expenses by repaying the debt and thus supports their growth in the long run. Low growth companies witnessed high growth after IPO by debt retirement in Japan. The study found that the repayment of debt is the primary motive for IPO. Arora and Singh (2020) aimed to explore the factors influencing the oversubscription ratio of Indian SMEs. Based on ordinary least square regression and quantile regression, the research has unveiled that the issue price, pricing method, and listing delay might have influenced the oversubscription ratio. However, the research has found a positive influence of firm size, the reputation of the underwriter, and market condition on IPO oversubscription. The Pakistani study of Mehmood, Mohd-Rashid, and Ahmad (2020) examined the effects of pricing mechanisms on IPO subscription times. Based on the cross-sectional data of 85 IPOs from 2000 to 2017, the study found that the pricing mechanism is negatively related to the IPO oversubscription ratio. The research has also demonstrated that the use of a fixed-price plan signifies huge information asymmetry and thus, indicates the uncertainty of post-IPO prices.

In Bangladesh, several new companies become listed in the stock exchanges every year through IPO. However, there are disagreements about the sincerity of at least some of these newly listed companies (Rahman et al. 2017). During the last few years, the market prices of stocks issued by many of the newly listed companies in Bangladesh have been far below their offer price. This situation has cast doubts on the transparency and performance of those companies. Thus before applying for IPO shares, investors need to recognize the potential utilization of IPO proceeds and the prospects of particular companies. However, researchers have administered a few studies on diverse issues relating to IPOs in Bangladesh. Some scholars have studied IPO behavior and post-IPO performance in the context of Bangladesh. The focus of these studies was primarily on the issues, such as the underpricing, initial return of IPOs, IPO flipping, flotation cost, and subscription times (Hoque & Musa, 2001; Islam & Munira, 2004; Hossain &

Siddiquee, 2007; Hasan & Quayes, 2008; Islam, Ali, & Ahmad, 2010; Faisal & Ridwan, 2012; Karim, Zijl, & Mollah, 2013; Rahman, 2017; Rahman, et al. 2017).

Hoque and Musa (2001) found that the IPOs in the market in Bangladesh were mostly underpriced. They documented the abnormal initial return of IPOs in the country that attributed to the restriction on issue price imposed by the SEC. Studying a large number of IPOs from 1994 to 2001, Islam and Munira (2004) attempted to determine the degree of IPO flipping and its determinants in the perspective of Bangladesh. After the debut of IPOs, they found 29.67% flipping in the first week, 74.21% in the first month, and 177.30% in the first Quater. The regression model showed that the issue size is negatively and significantly related to flipping. But institutional participation in IPOs is positively associated with the same. The study of Hossain and Siddiquee (2007) is related to flotation cost. Their research covered the maximum number of IPOs (254) covering a long period from 1983 to 2006 in the setting of Bangladesh. The study has documented mixed results concerning flotation costs, such as economies of scale, U-pattern, and no specific pattern in medium, large, and small size IPOs. More specifically, the study has identified companies in well-performing sectors with lower flotation costs.

Using a sample of 90 IPOs, Hasan and Quayes (2008) also attempted to identify the factors that contribute to short-run underpricing in the country. The study has found two new factors viz. increased ownership stake and foreign investors reduce the level of underpricing. Islam, Ali, & Ahmad, (2010) attempted to identify the extent of IPO underpricing and overpricing. Based on 117 companies that became listed on the Dhaka Stock Exchange (DSE) from 1995 to 2005, the study found that 87.18% of IPOs were underpriced and 11.11% overpriced. Regression analysis revealed that offer size and company size are positively related to underpricing, but industry type is negatively associated. However, the study found no relationship between the age of the firm and offer timing with underpricing. Faisal and Ridwan (2012) identified that infrastructure project financing through the capital market is a sustainable source. However, the authors have stressed strict regulations on the utilization of IPO proceeds.

The study of Karim et al. (2013) was from a different viewpoint that attempted to examine the impact of corporate governance on the choice of auditors by IPO companies in Bangladesh. The researchers also examined whether efficiency or opportunism influences such choice in companies going public. Based on 129 IPOs that became listed from 1990 to 2006, the study has applied logistic regression and found that COE-Chair duality and the magnitude of foreign equity participation significantly influence the choice of auditors in the country. Beyond the common studies, Rashida (2013) studied the book-building method of IPOs in Bangladesh. The Book Building method was very new in the country, and thus only a few issues were completed using this method during the study. Although the study lacks the use of any statistical analysis, it has unveiled some problems with book-building and put some suggestions accordingly. Rahman (2017) found that a large number of companies in Bangladesh perform asset revaluation before IPOs intending to improve better net asset value (NAV). Rahman, et al. (2017) studied 148 IPOs that became listed in the stock exchanges of Bangladesh from 2005 to 2015. He found, on average, 14.80 companies and mutual funds listed per year. The study found the dominance of the fixed price method in the country with only 2.70% IPOs under

the Book Building method. The study found that lot size can significantly influence subscription times.

Based on the above review of literature, it is clear that there are plenty of studies on IPO issues all over the globe. The existence of most modern literature indicates that IPO issues are still hot cake in the academic arena. However, there is a dearth of IPO literature in Bangladesh. Most studies were conducted several years back and had lack of a dependable statistical ground. Meanwhile, many changes in regulations, market conditions, and the economy have taken place. In this backdrop, we felt the necessity of conducting a study on IPO to fill up the research gap. Moreover, to our knowledge, no previous research has yet examined whether flotation cost has any impact on the IPO oversubscription. We believe that addressing this issue will be a novel contribution to the field.

Variables and the Model

Many economic, market and country-specific factors, such as the size of the issue, initial return on IPOs, institutional investment, lock-in period, stabilization initiatives by regulators, the existence of the hot-issue market, quality of IPOs, and investors' response may influence IPO oversubscription (Low & Yong, 2011; Rahman et al., 2017). Based on the previous studies and our judgment, the current study primarily considered several factors. However, after the normality test and considering the data size, we selected five independent variables that might influence IPO over-subscription in Bangladesh. We stated below these variables with their corresponding hypothesis:

Oversubscription times (OST): OST is the only dependent variable in the current study. We have calculated OST by dividing the number of IPO shares applied for by the number of shares offered for public subscription by an IPO candidate company (Rahim et al., 2013; Rahman et al., 2017). Usually, it is a scale variable, but the current study has converted the variable into a categorical variable to avoid an abnormality problem. To do that, we have calculated the mean subscription. The subscription times exceeding the average is considered the existence of oversubscription and is expressed by one (1). On the other hand, we called the subscription times below average as the absence of oversubscription. Thus the variable has converted into a dummy variable fit for the logistic regression model.

Lot size (LOT): Prior studies such as Rahim et al. (2013) studied offer size to explain the factors influencing IPO over-subscriptions. Rahman et al. (2017) used LOT as a scale variable in their study to read subscription times. Since the data concerning this variable has been found skewed, we converted scale data into categorical data. LOT is the fixed number of primary shares that an IPO issuing company offers to issue against an application. In Bangladesh's secondary market, the minimum market lot for the secondary share is presently one (01), and there is no upper limit. However, the lot size of IPO shares is usually 100, 200, 250, or 500 shares. We considered a LOT of 500 shares as large size and any other size as not large. If LOT is large, it requires more money to apply for an IPO and thus creates liquidity problems for small investors, which may cause an under-subscription of an IPO (Rahman et al. 2017). Hence, the hypothesis in the alternative format is as under:

H_1: LOT has a significant influence on IPO over-subscription.

Earnings per Share (EPS): Brau and Fawcett (2006) state that strong historical earnings are the most positive signal to IPO investors. EPS is also considered the most common yardstick for measuring the profitability of companies. Lai and Lo (2012), Sahoo and Rajib (2012), Bateni and Asghari (2014), and Rahman et al. (2017) used EPS as an independent variable to explain the factors influencing IPO over-subscription ratio. Bateni and Asghari (2014) did not find any significant influence, but Sahoo and Rajib (2012) have observed a significant positive impact of EPS on the valuation of IPOs by investors and consequently on over-subscription. The study period of Rahman et al. (2017) included an abnormal period consisting of the Stock market crash year and subsequent years up to 2015. As the current study's period is different, the findings might differ. The present study considers the latest EPS just before the starting of the IPO subscription based on the prospectus. We assume that the EPS disclosed in the prospectus can influence IPO investors. Therefore, the companies that have managed to report higher EPS might have attracted more subscribers and vice versa. Thus the hypothesis concerning EPS in an alternative format is as under:

H2: EPS has a significant positive impact on IPO over-subscription.

Net Asset Value (NAV): The NAV per share is a measure used to know the fundamental value of new firms. NAV represents the residual value of a company, usually expressed on a per-share basis, after subtracting all of its debts (Ooi, Mori, & Wong, 2019). We used NAV as a noteworthy reference point for calculating IPO gains or losses. In most countries, regulators require companies to disclose NAV per share in their IPO prospectus. We may hypothesize that companies with higher NAV may attract more customers that, in turn, increase the subscription times. Thus we can express the relationship between NAV and oversubscription ratio in alternative hypothesis format as under:

H3: NAV has a significant influence on IPO over-subscription.

Post-IPO Capital (PIC): The size of IPO is a familiar variable used in studies related to subscription times. We thought that the size of an IPO is negatively related to oversubscription, which means as the size of IPO increases, the subscription times decrease, and vice versa. Here the consideration is only the liquidity of IPO investors. However, the current study has considered PIC as an independent variable to oversubscription times. It is argued that instead of IPO size, post-IPO capital is the true reflection of the market capitalization of any particular company. Investors prefer companies with small market capitalization because of potential positive flipping. Contrarily, investors might be uninterested in investing in the primary share of companies with large PIC. Thus there should be a negative relationship between PIC and IPO subscription times. In the above backdrop, the alternative hypothesis is as under:

H4: PIC has a significant influence on IPO over-subscription.

Flotation Cost (FTC): FTC includes all the costs incurred for the issuance of shares by an IPO company (Andriansyah & Messinis, 2016). Flotation cost issuing shares

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inclusion of underwriters' commission largely depends on IPO size, nature of the company, and method of the issue – book-building or fixed price method. There may be a positive relationship between flotation cost percentage and IPO oversubscription ratio. The argument is that spending more amounts on the advertising of its IPO and roadshow may create enthusiasm among investors of primary shares. Thus the hypothesis in the alternative form is stated as under:

H5: FTC has a significant influence on IPO over-subscription.

Based on the above variables, we can symbolize the equation of the logistic regression model as under: Over-subscription (OST) = α + βLOT + βEPS + β NAV + β PIC+ β FTC

Methodology of the Study

The current study is based on the IPOs subscribed and listed in Bangladesh's stock exchanges from January 01, 2010 to December 31, 2019. IPOs issued under both the fixed price and book-building methods have been considered in this study, but excluding mutual funds (MF) and bonds. We excluded MFs and bonds because the objectives of issuing MFs and bonds are different from that of ordinary/ equity share. Moreover, the structures of their financial statements are completely different. Cross-sectional data were extracted manually from the prospectus of IPO candidate companies and also from the IPO archive section of the DSE website. Besides, we gathered valuable information from the websites of BSEC, CSE, and sampled companies. The final sample size after excluding MFs and bonds stood at 101 IPOs, which constituted 90% of the total issues listed during the study period. We present the distribution of sample companies in Table 1. We identified the motives of IPO candidates and analyzed based on the disclosure concerning the utilization of IPO proceeds stated in the prospectus. Descriptive statistics, such as frequencies, percentage, mean, and standard deviation have been the basis of analysis in the study.

Table 1: Summary of Sample Companies

Serial No.	Description	No of Issues
1.	Newly listed issues during the study period	133
2.	Less: Mutual fund	(30)
3.	Less: Corporate bond	(02)
4.	Sample Companies	101

Result and Discussion

The study shows the frequency distribution and descriptive statistics in different tables. Then it performs the binary logistic regression to examine whether there is any factor that could influence the oversubscription of IPOs in Bangladesh.

Table 2: Year-wise listing of companies through IPO

Listing Year	Frequency	Percent	Cumulative Percent
2010	5	5.0	5.0
2011	7	6.9	11.9
2012	10	9.9	21.8
2013	14	13.9	35.6
2014	17	16.8	52.5
2015	14	13.9	66.3
2016	7	6.9	73.3
2017	7	6.9	80.2
2018	12	11.9	92.1
2019	8	7.9	100.0
Total	101	100.0	

It is evident from Table 2 that the total number of companies listed on the Dhaka Stock Exchange (DSE) was 101 (one hundred one) during the 10-year study period that implies an average of 10 (ten) companies listed per year. A larger number of companies were listed in the year 2014, followed by 2013 and 2015. The number of IPOs reduced drastically when the market crashed in 2010-11 and also during the succeeding two years. The number of newly listed companies increased in the following three years. The trend went downward in the last four years under the study except in 2018 when 12 (twelve) companies got listed through IPO. More revealing is that around 50% of the sample companies became enlisted with the DSE during 2013–15.

Table 3: Sector-wise listing of companies through IPO

Company	Frequency	Percent	Valid Percent	Cumulative Percent
Cemnt&Crmc	3	3.0	3.0	3.0
Enginr	18	17.8	17.8	20.8
Fi	5	5.0	5.0	25.7
Food&Aled	5	5.0	5.0	30.7
Ftr&Ppt	2	2.0	2.0	32.7
Fuel&Power	8	7.9	7.9	40.6
It&Telecom	4	4.0	4.0	44.6
Miscellaneous	2	2.0	2.0	46.5
Phar&Chem	13	12.9	12.9	59.4
Service	3	3.0	3.0	62.4
Textile	35	34.7	34.7	97.0
Trav&Leais	3	3.0	3.0	100.0
Total	101	100.0	100.0	

Table 3 shows that among the companies listed with the DSE during the study period, the textile sector led the row, followed by the engineering sector and the pharmaceutical and chemical sector. These circumstances signify the growth pattern of all industrial sectors in Bangladesh. Different economic parameters also recognize the growth of the textile sector and the pharmaceutical sectors during the last decade. However, the current study has identified an enormous development in the engineering sector in the country.

Table 4: Methods followed in IPO and details about the utilization of IPO proceeds in the prospectus

Method followed in IPO				Details of the Use of IPO Proceeds in the Prospectus			
Method	Frequency	Percent	Cumulative Percent	Details available	Frequency	Percent	Cumulative Percent
Book-building	10	9.9	9.9	No	12	11.9	11.9
Fixed-price	91	90.1	100.0	Yes	89	88.1	100.0
Total	101	100.0		Total	101	100.0	

Nowadays, the book-building method of IPOs is the most popular all over the world. Table 4 depicts a different picture, where the proportion of the book-building method was around 10% in Bangladesh. However, the percentage has improved than the findings of Rahman et al. (2017) that found only 2.7% of companies floated their shares following the book-building method. Although the intended use of IPO proceeds has been an integral part of an IPO prospectus, around 12% of companies did not disclose the details of their plan in percentage form. They just described their objectives of IPO in words. However, most of the recent IPOs unveiled their detailed plan-both in category and percentage form. It indicates a qualitative improvement of prospectus disclosures.

Table 5: Use of IPO Proceeds

	Loan Settlement		Project Expansion		Working Capital Financing	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
No	36	35.6	20	19.8	77	76.2
Yes	65	64.4	81	80.2	24	23.8
Total	101	100.0	101	100.0	101	100.0

Flotation cost is a cost of IPO that constitute a substantial amount of proceeds collected through the public offering of shares. Companies calculate net proceeds after subtracting flotation costs. Thus we classified other uses of IPO proceeds under three broad categories, such as loan settlement, project expansion (including new project and capital investment), and working capital financing that shown in Table 5. These

categories are not mutually exclusive, which means that a company may have all these three objectives or anyone or two objectives. The table shows that 80% of IPO companies mentioned that project expansion was their intended objective, followed by 64% with loan settlement and around 24% of companies with working capital financing. As the project expansion category includes many aspects, among those, the loan settlement objective is the most common motive of IPOs in Bangladesh.

Table 6: Descriptive statistics of variables

Variable	N	Minimum	Maximum	Sum	Mean	Standard Deviation	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
Lot Size	101	100	500	36350	359.90	164.92	-.432	.240	-1.634	.476
EPS Before IPO	101	.31	9.48	270.08	2.67	1.71	1.136	.240	1.522	.476
NAV before IPO	101	10.16	100.59	2587.77	25.62	15.46	2.176	.240	6.302	.476
Offer Price per Share	101	10	115	2403	23.79	20.98	2.240	.240	5.884	.476
IPO(TK.mn)	101	120.00	4312.80	71056.07	703.52	795.67	2.517	.240	7.565	.476
Post-IPO Capital (Million BDT)	101	240.00	4350.55	105268.05	1042.25	656.54	2.150	.240	6.711	.476
Subscription Time	96	1.05	73.93	2247.51	23.41	18.49	.766	.246	-.191	.488
Loan Settlement	62	6.00	1531.65	18692.33	301.48	339.38	1.842	.304	3.213	.599
Expansion of Business	71	70.00	4245.00	33896.38	477.41	648.15	3.497	.285	16.216	.563
Working Capital	21	9.00	299.00	1860.00	88.57	86.03	1.515	.501	1.475	.972
Flotation Cost	89	5.00	93.00	2188.00	24.58	16.64	1.999	.255	4.396	.506
Loan Settlement (%)	62	4.00	98.00	2877.00	46.40	30.55	.485	.304	-1.255	.599
Expansion of Business (%)	71	15.87	98.42	5183.85	73.01	21.42	-.859	.285	.007	.563
Working Capital (%)	21	1.17	94.66	437.51	20.83	21.22	2.380	.501	6.913	.972
Flotation Cost (%)	90	.00	11.00	502.00	5.57	2.71	.174	.254	-1.058	.503

In table 6, we have shown the descriptive statistics of the variables of the current study. The sample IPO companies have an average age of 13.7 years with average EPS and NAV per share TK 3.20 and TK 27.64 separately. The average size of a public issue is TK

828.86 million at issue price. The average Lot size and subscription gaps are 321.93 shares and 23.46 days, whereas the average premium collected by a company is TK 438.71 million. Descriptive statistics as regards subscription times are average 19.80 times with a minimum of 1 time and a maximum of 73.93 times.

Test of Multicollinearity

When all the variables in logistic regression are categorical, a multicollinearity test is not required. Since there are three categorical variables and one scale variables in the model, we are required to test whether any multicollinearity problem exists in the model.

Table 7: Correlation matrix of independent scale variables

		EPS	NAV	PIC	FTC
EPS	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	101			
NAV	Pearson Correlation	.586**	1		
	Sig. (2-tailed)	.000			
	N	101	101		
PIC	Pearson Correlation	.090	.260**	1	
	Sig. (2-tailed)	.370	.009		
	N	101	101	101	
FTC	Pearson Correlation	-.432**	-.407**	-.228*	1
	Sig. (2-tailed)	.000	.000	.031	
	N	90	90	90	90
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

As shown in Table 7 that we have prepared a correlation matrix only for the scale variables. For any harmful collinearity, ±.7 or ±.8 is considered the cutoff point for the degree of relationship. The range of values for the correlation coefficient is -.228 to +.586. Thus we can infer that multicollinearity is not a problem in the model. However, through trial and error, we doubted a multicollinearity problem in NAV, and thus it has been excluded from the final regression model.

R^2 expresses the extent to which the independent variables are account for the variability observed in the dependent variable. In Table 8, Cox & Snell R^2 = .638 and Nagelkerke R^2 = .853. Although the results are different, the Nagelkerke R^2 is commonly used to explain the logistic regression model. The Nagelkerke R^2 implies that this model accounts for 85.3% variability in OST. The 'overall percentage' row in the classification

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table describes the accuracy of the prediction. Here, the value 93.2 indicates that under this approach, predictions are correct at 93.2% of the time that is very high.

Table 8: Logistic Regression Outcomes

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	31.795	.638	.853

Classification Table[a]					
				Predicted	
	Observed			Oversubscribed	Percentage Correct
			No	Yes	
Step 1	Oversubscribed	No	46	2	95.8
		Yes	4	36	90.0
	Overall Percentage				93.2
a. The cut value is .500					

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	LOT [0= Smaller, 1= Larger]	-4.192	1.386	9.151	1	.002	.015	.001	.229
	EPS	-.811	.432	3.530	1	.060	.445	.191	1.036
	PIC	-.003	.001	5.490	1	.019	.997	.995	1.000
	FTC	.830	.238	12.151	1	.000	2.294	1.438	3.658
	Constant	.523	1.783	.086	1	.769	1.686		
a. Variable(s) entered on step 1: EPS, PIC, FTC, LOT.									

The variables in the equation table suggest whether the predictor variable has a significant influence on the outcome variable OST. Since the p-values of LOT, FTC, and PIC are less than .05, it implies that these variables have a statistically significant contribution to the OST. The effects of EPS shortfall by a very little has a statistically significant influence on OST. Regarding LOT, the *p-value* .002 < .05 implies that it has a significant influence on OST. Exp (B) = .015 denotes that the odds of OST is 98.5 times higher in smaller lots compared to larger lots (95% CI .001, .229). Regarding EPS, the *p-value* .060 >.05, which implies it has a statistically insignificant (very close) influence on OST. However, Exp (B) = .445 denotes that for every BDT 1 increase in EPS, the odds of OST decrease by 55.5% (95% CI .191, 1.036). Regarding PIC, the *p-value* .019 < .05 implies that it has a significant influence on OST. Exp (B) = .997 denotes that for every one million increase in PIC the odds of OST decrease by 0.3% (95% CI .995, 1.000). Similarly, the *p-value* .000 < .05 for FTC implies that it has a significant influence on OST. Exp (B) = 2.294 indicates that for every 1% increase in FTC the odds of OST increase by 129.4% (95% CI 1.438, 3.658).

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Conclusion

Investment in the primary market has long been a profitable business in Bangladesh that attracted millions of small investors (institutional investors also) about the market. Moreover, there was devastation in the Bangladesh stock market due to the 2010–11 market crash that drove investors into the primary market, which is less risky throughout the globe. Besides, companies can avail numerous benefits from listing themselves on stock exchanges through IPOs. All these have made investors, entrepreneurs, underwriters, regulators, financial analysts, academics, and other related parties interested in IPOs.

The study has documented the listing of 101 companies in DSE with an average of 10 IPOs (excluding mutual funds and bonds) during 2010–19. More revealing is that around 50% of the total listed companies were completed their IPOS in three years from 2013 to 2015 that suggests a very uneven distribution of IPOs among the study years. We found the average number of IPOs per year reduced drastically from 14.8 IPOs per year found by the early study of Rahman et al. (2017). However, we have observed a slight growth of the book-building method of around 10% from a mere 2.70% in the study of Rahman et al. (2017) five years back. Among the sample companies, 34.7% were in the textile sector, followed by 17.8% in the engineering sector and 12.9% in the pharmaceuticals & chemical sector. It is an indication of a significant contribution of these industrial sectors in market capitalization as well as the economy of Bangladesh. The current study has also observed an average subscription time of 23.41, which is much lower than the findings of Yong, Yatim, and Sapian (2002) that observed average subscription times of 28.84 in Malaysia.

Regarding the use of IPO proceeds – also an indication of IPO motives, loan settlement has been found as the prime motive, followed by capital expenditure (either in the expansion of an existing project or starting a new project) and working capital financing. However, a significant portion of the total proceeds (5.57%) was spent on the flotation of shares by the sample companies. The flotation cost percentage is a little bit higher than the study of Andriansyah and Messinis (2016) that found the flotation cost 4% of total proceeds in Indonesia and 4.79% by Hossain and Siddiquee (2007) in Bangladesh during 1997–2006. Although the detailed disclosure (descriptive along with percentage form) of use of IPO proceeds in the prospectus is a natural and expected feature, it was found absent in around 12% of companies, mostly during the first half of the study period.

Although LOT, PIC, and FTC have a statistically significant influence on OST in Bangladesh, the contribution of flotation cost to subscription times has been a novel finding of this study. The prior research of Rahman et al. (2017) also found a statistically significant influence of lot size on OST. The current study has contributed some new insight into the literature related to IPO from the context of Bangladesh. Investors, regulators, and potential IPO candidate companies will also get valuable insights regarding IPO cost, uses of IPO proceeds, and factors that contribute to IPO oversubscription in emerging economies, especially in Bangladesh.

The study has also found the absence of multinational companies and reputed business conglomerates in the listing through IPOs. It is very imperative for the sustainable

development of any stock market, but it is highly needed to gear up the sluggish capital market in Bangladesh. Thus the current study suggests regulators exercise prudish initiatives to customize and popularize the book-building method, which might attract good companies to drive for listing in the stock exchanges through IPOs.

Authors' Contributions

The 1st author generated the idea of this research, developed research design, collected part of the required data, analysed the data, compiled the whole work, and reviewed the paper several time.

The 2nd author supervised the whole work, conducted literature review, gone through the whole work several times, and made many important corrections.

The 3rd author wrote the conclusion part, prepared the abstract, and made valuable contribution by reviewing the article.

The 4th author collected a portion of the required data from IPO prospectus and assembled it into Microsoft Excel file, which was finally used in SPSS, and read the paper.

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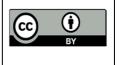
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