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IPO Waiting Period in Pakistan

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Abstract This study examined the IPO waiting period from offering to the first trading day listed on the Pakistan Stock Exchange from 1995 to 2018. We find that firms that float shares to the general public have passed through multiple layers of inspection by underwriters, auditors, institutional investors, and regulatory bodies. The waiting period of the unseasoned issue is an essential predictor of uncertainty associated with a firm. To test this proposition, we first determine the endogenous and exogenous factors that influence IPO waiting period. The results confirm that the firms offer price, percentage of shares after issuance of IPO, book building mechanism, and SECP regime influence the IPO waiting period. This study further finds that short waiting period IPOs are associated with less ex-ante uncertainty, reducing the level of underpricing. In addition, we report that during short waiting periods, IPOs are prone to less return volatility and higher aftermarket stock performance.

Keywords : IPOs, waiting period, ex-ante uncertainty, underpricing, long-run performance

1 Introduction

Initial public offering (IPO) is the most exciting event in a firm's life span. Issuing equities allows firms to go public for the first time, thus transforming a firm's ownership from private to public (Reiche 2014). A lot of studies have examined the short- and long-term IPO performance (Mumtaz et al 2016; Chan et al 2004; Loughran and Ritter 1995; Kim and Ritter 1999), the underwriter's

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role in achieving a successful IPO (Bouis 2009), the survival of IPOs (Mumtaz and Smith 2021; Guo and Brooks 2009), and hot IPO activity period (MMumtaz and Smith 2021; Güçbilmez 2015; Brooks et al 2009). However, limited literature is available to examine the factors that affect the waiting period of an IPO (Colaco and Hegde 2013; Dimovski and Ratcliffe 2011; Brooks et al 2009).

IPO waiting period refers to the time difference between the offering and listing date (Brooks et al 2009). However, the waiting period for newly issued shares varies across firms and markets (Mumtaz and Smith 2021; Brooks et al 2009). Does a question arise as to why some firms take less or more time to list on the stock market? This study addresses this question by examining the factors that cause the waiting period across firms. To list on the stock market and issue shares, a firm must submit an application, vet requisite documents, appoint underwriters, choose a pricing mechanism, publish a prospectus, and scrutinize auditors (Colaco and Hegde 2013). In this context, some firms smoothly pass through this process, and some face difficulties. Our basic intuition is that the firms that quickly pass-through standard procedures have a short waiting period and faceless uncertainty and risk. The aftermarket performance of unseasoned issues also depends on the waiting period.

The waiting period is crucial for investors and issuers (Chen et al 2004). Tsangarakis 2004 states that listing delays create doubts that an IPO's quality expectations are inaccurate. Subsequently, it creates concerns for investors regarding the firm's financial condition, and information asymmetry will set the investors' desired price (Beaulieu and Sodjahin 2008). Considering the consequences of a higher waiting period, Kumar (2004) argued that a long waiting period causes uncertainty and risk associated with the offer. As a result, investors face illiquidity that can be compensated by offering a lower price, affecting underpricing. During the listing delays, market conditions may change will ultimately cause a revision in the firm's actual value and cause the magnitude of underpricing (Chen et al 2004). In the light of the above consequences, our research hypothesizes that a short waiting period is associated with less uncertainty, less underpricing, and better stock performance once the IPO is conducted successfully.

Pakistan is an emerging market and it is important to determine the factors that cause waiting periods of unseasoned issues. Thus, we investigate the ex-ante uncertainty factors that influence the listing delay based on the sample size of 166 IPOs listed on the Pakistan Stock Exchange (PSX) from 1995 to 2018. First, we investigate the effect of endogenous and exogenous factors on the IPO waiting period. Second, we also identify the factors that cause the waiting period. Third, we examine the effect of the waiting period on post-IPO uncertainty. Lastly, we determine the impact of the waiting period on long-run performance using the buy-and-hold abnormal returns and calendar time portfolio techniques. We find that the offer price decreases uncertainty, consequently reducing the IPO waiting period (Dimovski and Ratcliffe 2011). Alternatively, the firm's age and size complicate the ownership structure; hence, higher scrutiny is required before

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going public, increasing the waiting period (Colaco et al 2018). This study also identifies that firms that hold most shares after going public take less time to list. Moreover, financial firms face a higher waiting period as they are more prone to risk. Besides exante uncertainty, some exogenous variables also cause the waiting period. We document that IPO issued during the hot activity period takes less time to start trading activities. An important finding of this study is that IPOs floated under the SECP regime fulfill procedural activities in a short span and registered quickly compared to the CLA regime. Likewise, this study finds that the firm takes more time to go public under conducive market conditions.

IPO waiting period exhibits ex-ante uncertainty properties; it should be reflected in the post-IPO performance. We examine the waiting period's impact on the short-run performance and report that a higher waiting period leads to inflating underpricing. As indicated, investors are compensated for the time lag by offering lower share prices (Kumar 2004). Using the return volatility, we capture the effect of the waiting period on post-IPO uncertainty. For this reason, we measure the initial returns from 21 trading days to 79, 21 to 142, 21 to 205, and 21 to 268. We argue that firms take more time to go public, and face higher uncertainty in the aftermarket pricing performance. This evidence holds when there is uncertainty involved before the issuance of an IPO. As firms take more time to go public, their aftermarket performance is affected, and return volatility increases. This study employs buy-and-hold abnormal returns to gauge long-run performance and finds that long waiting time IPOs underperform over three years. Using the calendar time portfolio approach, we report that firms with short and long waiting periods underperform in the long run. The rest of the study is organized as follows. Section 2 overviews the earlier studies, Section 3 elaborates on the IPOs in Pakistan, Section 4 discusses the data and research methodology, Section 5 examines the empirical findings, and Section 6 concludes the study.

2 Literature review

A delay in IPO listing causes uncertainty for both the investors and issuers. Earlier studies (Colaco et al 2018; Colaco and Hegde 2013) empirically tested the consequences of delay in IPO listing. Any uncertainty in the listing process may discourage firms from going public, decreasing the investment opportunities. Moreover, firms that face a listing delay may face a rise in stock price volatility (Cong et al 2017).

2.1 Theoretical Framework

Under the ex-ante uncertainty hypothesis, the IPO waiting period is directly related to the firm's characteristics. The offer price is one of the proxies to capture ex-ante uncertainty and generally reflects an IPO's quality. A high offer price

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indicates that a firm growth performance is promising, and there are less risk and uncertainty involved while investing in new shares (Brooks et al 2009). As a reasonable offer price declines the chances of delay, it allows a firm to quickly list on the stock exchange. The firm's age is another proxy to determine the uncertainty of any firm. As the firm gets older, the degree of uncertainty associated with its cashflows declines (Kim and Ritter 1999). This decline in uncertainty allows firms to list on the stock market quickly. Some schools of thought believe that complicated structures may be difficult to scrutinize and take longer to go public (Colaco and Hegde 2013). Through an IPO, the company's shares are spread among investors, and hence the firm's ownership and control are somehow affected. The issuer never wishes to lose control, and the company's profit is not evenly distributed; instead, the owner emphasizes building his empire. When most of the firm's shares belong to the issuer, the underwriters excessively underprice new shares to make an IPO attractive. The excessive underpricing creates a high demand for shares, and thus the shares are not accumulated by a few investors; instead, these are widely spread among many investors (Brennan and Franks 1997). In case of the low offer price, the issues instantly participate by the investors on the subscription date, and the company is listed in quick time.

High-quality underwriters have more reputational capital, allowing them to have good terms with institutional investors. Consequently, they create demand for unseasoned issues. This suggests that high-quality underwriters are more efficient in managing the IPO process and take the firm public quicker (Colaco et al 2018). Considering the underwriter's prestige, high prestige underwriters are more efficient in promoting the offerings and creating investor interest, thus, speeding the process of IPOs (Bouis 2009). Welch (1989) proposed a signalling mechanism where issuers reveal the required information as a signal to know the quality of IPOs. Return on asset (ROA) is used as a proxy to identify the earnings; high ROA signals favorable future growth of a firm. Moreover, Spence (1978) explains that issuers provide information to the investors to know the firm's uncertainties. A high ROA forces investor to reveal their demand to make firms be listed on the stock exchange within minimal days.

One of the reasons for high information asymmetry is the pricing mechanism followed by many countries. Under the fixed price method, the offer price is decided before the subscription, and the price is not set based on the investors demand. This also deprives investors of extracting the required information. This information gap causes a delay in creating interest for the investors, which further inflates the listing time of an IPO. In terms of the book-building mechanism, the offer price is determined by the investors demand, and consequently, underwriters know the actual worth beforehand (Yong 2015; Chowdhry and Sherman 1996). Based on investors' demand, shares are purchased quickly, and the time to list an IPO on the stock exchange is reduced.

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2.2 Empirical Evidence

To examine the IPO waiting period, Beaulieu and Sodjahin 2008 report that a large-sized syndicate causes an extended time as many managers and co-managers are involved in the IPO process which may cause competition and disagreement among the syndicate members which increases the IPO duration. Further, the results revealed that high technology firms go public quicker. Beaulieu and Sodjahin 2008 further examine that overleveraged firms with greater cash pressure and the firms conducting IPOs for investment purposes have a short waiting period. Using the data of Chinese Ashare IPOs, Brooks et al (2009) analyze the influence of issuing systems on the waiting period of IPOs. The historical evidence shows that the approval system takes a short time to list an IPO compared to the administrative system. Besides issuing system, the study's findings show that offer price tends to increase the average waiting period while issuing size is negatively linked with a waiting period. Moreover, market sentiments increase the duration of IPOs to be listed, whereas high prestige underwriter has a short waiting period.

Similarly, Bouis (2009) investigates how the waiting period responds to market conditions from the registration to the IPO listing date. He reports that firms are likely to complete their IPO quickly when the market index is high and when the market return and volatility are low. During market volatility, firms are more likely to alter the terms of the issue, which means the firms need to re-register with the SEC, explaining the positive relationship between market volatility and the waiting period. Moreover, Dimovski and Ratcliffe (2011)indicate that large-sized firms and high prestige underwriters take a short time to list on the stock market. In comparison, the high leverage firms are to be listed slowly. Likewise, Colaco and Hegde (2013) show that high prestige underwriters reduce the ex-ante uncertainty and decline the IPO waiting period. On the other hand, frequent amendments, high price updates, and increased market return volatility lead to greater ex-ante uncertainty and cause the waiting period to inflate. Moreover, the firm may go public quicker if there are favorable market conditions if it is a pioneer and technological firm. Colaco and Hegde (2013) used negative binomial regression and reported that the waiting period is negatively related to underwriter prestige. They further document that underwriters issued IPOs using the book building process takes more time to go public.

Analyzing the effect of uncertainty on the listing time of IPOs, Guo and Brooks (2009) report that firms with high issue prices are negatively linked to the waiting period. Cong et al (2017) document that the length of waiting time is less for mature and high leveraged firms. Using a sample of 2056 Indian IPOs, Shah et al (1995) examines what causes a delay in listing IPO and concludes that high issue size causes to list in a short span. In another study, Seth et al (2019) find that anchor-backed firms take less time to go public. Moreover, firms with asymmetric information and ex-ante uncertainty take more time to be listed on the stock exchange.

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Mumtaz and Smith (2021) investigates the duration from the offering to the listing of IPOs issued on the PSX from 1995 to 2017. They study the listing process of IPOs considering regulatory regimes and the factors that influence the duration of unseasoned issues. Using the Cox proportional hazard model, they find that offer price, percentage of legal entity-owned shares, issue size, age of the firm, and price discovery mechanism are the factors that cause IPO duration. They document that IPO waiting time from listing to offering has improved during the SECP regime.

3 Overview of IPOs in Pakistan

Issuing shares through IPO is not a novel phenomenon to raise capital in the Pakistani market. Karachi Electric Supply Corporation was the first company listed on the Karachi Stock Exchange on April 2, 1949, without issuing a prospectus. In 1953, M/s Hussain Industries took the initiative of issuing a prospectus in Pakistan to invite subscriptions from the public. Between 1953 and 1990, the issuing process of IPOs in Pakistan remained sluggish. The government carried out various reforms like deregulation, liberalization, and privatization to strengthen the capital market's transparency and efficiency. Many IPOs were issued since 1991 as private firms desired to enhance financing opportunities, diversify ownership, and create a safe exit for mature firms. The Corporate Law Authority (CLA) had to govern the capital market reforms to guarantee transparency and compliance with laws. From 1991 to 1996, there was a substantial upsurge in the volume of unseasoned equity issues. An independent body named the Securities and Exchange Commission of Pakistan (SECP) was established in 1997 to improve the capital market while CLA was abolished. SECP became operational on January 1, 1999, its function was to execute reforms in the financial market to make the listing process and going public more efficient. These practices and reforms created a vibrant environment for private entities to carry out IPOs in Pakistan.

However, IPOs started to decline during 1998 and onwards due to security issues and the sanctions imposed on Pakistan because of nuclear tests carried out in Pakistan. Only one IPO was conducted in 1998, followed by none in 1999. After the 9/11 incident, Pakistan's stock market performance remained low and shrunk until 2003. The stock market began to recover after 2004 due to the rise in trading activities. During 2005 and 2006, the KSE-100 index showed strong performance because of better macroeconomic conditions. These improvements were mainly due to PTCL and National Refinery's privatization process which attracted considerable investment. Figure 1 shows how the volume of IPOs fluctuated during the entire period. During the 2008 financial crisis, the PSX crashed and after the intensity of IPOs remained low. The deterioration in the volume of IPOs from 2009 to date is mainly due to uncertain economic and political scenarios. Currently, there are very limited IPOs going on in Pakistan but due to CPEC projects and some other developments in the market, there is

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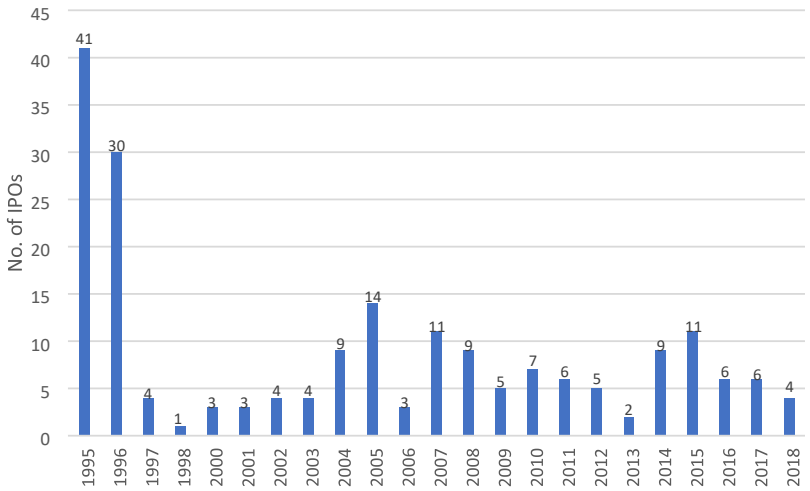

Fig. 1: IPOs in Pakistan This figure presents the historical trend of IPOs in Pakistan from 1995 to 2018

a probability that IPOs will increase in the future. Further, the SECP proposed legitimate amendments to encourage firms to raise capital from the primary equity market. The reason behind this is to stimulate capital formation by facilitating issuers, decreasing the cost of an IPO, and protecting the general public's interest by enhancing disclosures.

4 Data and methodology

4.1 Data

The data relating to the IPO waiting period is obtained from the IPO prospectus and the SECP. The sample period is taken from January 1995 to December 2018. The sample size is 166 IPOs listed on the PSX during the study period. The data relevant to the firm characteristics is obtained from the IPO prospectus. Both financial and non-financial firms are considered to analyze the time duration from offering to listing date. The data about market sentiments and the closing prices of IPOs are taken primarily from the PSX. The data on regulatory regime and listing procedure is taken from SECP.

4.2 Determinants of IPO waiting period

This section identifies the factors that influence IPO waiting period. We incorporate endogenous and exogenous factors to determine their effect on the waiting period. Endogenous factors include offer price, firms age, leverage, firms size,

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ownership, industry, and price discovery mechanism. Endogenous factors (Colaco et al 2018 cover UW prestige, market sentiments, hot IPO activity period, and regulatory regime. To test our hypotheses, we develop the following model:

$$waiting\,period = \alpha_0 + \alpha_1 offer\,price_i + \alpha_2 age_i + \alpha_3 leverage_i + \alpha_4 size_i + \alpha_5 ownership_i + \alpha_6 Industry_i + \alpha_7 price\,discovery_i + \alpha_8 market\,sentiment_i + \alpha_9 hot\,ipo\,activity_i + \alpha_{10} regulatory\,regime_i \quad (1)$$

where $WaitingPeriod_i$ is the difference between offering and listing dates of an IPO_i, $Offer\,Price_i$i refers to the price of the new shares, Age_i is the time difference from the year of foundation to year of IPO, $Leverage_i$ is the ratio of total debt to total asset, $Size_i$ refers to the firm size and it is measured by the natural logarithm of total assets, $Ownership_i$ is the percentage shares owned by the firm after going public, $Industry_i$ is a dummy variable that assigns the value of 1 if a non-financial firm issues IPO and 0 otherwise, Price $Discovery_i$ is a mechanism at which shares are issued, and it is used as a dummy variable. If the IPO price is determined through the book-building process, it equals 1 and 0 for a fixed price method. UW $Prestige_i$ refers to the underwriter's reputation. If a high reputed underwriter issues IPO, we assign the value equal to 1 and 0 otherwise. Market $sentiment_i$ is measured by stock market returns and calculated as the market returns on the offering date relative to the market returns before 30 days offering date. Hot IPO $Activity_i$ is a dummy variable and if IPO is issued in hot IPO activity, it is equal to 1 and 0 otherwise, and Regulatory $Regime_i$ is also a categorical variable which is assigned a value of 1 if IPO is issued under the CLA regime and 0 otherwise. The variables are explained in the ensuing paragraphs.

Offer Price: The offer price reflects the quality of IPOs, and the underwriter determines it after evaluating the investors demand and issuers growth performance. Guo and Brooks (2009) report a positive and significant relationship between the offer price and the waiting period. Other studies (Colaco et al 2018; Dimovski and Ratcliffe 2011) demonstrate that high offer price leads to a quicker listing process

Firm age: The firm's age at the time of issuance is critical in determining the waiting period's length. It is calculated by taking the difference from the firm's establishment date to the IPO issuance date. The firm's age is inversely related to the degree of risk and uncertainty associated with firms cash flows and returns. As the firm gets older, its past performance will allow investors to predict their future growth, and hence, investors will face less uncertainty (Loughran and Ritter 1995; Chambers and Dimson 2009). Keeping in view the minimal risks associated with the firm, it is assumed that firm age will negatively affect the waiting period. However, considering older firms' structure, they are more complex to deal with and may require greater scrutiny, thus taking more time to go public (Colaco et al 2018).

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Leverage: Leverage is measured by total debt to the total asset. Overleveraged firms are expected to complete IPO quickly because they desperately need money (Beaulieu and Sodjahin 2008). However, some studies (Dimovski and Ratcliffe 2011; Busaba 2006) document that firms with high debt to capital ratio tend to get rid of debt burden rather than expansion, which slow the IPO listing process.

Size of the firm: The firm's size is also an important variable that causes the waiting period. Mumtaz and Smith (2021) argued that large-sized firms might have more resources to list publicly by fulfilling all the PSX procedural formalities, decreasing the uncertainty and risks associated with the firm. Hence, large-sized firms may reduce the waiting period to list on the stock market. Alternatively, small-sized firms have less resources, leading to higher uncertainty, and resultantly, they may take more time to go public.

Ownership: It refers to the percentage of shares held by a firm after going public. The ownership structure plays a significant role in determining the firms performance and explaining underpricing in the IPO process. Brooks et al (2009) found that ownership structure affects IPO duration, illustrating that a higher proportion of shares owned by a firm leads to a short waiting period.

Industry: The industry variable is used as a dummy where firms are classified into financial and nonfinancial firms. Beaulieu and Sodjahin (2008) examined the association between non-financial firms and the waiting period of IPO, and they found that firms take less time to go public. Thus, we assume a negative relationship between industry and the waiting period.

Price discovery mechanism: In Pakistan, IPOs are generally issued through fixed-price and bookbuilding mechanisms. Before 2009, the fixed price method was only used to float shares but afterward, a book building mechanism was introduced. The price discovery mechanism is used as a dummy variable, and we assume that if IPO is issued using book building mechanism, it is treated as one and zero otherwise.

Underwriter prestige: Several studies assessed the impact of the underwriters reputation on the IPO waiting period. High prestige underwriters usually have good terms with institutional investors because of their high reputational capital. This allows underwriters to quickly investigate the demand for new issues; they can take firms public quicker (Colaco et al 2018). We assume that firms appoint high prestige underwriters and have an inverse relationship with the waiting period. The prestige of underwriter is measured as (Megginson and Weiss 1991; Kenourgios et al 2007).

$$prestige = \frac{CR_i}{\sum_{i=0}^{n} CR_i} \tag{2}$$

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where i indicates the firm that floats new shares. CR_j is the capital raised by the underwriter j and the total number of underwriters involved in sample IPOs is represented by n.

Market sentiments: Market sentiment is one of the most influencing factors that causes variation in an IPO's duration. Bouis (2009) documents that when market volatility is high or low, firms will take more time to go public as market volatility causes uncertainties for future profit. Moreover, high market returns cause IPO to delay because the firms expect high market valuations by waiting. We measure the market sentiments as:

$$Marketsentiments = (\frac{I_{m,o}}{I_{m-30days}} - 1) \tag{3}$$

Where $I_{m,0}$= stock market return of an IPO on the offering date and $I_{m,30days}$= stock market return 30 days before offering date.

Hot IPO activity period: The IPO activity period is classified into hot and cold periods (Ibbotson and Jaffe 1975). Previous studies (Colaco et al (2018); Beaulieu and Sodjahin (2008)) empirically identify that IPOs are listed faster during the hot IPO activity period as firms are likely to go public in the wake of conducive market conditions. Alternatively, Colaco et al (2018) document a negative relationship between the waiting period and the hot IPO activity period. Hot IPO activity period is used as a dummy variable which is equal to 1 for the years in which IPOs are issued more than average and 0 otherwise.

Regulatory regime: IPOs were issued in two regulatory regimes during the sample period. To examine the regulatory regime's effect on the IPO waiting period, this study categorizes CLA as 1 and 0 for SECP.

$$\begin{aligned} underpricing &= \alpha_0 + \alpha_1 waiting\,period_i + \alpha_2 offer\,price_i + \alpha_3 leverage_i \\ &+ \alpha_4 ROA_i + \alpha_5 Size_i + \alpha_6 price\,discovery_i + \alpha_7 WP_i * crisis \\ &+ \alpha_8 regulatory\,regime_i + \alpha_9 UW\,prestige_i + \alpha_{10} industry_i + error_i \end{aligned} \tag{4}$$

4.3 Waiting period and underpricing

Given specific proxies of uncertainty and its relationship with the waiting period, we examine the factors that cause the magnitude of underpricing. Previous studies (Colaco et al 2018) report that the waiting period positively influences underpricing, while others identify an inverse relationship between the waiting period and underpricing. To test our proposition, we develop the following model:

where $underpricing_i = \frac{closing\,price_i - Opening\,price_i}{Offer\,price_i} * 100$. ROA is measured by net profit after tax to total assets. In this model, we use two interaction terms.

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We interact the waiting period with the crisis period to investigate the waiting period's impact during crisis time on underpricing. We also interact the waiting period with the regulatory regime to assess the waiting period's influence under the CLA regime.

4.4 Waiting period and post-IPO certainity

This section examines whether the waiting period has the predictive power to assess post-IPO uncertainty or not. For this purpose, we incorporate IPO returns from the 21st day to 79th, 142nd, 205th, and 268th day respectively. We measure returns by taking the difference between the market price of the IPO on the 21st day and the offer price. We include the ex-ante uncertainty factors along with the waiting period in the post IPO uncertainty model to investigate whether the waiting period affects the long-run pricing behavior of an IPO or not. We use return volatility as the benchmark to evaluate the long-run pricing uncertainty of IPOs. To examine the impact of the waiting period on the 21st to 79th, 142nd, 205th, and 268th day initial returns, we formulate the following model (Colaco et al 2018)

$$\begin{aligned} returns_i = {} & \alpha_0 + \alpha_1 waiting\,period_i + \alpha_2 UW\,prestige_i + \alpha_3 industry_i \\ & + \alpha_4 regulatory\,regime_i + \alpha_5 issuing\,size_i + \alpha_6 crisis_i + \alpha_7 size_i + error_i \end{aligned} \tag{5}$$

where return volatility is a proxy of the uncertainty associated with the aftermarket IPO performance.

4.5 Waiting period and long-run IPO performance

The post-IPO performance is analyzed to examine whether investors obtain positive returns or not. Researchers (Jenkinson et al 2001; Loughran and Ritter 1995) argue that IPO underperforms compared to the benchmark index. Two methodologies are commonly used to examine the long-run IPO performance namely; buy-and-hold abnormal returns (BHAR) and calendar time portfolio. BHAR measures the longer-term IPO performance. In this technique, we match each IPO firm with the non-IPO firm based on the firm's size. We compute the abnormal returns for the firm i over the time T (1, 2 and 3 years) as follows:

$$BHART_i = \prod_{t=1}^{t}(1 + R_{i,t}) - \prod_{t=1}^{t}(1 + R_{matchedfirm,t}) \tag{6}$$

where, $R_{i,t}$ is the daily return of firm i at time t and $R_{matchedfirm,t}$ is the matched firm's return (size-based) at time t. Returns are calculated from the first trading day to 1st, 2nd, and 3rd anniversary. T is the time for computing the returns that shareholders have gained from the first listing date to 1, 2,

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and 3 years, respectively. The positive value of BHAR shows overperformance whereas the negative value refers to underperformance compared to the size-based matched firm index. This study also measures long-run IPO performance using the Fama-French and Carhart models. Fama and French (1993) three-factor model is computed as:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{mt} - R_{f,t}) + sSMB_t + hHML_t + error_t \quad (7)$$

Carhart (1997) four-factor model is used to gauge long-run performance.

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{mt} - R_{f,t}) + sSMB_t + hHML_t + error_t \quad (8)$$

where R_{pt} is the equally weighted monthly portfolio returns and R_{mt} is the return of KSE-100 index in month t, R_{ft} is the T-bills rate in month t. ($R_{mt}Rft$) is the excess return of the market, and is the abnormal return. represents the risk of how much a stock is exposed to changes in the overall market. SMB is the small minus big firm returns, HML is the high minus low book to market ratio returns, WML is the winner minus loser returns. SMB is measured through market capitalization; the 36-month returns of each firm are sorted based on their market capitalization from the smallest to the largest. The average one-third of the returns from the upper portion of the data and one-third average from the lower portion of the data is calculated and subtracts the average small size firm returns from big size firm returns. For HML, returns are sorted based on the book to market ratio. In general, SMB shows the firms size, HML represents a firm's growth. To obtain the final value of WML for 36 months, the average top returns are subtracted from the average lowest returns.

5 Results

5.1 Descriptive statistics

Table 1 shows the descriptive statistics of the IPO waiting period from 1995 to 2018. The average waiting period is 50 days with a minimum and a maximum waiting period of 10 and 212 days respectively. We split the sample into different periods and find that the average waiting period is 69 days before 2000. Between 2001 and 2008, the average waiting period declined to 47 days while the waiting period further decreased to 43 days on average from 2009 to 2018. Figure 2 exhibits the trend of the waiting period over the sample period and the number of IPOs.

Table 2 illustrates the summary statistics of the variables used. On average, the offer price is PKR 24.75 with a standard deviation of PKR 27.64. The maximum and minimum offer prices are PKR 235 and PKR 10 respectively. The mean age of the firms is 13 years with the minimum age is 1 year and the maximum age is 67 years. The result reports that leverage is 15% on average with a median value of 4%. On average, the firm's size is 21.01 with a minimum size of 4.24 and a maximum size of 27.05. The mean value of ownership shows that firm holds 62% of shares after going public. Considering the underwriter prestige, this

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Table 1: IPO waiting period by year

Year	N	Mean	Median	Std. dev	Min	Max
1995	25	77.6	75	35.67	20	212
1996	17	73.41	74	16.81	46	108
1997	3	75.33	59.5	24.54	50	99
1998	1	127	127	-	-	-
1999	-	-	-	-	-	-
2000	2	59.5	59.5	4.94	56	63
2001	3	54.66	61	20.25	32	71
2002	4	53.5	58	32.26	10	88
2003	4	52	52	13.51	37	67
2004	9	44.77	40	10.56	33	66
2005	14	41.78	40	4.94	35	53
2006	2	42.5	42.5	3.53	40	45
2007	10	40	39	5.96	33	55
2008	9	38.77	40	2.86	34	42
2009	3	40	40	1	39	41
2010	9	39.44	36	14.36	19	68
2011	6	47.5	41	23.35	28	92
2012	5	49.8	40	18.43	33	74
2013	2	54.5	54.5	10.6	47	62
2014	9	49.33	35	19.89	31	76
2015	11	45.27	36	16.92	26	74
2016	6	48.33	46.5	14.55	33	70
2017	6	33.5	34	13.51	17	53
2018	6	22.83	22.5	7.3	14	34
Total	166	50.45	48.04	14.35	10	212
1995-2000	46	68.8	66.75	37.3	20	212
2001-2008	55	47.46	43.6	5.99	10	88
2009-2018	63	43.03	38	8.89	14	92

This table presents the year-wise position of waiting time.
The sample includes the waiting period of completed IPOs from 1995 to 2018.

dummy shows how many firms involve highly reputed underwriters, and the summary stats depict that 44% of firms appointed high prestige underwriters. Market sentiments are measured using KSE-100 Index from the offering to 30 days before the offering date and the mean value of market sentiment is 3%. The industry variable is a dummy showing that non-financial firms issue 65% of IPO. The price discovery mechanism, a dummy variable, shows that 84% of IPOs are floated through a fixed price method. The hot IPO activity period shows that 70% of IPOs went public during the hot IPO period. The regulatory regime is a dummy variable that indicates that 28% of firms floated IPOs under the CLA regime.

5.2 Determinants of the IPO waiting period

First, we use the Split Sample Skewness-based Box Plots technique to detect outliers from the sample (Adil and Zaman 2020). We identify ten IPOs as outliers which reduces the sample to 156 IPOs. Table 3 shows the factors that cause the IPO waiting period listed on the PSX from 1995 to 2018. Model 1 presents the results of endogenous factors. The coefficient of age is positive and signifi-

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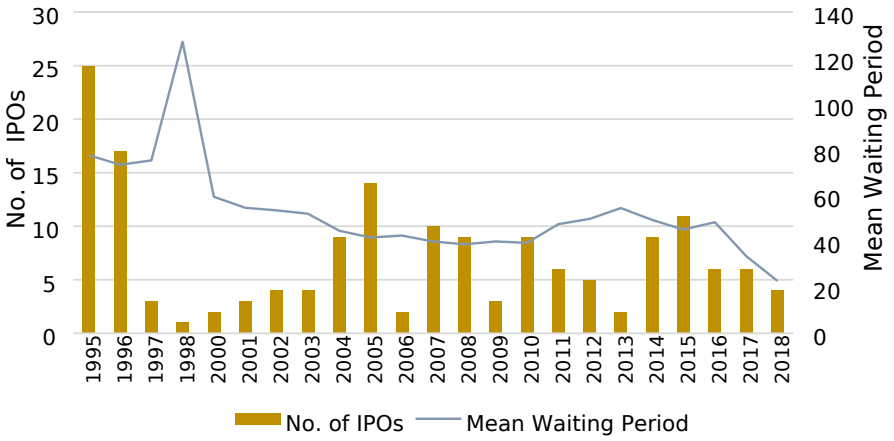

Fig. 2: Number of IPOs along and waiting period
This figure presents the mix of the number of IPOs in Pakistan and the waiting period from 1995 to 2018.

Table 2: Summary statistics of variables

	Mean	Median	Std. Dev.	Min.	Max.
Offer price	24.75	14	27.64	10	235
Age	13.17	6	15.67	1	67
Leverage	0.15	0.04	0.21	0	0.98
ln(Size)	21.1	21.01	2.57	4.24	27.05
Ownership	0.62	0.65	0.19	0.12	0.98
UW prestige	0.44	0	0.49	0	1
Market sentiments	0.03	0.03	0.06	-0.16	0.25
Industry	0.65	1	0.47	0	1
Price discovery mechanism	0.14	0	0.35	0	1
Hot IPO activity period	0.7	1	0.46	0	1
Regulatory regime	0.28	0	0.45	0	1

The table illustrates the explanatory variables of the waiting period for the sample period 1995-2018.

cantly affects the IPO waiting period. This evidence suggests that as the firms get older, the time to be listed on the stock exchange is delayed. Our result corroborates with earlier findings (Colaco et al 2018), which indicate that older firms' structure is more complex to deal with and may require greater scrutiny, thus taking more time to go public. We find that the price discovery mechanism positively affects the waiting period and show that firms that went public under the fixed price method take more time to go public.

Model II shows the results of exogenous factors that cause the length of the waiting period. The result indicates that the hot IPO activity period negatively influences the waiting period, implying that the hot IPO market's waiting period tends to decrease (Colaco et al 2018; Beaulieu and Sodjahin 2008). The regulatory regime, another exogenous variable, has a positive and significant effect on the waiting period and shows that IPOs that went public under the

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Table 3: Determinants of the IPO waiting period

		I	II	III
Offer Price		-0.0006		-0.0014*
		(-0.84)		(-1.86)
Age		0.0026*		0.0015
		-1.87		-1.11
Leverage		-0.0838		-0.0794
		(-0.84)		(-0.85)
Size		0.0016		0.0094**
		-0.33		-1.97
Ownership		-0.1664		-0.2101*
		(-1.38)		(-1.84)
Industry		-0.0616		-0.1001**
		(-1.21)		(-2.19)
Price discovery	mechanism	0.4297***		0.4562***
		-6.33		-7.75
UW prestige			0.0365	0.0605
			-0.78	-1.48
Market Sentiment			0.2983	0.8514**
			-0.76	-2.47
Hot IPO activity period			-0.1070*	-0.0687
			(-1.86)	(-1.45)
Regulatory regime			0.5854***	0.6840***
			-8.66	-10.3
N		156	156	156
Adj.R2		0.21	0.35	0.55
F-value		6.92***	21.62***	18.23***

note: This table presents the results of the determinants of the IPO waiting period. OLS regression is used to estimate the results from January 1995 to December 2018. Waiting period = offering listing dates, Offer price = the price of the new share, Age = firms age is the difference from year of foundation to year of IPO, Leverage = total debt/ total asset, Size = firms size is measured by the natural logarithm of total assets, Ownership = the proportion of shares owned by a firm after going public, Industry = a dummy variable where non-financial firms = 1 and financial firms = 0, Price discovery mechanism = a dummy variable where book building mechanism = 1, and fixed offer price = 0, UW prestige = a dummy variable where high reputed underwriters = 1, and less reputed underwriters = 0, Market sentiments = market returns on offering date minus market returns before 30 days of offering date, Hot IPO activity period = a dummy variable and IPO is issued in hot IPO period = 1 and 0 otherwise, and Regulatory regime = a dummy variable where the CLA regime = 1 and SECP = 0. t-statistics are shown in parenthesis. ***, **, and * show the statistical significance at 1, 5, and 10% levels respectively.

CLA regime take more time to be listed on the stock exchange. However, other variables in the model are insignificant.

In Model III, we examine the combined effect of endogenous and exogenous factors on the IPO waiting period. The offer price coefficient is negative and statistically significant at the 10% level illustrating that an increase in offer price causes the waiting period to decrease, which means a higher offer price leads to list IPOs quickly (Colaco et al 2018; Guo and Brooks 2009). The size coefficient is positive and significant at 5%, demonstrating that large-sized firms may take more time to list on the stock exchange. Our result demonstrates a negative impact of ownership on the waiting period which shows that firms with large shareholding after IPOs have a short waiting period (Guo and Brooks 2009). We

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can argue that firms hold the majority of the shares when going public; they intend to enhance growth rather than pay their debts; hence the duration of the waiting period is lower. The industry variable negatively affects the length of the waiting period, which suggests that non-financial firms take less time to go public than financial firms. Moreover, non-financial firms may expect higher growth and expansion in the particular sector which eventually faster the process of IPOs being listed.

Market sentiments play a vital role while determining the listing time of IPOs. We find that IPOs are likely to take more time in conducive market conditions. One possible reason for the delayed waiting period is that many firms subscribe for new issues that result in bulk of pending IPOs and take more time to go public during favorable market conditions. In this model, the price discovery mechanism and regulatory regime are statistically significant factors of the IPO waiting period. However, the firm's age, leverage, UW prestige, and hot IPO activity period are insignificant.

5.3 Waiting period and IPO underpricing

This section examines the effect of the waiting period on IPO underpricing, and the results are reported in Table 4. Probing the waiting period's impact on underpricing, Kumar (2004) argues that a long waiting period causes uncertainty and risk associated with the offer price. With an increase in the waiting period, investors face illiquidity that can be compensated by offering a lower share price, affecting underpricing. Moreover, investigating the impact of the waiting period on underpricing, Colaco et al (2018) document that average underpricing increases as the waiting period increases since a more extended waiting period involves a greater risk of uncertainty. Model I show that the waiting period positively impacts IPO underpricing. This indicates the waiting period increases the uncertainty, which as a result, increases the average underpricing.

Other ex-ante uncertainty factors can also affect IPO underpricing. The offer price coefficient is negative and significant, meaning that a higher offer price leads to lower underpricing. We can also argue that an increased offer price predicts a lower level of underpricing because a high price provides less margin to yield higher returns on the first and twenty-first trading days if all other things are constant. The coefficient of leverage is positive and significantly influences initial returns. High leverage refers to higher debt obligations, leading to higher uncertainty in future performance, thereby inflating the IPO underpricing (Hermin and Murhadi 2015). Our result indicates that ROA is inversely affecting initial returns. This implies that a higher ROA suggests the firm's ability to generate profits and shows less uncertainty associated with a firm's survival; thus, IPO underpricing would be lower (Adam et al 2015).

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We also interact the waiting period with the crisis period to investigate how differently investors behave. The coefficient of WP x Crisis is positive and statistically significant at a 1% level. This elaborates that a higher waiting time during a crisis period creates risk and uncertainty, increasing the likelihood of higher underpricing. The WP x Regulatory regime coefficient directly affects IPO underpricing, which shows that the waiting period under the CLA regime is higher than the SECP regime, thereby increasing the IPO underpricing. However, the rest of the variables are insignificant. In Models II and III, we separately analyze the effect of interaction terms. Model II shows that a higher length of the waiting period in the presence of a crisis period increases the likelihood of uncertainty and risk, which ultimately increases the level of underpricing. In Model III, we find that a higher waiting period in the wake of the CLA regime has no effect on IPO underpricing.

Table 4: Effect of waiting period on IPO underpricing

	I	II	III
Waiting period	0.0053*	0.0019	0.0027
	-1.77	-0.97	-0.9
Offer price	-0.0034**	-0.0035**	-0.0028*
	(-2.15)	(-2.23)	(-1.67)
Leverage	0.3764*	0.1919	0.3376
	-1.84	-1.02	-1.58
ROA	-2.2511***	-2.2382***	-2.1612***
	(-3.26)	(-3.36)	(-3.00)
Size	-0.1053	-0.0107	-0.0085
	(-0.72)	(-1.26)	(-0.56)
Price discovery mechanism	0.777	-0.0815	-0.092
	-0.53	(-0.70)	(-0.64)
UW prestige	0.7009	0.0126	0.091
	-0.78	-0.16	-0.99
Industry	-0.0697	-0.0586	-0.1325
	(-0.68)	(-0.62)	(-1.26)
WP x Crisis	0.1111***	0.0963***	
	-3.53	-3.25	
WP x Regulatory regime	0.0578**		0.0268
	-1.93		-0.9
Constant	1.4810***	1.4878***	1.4827***
	-4.34	-6.86	-4.15
observations	156	156	156
R2	0.214	0.162	0.133

This table presents the IPO underpricing results listed on the PSX from 1995 to 2018. OLS regression is used to estimate the results from January 1995 to December 2018. Underpricing = (closing price offer price)/offer price, Waiting period = offering listing dates, Offer price = the price of the new share, Leverage = total debt/ total asset, ROA = net income/ total assets, Size = firms size is measured by the natural logarithm of total assets, Price discovery mechanism = a dummy variable where book building mechanism = 1, and fixed offer price = 0, UW prestige = a dummy variable where high reputed underwriters = 1, and less reputed underwriters = 0, and Industry = a dummy variable where non-financial firms = 1 and financial firms = 0. t-statistics are shown in parenthesis. ***, **, and * show the statistical significance at 1, 5, and 10% levels respectively.

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5.4 Waiting period and post-IPO uncertainty

Post-IPO uncertainty is gauged using return volatility which is captured by average initial returns from 21st to 79th trading day. Similarly, the return volatility is measured for 142, 205, and 268 days. Table 5 presents the waiting period's results and post-IPO uncertainty listed on the PSX from 1995 to 2017. Panel A shows the mean and median values of the short and long IPO waiting periods. The mean return volatility of short and long waiting time IPOs are 3.09% and 2.43% respectively for the 21st to 79th day. With an increase in the time horizon, post-IPO return volatility of the long waiting period is marginally higher than the short waiting period.

Panel B (Table 5) presents the multivariate results of post-IPO uncertainty. Model I estimate the determinants of return volatility for 21 to 79 days. We find that the coefficient of the waiting period is positive and significantly affects the return volatility. This evidence holds that when uncertainty is involved before the issuance of IPO, as firms take more time to go public, their pricing performance in the aftermarket will be affected. Consequently, return volatility will be high. In short, we can infer that firms with long waiting periods face higher post-IPO uncertainty.

Our result shows a negative relationship between underwriter prestige and returns volatility, implying that IPOs led by highly prestigious underwriters bear less post-IPO uncertainty. The industry's coefficient is negative and significant at 1%, meaning non-financial firms have less post-IPO uncertainty than financial firms. Analyzing the effect of a regulatory regime on the post-IPO uncertainty, we find a negative association illustrating that the aftermarket's return volatility is less if the IPO is placed under the SECP regime. Issuing size of the IPO is used as a proxy of uncertainty for post-IPO analysis (Beatty and Ritter 1986). Our result confirms that issuing size negatively affects the return volatility which explains that large-sized issues create less uncertainty in the aftermarket (Agathee et al 2014). We can further argue that large-sized firms are associated with less risk and uncertainty regarding the short- and long-run performance.

Model II refers to determinants of return volatility from 21 to 142 trading days. We find that the return volatility under the SECP regime is lower as those IPOs are listed on the stock market and have the potential to generate revenues and earn profit. The result also shows that large-sized issues have less return volatility in the long run. The crisis variable is positive and significant in Models II-IV which represents that IPOs issued during the financial crisis of 2007/2008 face high volatility returns. The result endorses that the crisis period hurts the pricing performance of IPOs in the long run as business slows down during the crisis period. We also report that large-sized firms may have a lower risk; therefore, IPOs are listed in a short period (Models III and IV).

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Table 5: Waiting period and post-IPO uncertainty Part 1

Panel A:	Short waiting period			Long waiting period		
Post-IPO return volatility	N	Mean	Median	N	Mean	Median
+21 to +79 days post-IPO	76	0.0309	0.0027	69	0.024	0.0028
+21 to +142 days post-IPO	76	0.0311	0.0031	69	0.029	0.0038
+21 to +205 days post-IPO	76	0.0233	0.0031	69	0.022	0.0043
+21 to +268 days post-IPO	76	0.0247	0.0035	69	0.025	0.0049

Note: This table presents the results of the waiting period and post-IPO uncertainty. OLS regression is used to estimate the results from January 1995 to December 2017. Mode I to IV estimate the determinants of post-IPO return volatility from +21 to +79 days, +21 to +142 days, +21 to +205 days, and +21 to +268 days respectively. Waiting period = offering listing dates, UW prestige= a dummy variable where high reputed underwriters = 1, and less reputed underwriters = 0, Industry = a dummy variable where non-financial firms = 1 and financial firms = 0, Regulatory regime = a dummy variable where the CLA regime = 1 and SECP = 0, Issuing size = the natural logarithm of the number of shares issued multiplied by offer price, Crisis = a dummy variable refers to the financial crisis of 2007/2008 = 1 and 0 otherwise, Size = firms size is measured by the natural logarithm of total assets. t-statistics are shown in parenthesis. ***, **, and * show the statistical significance at 1, 5, and 10% levels respectively.

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Table 6: Waiting period and post-IPO uncertainty Part 2

	I	II	III	IV
Panel B: Impact of waiting period on post-IPO return volatility				
Waiting period	0.0105*			
	-1.87			
UW prestige	-0.3010*			
	(-1.71)			
Industry	-0.5180***			
	(-2.83)			
Regulatory regime	-0.4746*	-3.4203*		
	(-1.79)	(-1.73)		
Issuing size	-0.1404*	-1.0510*		
	(-1.70)	(-1.82)		
Crisis		3.8511**	2.4303**	1.6426**
		-2.2	-2.29	-1.7
Size			-0.1580**	-1.3490**
			(-2.24)	(-2.47)
Constant	0.3211**	2.7120*	4.4369***	4.4300***
	-1.99	-1.83	-3.01	-2.98
No. of observations	150	150	150	150
F-value	3.31***	1.83*	2.41**	3.01**
R2	0.143	0.071	0.063	0.077

Note: This table presents the results of the waiting period and post-IPO uncertainty. OLS regression is used to estimate the results from January 1995 to December 2017. Mode I to IV estimate the determinants of post-IPO return volatility from +21 to +79 days,+21 to +142 days +21 to +205 days, and +21 to +268 days respectively. Waiting period = offering listing dates, UW prestige= a dummy variable where high reputed underwriters = 1, and less reputed underwriters = 0, Industry = a dummy variable where non-financial firms = 1 and financial firms = 0 Regulatory regime = a dummy variable where the CLA regime = 1 and SECP = 0, Issuing size = the natural logarithm of the number of shares issued multiplied by offer price, Crisis = a dummy variable refers to the financial crisis of 2007/2008 = 1 and 0 otherwise, Size = firms size is measured by the natural logarithm of total assets.t-statistics are shown in parenthesis.
***, **, and * show the statistical significance at 1, 5, and 10% levels respectively.

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5.5 Waiting period and long-run IPO performance

The average one-year BHAR for the short and long waiting time is -11.43% and -23.07% respectively after the IPO's execution. This finding shows that short waiting period IPOs perform betterthan long waiting period IPOs after adjusting the size-based matched firm index. Over two years, the average BHAR for the short and long waiting time is -14.99% and -21.53% respectively. The average BHAR for the short waiting period of three years is -15.26% whereas the average BHAR for the long waiting period is -23.42%. We can infer that higher waiting time IPOs lead to higher underperformance.

Table 7: Impact of waiting period on buy and hold abnormal returns

	I	II	III
Waiting period	0.4053*	0.4089	0.4105
	-1.79	-1.22	-0.87
Constant	14.1649	4.1917	4.5461
	-0.93	-0.2	-1.62
Observations	147	145	144
R2	0.0133	0.0082	0.0047

Note: This table presents the results of the waiting period and long-run performance. The effect of the waiting period is measured on the first (Model I), second (Model II), and three (Model III) years of IPO performance using the BHAR. Waiting period = offering listing dates. t-statistics are shown in parenthesis. * shows the statistical significance at the 10% level.

Table 6 shows the results of the effect of the waiting period on long-run IPO performance. Model I estimate the impact of one-year pricing performance on IPO waiting time and reports a direct relationship. This evidence suggests that a long waiting period leads to higher underperformance; however, this finding does not hold over two- or three-year IPO performance (Models II and III). This study examines the effect of short and long waiting periods on monthly excess returns using the calendar time portfolio approach. We employ the Fama-French and Carhart models to estimate our results. Table 7 exhibits the waiting time and long-run performance results along with SMB, HML, and WML. The results of the Fama-French model are shown in Models I and II whereas Models III and IV demonstrate the finding of the Carhart model. Panel A presents the effect of monthly portfolio returns over one year. The alpha coefficient is negative and significant in Models I to III, demonstrating that IPOs underperform during the first 12 months after listing IPOs. The coefficients of excess returns (RmRf) are negative in Models I and III, describing that excess returns' negativity affects the level of underperformance. The coefficient of SMB is positive and significant at 5% in Model 1 which explains that small firms obtain higher returns. In all the models, HML is insignificant. The coefficient of WML is significant in Model III which indicates that winners yield higher returns than losers.
Panel B presents the results of long-run performance over two years. The alpha coefficient for the short and long waiting periods significantly tends to underperform. The market excess return does not influence the long-run performance.

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The coefficient of SMB is significant in Models II to IV explaining that large-sized firms obtain higher returns than small-sized firms. The coefficient of WML is positive and significant for a short waiting period (Model III). This implies that winners get higher returns than losers in case of a short waiting period. Panel C represents the performance of IPOs for 3-year. The results show that market risk, IPO size, and growth prospects do not significantly affect long-run IPO performance. The coefficient of WML is significant and positive (Model III) leading to the fact that winner's returns tend to be high as compared to losers' returns.

5.6 Comparison of the results with earlier studies

This section compares previous studies' results (Colaco et al (2018); Guo and Brooks (2009)) with the current study. To examine the determinants that cause the waiting period, Colaco et al (2018) used a sample of 4763 U.S. IPOs from 1986 to 2011. They report that a high offer price decreases the likelihood of waiting time (Guo and Brooks 2009). This finding suggests that a higher offer price reduces the waiting period despite unseasoned issues floated in developed or emerging markets. Discussing the ownership structure, the present study demonstrates that firms hold most shares after listing; they emphasize enhancing growth possibilities rather than paying debts, decreasing the waiting period length. Our results are in line with earlier studies (Guo and Brooks 2009). We find that the role of underwriters is insignificant in determining the IPO waiting period. However, Colaco et al 2018 document an inverse relationship between UW prestige and the waiting period.

The coefficient of market sentiment is positive and significant, indicating that the firm's waiting period increases as many firms subscribe to the new issues, resulting in the bulk of pending IPOs. However, Guo and Brooks (2009) found that firms take less time to go public under favorable market conditions. Moreover, analyzing the hot IPO market activity, this study documents that the waiting period drastically decreases when an IPO is conducted during a hot IPO period both in the developed (Colaco et al 2018) and emerging markets. In this study, we find that shares issued under the fixed offer method significantly influence the determinant of the waiting period. Our finding is consistent with Guo and Brooks (2009). Analyzing the aftermarket performance, we find that an increase in the waiting period's length creates uncertainty, which eventually inflates the IPO underpricing. Our result corroborates with Colaco et al (2018) which state that underpricing rises as the waiting period increases in the U.S. Besides, we examine the long-run IPO performance and its effect on the waiting period. The result suggests that the waiting period's length positively affects the IPO underperformance (Colaco et al 2018).

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Table 8: Calendar-time portfolios: Waiting period and long-run IPO performance

Panel A: One-year performance	I	II	III	IV
	Short waiting period	Long waiting period	Short waiting period	Long waiting period
Rm-Rf	-1.5002***	-0.0744	-2.020***	0.4602
	(-5.42)	(-0.12)	(-8.31)	-0.63
SMB	0.5874**	-0.012	0.1087	0.0231
	-2.91	(-0.17)	-0.58	-0.38
HML	0.1013	0.2004	-0.022	0.1768
	-1.33	-1.37	(-0.35)	-1.2
WML			0.2449***	-0.1392
			-3.72	(-1.46)
α	-0.1085***	-0.1502**	-0.3714***	-0.0356
	(-11.22)	(-2.31)	(-5.26)	(-0.35)
observations	150	150	150	150
R2		0.63	0.87	0.662
Panel B: Two-year performance	I	II	III	IV
Rm-Rf	0.1951	-0.0681	-0.3299	0.0124
	-0.67	(-0.32)	(-1.57)	-0.04
SMB	-0.0056	-0.0930**	-0.2965**	-0.0811**
	(-0.06)	(-3.17)	(-2.88)	(-4.24)
HML	-0.0649	-0.0339	0.0283	-0.0001
	(-0.69)	(-0.78)	-0.43	(-0.00)
WML			0.3309***	-0.0544
			-4.25	(-0.58)
α	-0.1822***	-0.2612***	0.6018***	-0.1844
	(-4.50)	(-6.83)	(-5.80)	(-1.77)
observations	150	150	150	150
R2	0.235	0.807	0.786	0.817
Panel C: Three-year performance	I	II	III	IV
Rm-Rf	0.6487	0.0562	-1.1914**	0.2216
	-0.96	-0.09	(-2.65)	-0.29
SMB	0.1597	-0.0607	-0.0237	-0.0879
	-0.81	(-0.82)	(-0.25)	(-0.82)
HML	-0.1006	0.0137	-0.0483	-0.0157
	(-1.08)	(-0.18)	(-1.34)	(-0.19)
WML			0.3189***	-0.0451
			-5.73	(-0.76)
α	-0.4644	-0.3175*	-0.4114**	-0.2731
	(-1.34)	(-2.07)	(-2.42)	(-1.75)
observations	150	150	150	150
R2	0.252	0.064	0.845	0.109

Note: This table presents the results of the calendar time portfolio.
Models I & II present the results of the Fama French three-factor model III and Model IV show the findings of the Carhart four-factor model.Panel A, B, and C report the results of one, two, and three-year performance. SMB = returns of small minus big firms, HML = returns of high minus low B/M ratio,and WML = returns of winners minus losers. t-statistics are shown in parenthesis. * indicates the statistical significance at 10% level.

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6 Conclusion

The number of days a firm takes from issuing the prospectus to the listing date is reflected by exante uncertainty factors. The length of the IPO waiting period depicts the accurate assessments of the overall quality of IPOs. Using a sample of 166 IPOs listed on the PSX from 1995 to 2018, this study investigates the patterns of waiting periods. We found that (a) firms with high offer prices are listed faster illustrating an IPO's quality, (b) large-sized firms take more time to list as they are more complex in terms of their structures and require high scrutiny, (c) firms with majority shares after going public take less time to enlist, (d) length of the waiting period is higher for financial firms, (e) IPOs issued during positive market sentiments take more time to list, (f) duration of IPOs under the CLA regime is higher, and (g) shares issued during hot activity period take a long waiting period.

The study also investigated the effect of the IPO waiting period on underpricing. The results demonstrated that a more extended waiting period creates uncertainty regarding new issues, increasing the magnitude of underpricing. The results further reveal that underpricing is high during the crisis period. Considering the regulatory regime's impact on the average underpricing, we used an interaction term with the waiting period. The results confirm that the length of the waiting period during the CLA regime increases the underpricing level compared to the SECP regime.

The waiting period causes not only short-run performance but also long-run post-IPO uncertainties. We estimate the post-IPO uncertainty using the returns from 21 days to 79, 142, 205, and 268 days. Our findings confirm that IPOs take more time to list due to higher uncertainty in the aftermarket pricing behavior. This study also finds that the waiting period has the predictive power to influence long-run IPO performance. The Fama French model confirms that firms with short waiting periods perform well over two years, indicating that a short waiting period positively influences excess returns. The effect of SMB on long-run performance suggests mixed results. However, WML inversely affects long-run performance, implying that winners minus losers reduce the likelihood of underperformance. We conclude that the firms with less ex-ante uncertainty reduce the IPO waiting period and lower the underpricing and post-uncertainty.

Considering the above findings, we conclude that the waiting period is a significant factor in discovering the risks and uncertainties associated with an IPO. The waiting period's length affects the short- and long-run pricing performance. When a firm decides to go public, it must focus on the exante uncertainty factors. It is also imperative to emphasize the exogenous factors that may affect the length of the waiting period and help the issuers and investors to overcome the riskiness associated with the aftermarket IPO performance.

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DOI: 10.54784/1990-6587.1462

References

Adam M, Bakar SW, Minarni A (2015) Analysis of factors affecting underpricing stock in initial public offering in indonesia stock exchange. International Journal of Research In Commerce & Management 6(4):58–62

Adil IH, Zaman A (2020) Outliers detection in skewed distributions: Split sample skewness based boxplot. Economic Computation and Economic Cybernetics Studies and Research 54(3):279–296

Agathee US, Sannassee RV, Brooks C (2014) The long-run performance of ipos: the case of the stock exchange of mauritius. Applied Financial Economics 24(17):1123–1145

Beatty RP, Ritter JR (1986) Investment banking, reputation, and the underpricing of initial public offerings. Journal of financial economics 15(1-2):213–232

Beaulieu MC, Sodjahin WR (2008) To wait or not to wait: When do announced initial public offerings are completed? pp 1–52

Bouis R (2009) The short-term timing of initial public offerings. Journal of Corporate Finance 15(5):587–601

Brennan MJ, Franks J (1997) Underpricing, ownership and control in initial public offerings of equity securities in the uk. Journal of financial economics 45(3):391–413

Brooks R, Fry TR, Dimovski W, Mihajilo S (2009) A duration analysis of the time from prospectus to listing for australian initial public offerings. Applied financial economics 19(3):183–190

Busaba WY (2006) Bookbuilding, the option to withdraw, and the timing of ipos. Journal of Corporate Finance 12(2):159–186

Carhart MM (1997) On persistence in mutual fund performance. The Journal of finance 52(1):57–82

Chambers D, Dimson E (2009) Ipo underpricing over the very long run. The Journal of Finance 64(3):1407–1443

Chan K, Wang J, Wei KJ (2004) Underpricing and long-term performance of ipos in china. Journal of Corporate Finance 10(3):409–430

Chen G, Firth M, Kim JB (2004) Ipo underpricing in chinas new stock markets. Journal of Multinational Financial Management 14(3):283–302

Chowdhry B, Sherman A (1996) International differences in oversubscription and underpricing of ipos. Journal of Corporate Finance 2(4):359–381

Colaco HM, Hegde SP (2013) Underwriter reputation, bookbuilding and ipo duration. Handbook of Research on IPOs pp 159–176

Colaco HM, De Cesari A, Hegde SP (2018) The waiting period of initial public offerings. The European Journal of Finance 24(5):363–390

Cong W, Howell ST, Zhang R (2017) The impact of delay in going public: evidence from china. Work Pap, Univ Chicago, Chicago

Dimovski W, Ratcliffe C (2011) A duration analysis of the time from prospectus to listing for a-reit ipos. Pacific Rim Property Research Journal 17(2):248–259

Fama EF, French KR (1993) Common risk factors in the returns on stocks and bonds. Journal of financial economics 33(1):3–56

Güçbilmez U (2015) Ipo waves in china and hong kong. International Review of Financial Analysis 40:14–26

Guo H, Brooks R (2009) Duration of ipos between offering and listing: Cox proportional hazard modelsevidence for chinese a-share ipos. International Review of Financial Analysis 18(5):239–249

Hermin S, Murhadi WR (2015) Factor affecting underpricing in the company that does ipo in bei 2004-2014. Jurnal Manajemen & Bisnis 14(2):228–237

Ibbotson RG, Jaffe JF (1975) hot issue markets. The journal of finance 30(4):1027–1042

Jenkinson T, Ljungqvist A, Ljungqvist AP, et al (2001) Going public: The theory and evidence on how companies raise equity finance. Oxford University Press

Kenourgios DF, Papathanasiou S, Melas ER (2007) Initial performance of greek ipos, underwriter's reputation and oversubscription. Managerial Finance pp 332–343

Kim M, Ritter JR (1999) Valuing ipos. Journal of financial economics 53(3):409–437

Kumar AV (2004) Venture backed ipo's in india: Issues of certification and underpricing. Journal of Entrepreneurial Finance, JEF 9(2):93–108

Loughran T, Ritter JR (1995) The new issues puzzle. The Journal of finance 50(1):23–51

https://ir.iba.edu.pk/businessreview/vol17/iss1/3
DOI: 10.54784/1990-6587.1462

Megginson WL, Weiss KA (1991) Venture capitalist certification in initial public offerings. The Journal of Finance 46(3):879–903

Mumtaz MZ, Smith ZA (2021) Analyzing the duration of ipos from offering to listing using the cox proportional hazards model. Portuguese Economic Journal 20(1):5–43

Mumtaz MZ, Smith ZA, Ahmed AM (2016) The aftermarket performance of initial public offerings in pakistan. Lahore Journal of Economics 21(1):23–68

Reiche O (2014) The phenomenon of IPO Underpricing in the European and US Stock Markets. Anchor Academic Publishing (aap_verlag)

Seth R, Vishwanatha S, Prasad D (2019) Allocation to anchor investors, underpricing, and the after-market performance of ipos. Financial Management 48(1):159–186

Shah A, et al (1995) The indian ipo market: empirical facts. Social Science Research Network pp 1–29

Tsangarakis NV (2004) The price performance of initial public offerings in greece. Managerial Finance 30:26–44

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

Yong O (2015) What is the true value of an initial public offering. Journal of Scientific Research and Development 2(10):78–85