Valuing local and dual-class IPOs in the Alternative Investment Market*

Valoración de Ofertas Públicas de Venta (IPO) en el Mercado Alternativo de Inversiones

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Abstract

Initial Public Offerings are, by definition, not seasoned securities. They have not been subjected to valuation by the community of investors. It is often difficult or impossible to forecast their future cash flows because most do not have a long history of publicly disclosed financial information. Consequently, valuing IPOs in any market is more difficult than valuing seasoned equities. In this paper, we address the valuation of IPOs in the Alternative Investment Market, (hereafter the AIM.) The purpose of this study is to determine the observable factors that affect valuation in the AIM. We apply OLS, LASSO regression, and Extreme Bounds Analysis (EBA) techniques on historical accounting data to test our theory of valuation. The statistical sample consists of 2,185 IPOs issued on the AIM between 1995 and 2020. Our findings suggest that the market valuation of IPOs in the AIM is systematically related to a multiplicity of factors. These include earnings per share (EPS) in the after-market, operating cash follow per share, and the percentage of shares issued to the public. The findings of the study have a practical value for investors who are interested in buying IPOs in the AIM.

Key words: V*aluation of IPOs, AIM, Dual-class IPOs, LASSO regression, Extreme Bounds Analysis.*

JEL Code: *G12; G14; C1.*

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Resumen

Las ofertas iniciales de venta al público (IPOs), por definición, no tienen historia y no han sido valoradas por inversionistas. Por ello, es difícil o imposible realizar proyecciones de flujos futuros, al no existir información financiera pública. Este trabajo centra la valoración en el Mercado de alternativo de inversiones, determinando los observables que afectan la valoración. Aplicamos distintas técnicas econométricas a datos contables de 2,185 IPOs entre los años 1995 y 2020. Nuestros resultados sugieren que las valoraciones se relacionan con diversos factores.

Palabras clave: *Valoración, IPOs, Regresión LASSO, Análisis de límites extremos.*

Clasificación JEL: *G12; G14; C1.*

1. Introduction

All investors recognize the difficulty of valuing an IPO; the current value of these firms depends on either historical accounting information or forecasted cash flows from products and services not yet marketed. The value of an IPO in the Alternative Investment Market is even more difficult than in heavily regulated trading stock exchanges because the financial disclosure requirements for listing on the AIM are much more modest (Wahid, Mumtaz, & Mantell, 2020). Similarly, the regulatory framework of the AIM permits listing firms whether they comply or not with the relatively few rules the AIM publishes. If companies elect did not comply, they must explain why they have decided not to comply (Colombelli, 2010; Wahid, Khan, & Mumtaz, 2019). The main reason why the AIM is growing as an international stock exchange is its relatively light regulatory burden. That transactional cost advantage makes the AIM a more favorable market for cross-border or offshore listing, enabling companies to avoid the cost burden imposed by the US Sarbanes-Oxley Act (Akyol, Cooper, Meoli, & Vismara, 2014; Reutzel & Belsito, 2015).

There are several practical and theoretical reasons why the valuations of IPOs listed on the AIM are of interest. During the past two decades, only 22% of new issues were listed on the main market e.g. London Stock Exchange (hereafter LSE) whereas 78% of new issues were enlisted on the AIM (Miguel Á. Acedo-Ramírez & Francisco J. Ruiz-Cabestre, 2016; Wahid *et al*., 2020). This shows the popularity of the AIM which is growing relative to the LSE. That growth can be expected to result in an increased incidence of mispricing. Companies selecting to launch their IPOs on the AIM are not required to disclose any specific financial credentials as a precondition for listing. That flexibility encourages newly incorporated small firms to go public which further leads to underpricing (Akyol *et al*., 2014). The scarcity of reliable financial and accounting information makes the valuation of IPOs in the AIM more difficult that

it would be in the main market. The regulatory framework of the AIM allows foreign companies to list their securities, which exacerbates the difficulties for underwriters because they must take into account the complexities of foreign exchange variability as well as parental market dynamics. Moreover, there is no minimum requirement on the AIM for the size of the listing firm or the number of shares to be held by the investing public (Wahid, Mumtaz, & Mantell, 2019).

To determine the price performance of IPOs across markets and time periods, many studies have been conducted and they documented that IPOs underprice in the short-run (Acedo-Ramírez, Díaz-Mendoza, & Ruiz-Cabestre, 2019; Hawaldar, Naveen Kumar, & Mallikarjunappa, 2018; Mumtaz, Smith, & Ahmed, 2016) and in the long-run (Ali, 2017; Fine, Gleason, & Mullen, 2017; Mumtaz, Smith, & Ahmed, 2016). The level of IPO underperformance varies across the nationality of the issuers and exchanges (Mudambi, Mudambi, Khurshed, & Goergen, 2012). Similarly, Doukas and Hoque (2016) found that firms make their own decisions and show that these two markets, *i.e.* the AIM and the main market, attract companies with different characteristics and post-listing investment and financing priorities. Acedo-Ramírez and Ruiz-Cabestre, (2016) also found the nexus between the IPO characteristics and underpricing in the AIM. They also differentiated between AIM firms that meet the main market pre-requisites and those firms that do not. Our paper goes beyond these studies by including when a firm goes public in AIM with unique size and nationality, underwriters have little information beyond traditional valuation methods employed in the technique where a supposedly comparable firm is analyzed as a surrogate for the listing firm. The statistical incidence of mispricing in the AIM has been documented by earlier studies (Abdullah, Jia'nan, & Shah, 2017; Acedo-Ramírez *et al*., 2019; Miguel Á. Acedo-Ramírez & Francisco J. Ruiz-Cabestre, 2016; Wahid, Khan, *et al*., 2019; Wahid *et al*., 2020; Zheng, 2007).

The regulatory and operational dynamics of the AIM suggest numerous hypothetical explanations for the mispricing of IPOs. To identify the observable factors associated with the mispricing of IPOs in AIM, this study is focused on four research questions: (a) How can one characterize the pricing of IPOs based on the accounting information disclosed? (b)What are the financial factors that appear to be systematically related to the pricing of IPOs? (c) What are the robust predictors of IPO offer prices? and (d) Does the domicile status of the firm offering the IPO affect its offer price? This study employs the firm size, the age of the firm, market conditions, the offer size, and classification of local and cross-listing as the control variables. In this study, we use the EBA technique and LASSO regression because it reduces the ambiguity in selecting the explanatory variables and mitigates the uncertainty associated with model specification.

The rest of the paper is structured as follows. Section 2 elaborates the literary review focuses on the theoretical discourse on the valuation of IPOs. Section 3 explains the data, sample size, the econometric model, and statistical techniques to determine the robust factors affecting the valuation of IPOs. Section 4 describes descriptive statistics, the correlation matrix of criterion and outcome

variables of the study, and also shows the inferential statistics including OLS and sensitivity analysis through EBA and LASSO regressions. Finally, section 5 concludes the study.

2. The theories of IPO valuation

2.1. Methods of IPO pricing

Two methods have been used in the literature for valuing the IPOs. These are the *comparable firm* approach- and another valuation method is called the regression method. The comparable firm approach is frequently used by investment bankers to value IPOs (see Kim & Ritter, 1999). The regression method is commonly employed by academics and researchers (Bartov, Mohanram, & Seethamraju, 2002). The comparable firm method has been widely used by underwriters if they can identify a firm "comparable" to the IPO. That comparable firm has designated a benchmark for determining the IPO offering price (Kim & Ritter, 1999). This method takes into account the relative value of assets of a competitive firm and then prices the shares of the IPO company based on this relative value using various financial indicators (Agnes Cheng & McNamara, 2000; Rasheed, Khalid Sohail, Din, & Ijaz, 2018).

The most popular method used in the comparable firm approach for the valuation of IPOs is the dividend discount model. That model is based on the proposition that the value of a firm's stock is equal to the discounted value of the infinite cash flow of the expected dividends per share (Rasheed, Khalid Sohail, Din, & Ijaz, 2018; (Gacus & Hinlo, 2018; Sim & Wright, 2017). The other approach firm analysis for the IPO valuation is the discounted cash flow method. That method is based on the proposition that the value of a company is based on the expected future cash flows discounted at their present values (Alhadab, Clacher, & Keasey, 2016; Shapiro *et al*., 2019). A third valuation method employs earnings or sales concerning the market price for determining the offer price for the shares(Fernandez, 2011; Kumar, 2016). The OLS method is commonly used in academic research to determine the factors that influence IPO pricing (Beatty, Riffe, and Thompson,2000).

2.2. The magnitude of IPO mispricing

The mispricing of IPOs seems to be ubiquitous and durable. Rock (1986) found a general trend among the investors buying stocks in the secondary markets at prices exceeding the offer prices. This phenomenon was reported at11% in the US market from 1963-1965 (Reilly & Hatfield, 1969) and after that 21.14% in USA (640), 43.95% in Japan (609), 20.16% in the UK (471), 18.04% in Australia (437), 13.12% in France (171), 37.20% in Germany (132), 34.97% in Greece (124) and 32.04% in the Indian market (292) (Wahid *et al*., 2020). The mispricing effect was also documented emerging markets where the

average initial return was 462% for 101 IPOs during the 1990-1993 period in China (Tan, Dimovski, & Fang, 2015), 231% for 308 IPOs issued in the 1985-1995 period in China (Haggard, Walkup, & Xi, 2015) and 175% for 570 IPOs issued in Malaysia (Komenkul & Kiranand, 2017).

This evidence confirms that mispricing has been a pervasive phenomenon that exists almost in every market. The extent of the pervasiveness suggests that there are factors beyond the accounting information and forecasted earnings which are systematically associated with the mispricing of IPOs. In the next section, we describe the behavioral theories purporting to explain the mispricing of IPOs and the statistical evidence consistent with those theories.

2.3. Factors affecting IPO pricing

Earlier studies suggested information asymmetry as the main factor causing mispricing of IPOs by the offering firm. (see Bouzouita, Gajewski, & Gresse, 2015; McGuinness, 2016; Naifar, 2011; Wahid *et al*., 2020). An example of the asymmetry theory suggests that investors misprice the offering due to incomplete information relating to the firm's specific characteristics (Wahid, Khan, *et al*., 2019). That study employs published accounting information to determine the factors that cause the pricing of IPOs. The information includes EPS, operating cash flow per share, sales per share (Beatty *et al*., 2000), book value per share, the annual sales growth, growth of profit (Kim & Ritter, 1999), and the percentage of shares offered.

Some studies focused on the ex-ante uncertainty hypothesis as a factor responsible for mispricing (see Mantell, 2016).That theory suggests that the risks perceived by investors can be dichotomized into pre- and post-IPO uncertainty. Other studies used the firm age at the time of offering (Rathnayake, Louembé, Kassi, Sun, & Ning, 2019), and the offer size (Mumtaz *et al*., 2016) as proxies for pre-IPO uncertainty. A theory purporting to explain the price performance of IPOs in the aftermarket is related to the prestige of the underwriters (Migliorati & Vismara, 2014). This theory suggests that the luster of the underwriter's reputation is inversely associated with the magnitude of underpricing (Arora & Singh, 2019).

The signaling hypothesis suggests that high-quality large issuers intentionally underprice their IPO to signal to investors that the quality of their offer differs from the offers of low-quality firms (Badru & Ahmad-Zaluki, 2018). Market sentiment and investor sentiment can also be explained in terms of signaling theory (Colombo, Meoli, & Vismara, 2019; Obrimah, 2018). The volatility of market activity is also thought to influence the pricing of IPOs. The window-of-opportunity hypothesis develops the nexus between the timing of an issue and its mispricing. The theory suggests that in a hot market environment issuers tend to overprice their issues (Ritter, 1991). To examine the robustness of the causal factors related to IPO pricing, we used different proxies related to the above theories. These variables include: offer size and firm age as proxies of the ex-ante uncertainty hypothesis, firm size and duality of the firm listing

(cross-listed IPOs) as proxies of signaling hypothesis, underwriter's prestige as a proxy for the underwriter reputation hypothesis and market condition as a proxy of the window of opportunity hypothesis.

3. Methodology

3.1. The Data and the Sample

We divided our population into two sub-samples: (a) local IPOs and (b) dual-class IPOs (cross-listed IPOs) in the AIM during the period from July 1995 to December 2019. A total of 2,226 new issues were listed on the AIM, including 1,801 locally incorporated IPOs and 425 foreign firms listed on the AIM defined as a secondary listing. The overview of these IPOs is presented in Table 1 and Figure 1.

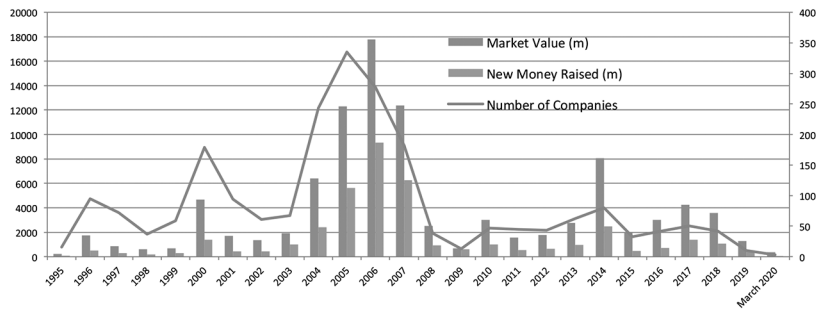
TABLE 1
THE LISTINGS OF IPOS IN THE ALTERNATIVE INVESTMENT MARKET

Year	Number of Companies	Market Value (m)	New Money Raised (m)
1995	16	208.000	69.087
1996	95	1757.000	504.257
1997	72	844.203	299.353
1998	37	602.969	185.110
1999	59	673.952	274.367
2000	179	4666.737	1395.267
2001	94	1715.668	434.913
2002	61	1338.591	433.018
2003	67	1901.531	989.820
2004	243	6385.949	2412.258
2005	335	12299.048	5632.464
2006	278	17785.840	9314.644
2007	182	12384.884	6262.350
2008	38	2508.298	917.269
2009	13	665.954	610.056
2010	47	3024.441	1012.001
2011	45	1571.542	525.095
2012	43	1779.934	642.898
2013	62	2750.771	973.588
2014	80	8064.514	2472.468
2015	33	1972.906	470.001
2016	42	3000.730	710.160
2017	50	4232.391	1379.449
2018	42	3575.811	1065.716
2019	10	1276.536	417.004
March 2020	3	370.310	48.500

Note: All monetary units are expressed in British pounds.

We selected a population of 2,185 firms. We collected the statistical and other data from the websites of the issuing firms and the London Stock Exchange (LSE).

FIGURE 1
IPOS ISSUED IN THE AIM FROM 1995 TO 2020



3.2. The Econometric Specification

To test the theories, we applied an OLS regression to evaluate the factors that influence IPO pricing (e.g. Bartov *et al*., 2002; Beatty *et al*., 2000; Kim & Ritter, 1999; Pukthuanthong-Le, 2008):

$$Price_{IPO,i} = \alpha_i + \delta_1(EPS_i) + \delta_2(OCPS_i) + \delta_3(SPS_i) + \delta_4(BVPS_i) + \delta_5(SG_i) + \delta_6(PG_i) + \delta_7(PSO_i) + \gamma_1(Firm_{Size_i}) + \gamma_2(Offer_{Size_i}) + \gamma_3(Mkt_{Cond_i}) + \gamma_4\left(Firm_{Age_i}\right) + \gamma_5\left(Undwr_{Rep_i}\right) + \gamma_6(Firm_{Class_i}) \quad (1)$$

TABLE 2
EXPLANATION OF VARIABLE

Variable	Measurement of variables
Price IPO	It is an offer price of which shares are offered to investors.
EPS	Earnings per share of a firm going public.
OCPS	This is the operating cash flow per share before the offering.
BVPS	The book value per share measured as the stockholders' offering.
SG	It is the growth of sales revenue measured by the percentage change in sales.
PG	It is the profit growth which is estimated by the percentage change in the profit.
PSO	It refers to the percentage of shares offered and calculated as the number of shares offered divided by total shares outstanding.
Firm Size	Firm size is the natural logarithm of the total assets of the issuer.
Offer size	Offer size is the total monetary value of the offering.

Table 2 (cont.)

Variable	Measurement of variables
Mktcond	It refers to the market condition and defined as a dummy variable. If the total volume of offerings in the market is higher than the average volume it is recognized as a hot market and categorizedas1, and 0 otherwise.
Firm age	Firm age at the time of offering.
Undwrep	This shows the prestige of underwriters. A dummy variable is assigned as1 if the prestige of the underwriters is high and 0 otherwise. We use total market capitalization as a measure to compute the repute of underwriters.
Firm class	This indicates the class of firm and it is a dummy variable assigned as 1 for local IPOs and 0 for cross-listed IPOs.

3.3. Statistical techniques

To test our propositions, we used robust regression in this study. The purpose of employing a robust regression method is that other techniques do not adjust for outliers. In many of those applications, outliers have been unduly influential. To overcome the problem of outliers in these techniques, researchers applied OLS with a prescription of robust regression. In the first step, we use all Z variables in the robust regression to find out the potential impact of all variables on the valuation. The basic model for choice of function ρ of the residuals is as follow:

$$\text{Huber Model} \quad \begin{cases} \frac{X^2}{2} if |X| \leq c \\ c|X| - \frac{c^2}{2} otherwise \end{cases} \tag{2}$$

The default tuning constants for each function are taken from Holland and Welsch (1977), and are chosen so that the estimator achieves 95% asymptotic efficiency under residual normality. In the next step, we also use Median Absolute Deviation - Median Centered (MADMED) method:

$$\text{MADMED}, \hat{\sigma}^{(\delta)} = Median\left[\frac{abs\left(r_i^{(\delta-1)} - Median\left[r_i^{(\delta-1)}\right]\right)}{0.675}\right] \tag{3}$$

Maronna & Morgenthaler (1986) defines the robust R^2 statistic of robust regression as:

$$R^2 = \frac{\Sigma_{i=1}^{N} P_c\left(\frac{y_i - \bar{\mu}}{\bar{\sigma}\omega_i}\right) - \Sigma_{i=1}^{N} P_c\left(\frac{\tau_i}{\bar{\sigma}\omega_i}\right)}{\Sigma_{i=1}^{N} P_c\left(\frac{y_i - \bar{\mu}}{\bar{\sigma}\omega_i}\right)} \tag{4}$$

Information criteria for M-estimated equations describe the robust equivalent of the Akaike Information Criterion (AIC_R), and a corresponding robust Schwarz Information Criterion

$$(BIC_R)\colon AIC_R = 2\sum_{i=1}^{N} P_c\left(\frac{r_i(\beta)}{\hat{\sigma}\omega_i}\right) + 2k\left\{\frac{\sum_{i=1}^{n}\varphi_c\left(\frac{r_i(\beta)}{\sigma\omega_i}\right)^2}{\sum_{i=1}^{n}\varphi_c\left(\frac{r_i(\beta)}{\sigma\omega_i}\right)}\right\} \tag{5}$$

In the next step, we use two techniques that are Extreme Bounds Analysis (EBA) and Least absolute shrinkage and selection operator (LASSO) to determine the robust determinants of the price of IPOs. According to Cooley & Leroy (1981), the economic theory does not indicate which of the variables are robust and which should be kept constant while employing any statistical technique or model. To address this concern, Leamer(1983, 1985) developed the Extreme Bound Analysis (EBA) and applied by Levine & Renelt (1992). To determine the robust predictors, we construct the following regression (Moosa and Cardak, 2006):

$$Price_i = \beta_0 + \sum_{ip=1}^{n} \beta_c X_{ipi} + \mu_i \tag{6}$$

$$Price_i = \beta_0 + \sum_{ip=1}^{n} \delta_c X_{ipi} + \beta Q_i + \sum_{ip=1}^{m} \delta_c z_{ipi} + \mu_i \tag{7}$$

We estimate the coefficient of the variable of interest *Q*. The coefficient of that variable is an indicator of sensitivity and robustness. The methodology of robust regression requires many regressions to estimate the value of the coefficient of the independent variable. The fixed variable(s) *X* are included in every set of regressions. The variable of interest *Q* and the set of variables *Z* is chosen from a predetermined pool. Furthermore, to get more clarity about the specification of the model and robustness of variables, we use LASSO regression which is widely used to select both variables and measure the accuracy model. This technique was first time introduced by Santosa & Symes(1986) and used by (Tibshirani, 1996). The LASSO estimator is the OLS estimator with an L1 penalty term:

$$Price_i = \frac{1}{2m}\sum_{i=1}^{m}\left(y_i - \beta_0 + \sum_{j=1}^{p} x_i\beta_j\right)^2 + \lambda\sum_{j=1}^{p}|\beta_j| \tag{8}$$

The nature of L1 regularization penalty causes some coefficients to be shrunken to zero. Here the turning factor λ controls the strength of the penalty that is $\lambda = 0$. In this situation, coefficients are considered as simple linear regression. Likewise, when $\lambda = \infty$ then all coefficients are zero. In nutshell, $0 < \lambda < \infty$

means the coefficients between 0 and that of simple linear regression. So, when λ falls between the two extremes, we are balancing the below two ideas. The Lasso regression can perform variable selection in the linear model. Thus, as the value of λ increases, more coefficients will be set to value zero (provided fewer variables are selected) and so among the nonzero coefficients, more shrinkage is employed.

4.. Findings and analysis

4.1. The IPO market in the AIM

Table 1 depicts the history of IPO activities listed on the AIM from 1995 to 2020. Since January 2020, more than 75% of new issues were listed on the AIM and 25% were listed in the LSE. A total of 2,226 new issues have been listed on the AIM since 1995. Of those, 1,801 were locally incorporated IPOs and 425 were incorporated in foreign countries. The total market capitalization of the AIM was £97,358 million. During the period from 1995 to 2020 £39,451 million of new money was raised from IPO listings. The decade from 2001 to 2010 was unusually active for IPOs on the AIM. During that decade, 1,358 IPOs were launched, constituting more than 60% of all the IPOs listed on the AIM as mentioned in Table 3. Figure 1 demonstrates the trend of IPOs issued over the sample period.

TABLE 3
DESCRIPTIVE STATISTICS

	Local IPOs			Cross-listed IPOs		
	IPOs	Capitalization	New money raised	IPOs	Capitalization	New money raised
1995-2020	1801	69,355	28,617	425	28,003	10,834
1995-2000	419	7,726	2,437	39	1,027	290
2001-2005	665	16,478	7,167	135	7,163	2,735
2006-2010	389	22,071	12,133	169	14,299	5,983
2011-2015	203	12,169	4,039	60	3,971	1,045
2016-2020	125	10,912	2,840	22	1,543	781

Note: All monetary units expressed in British pounds This table displays the sample of 2,226 new issues. It includes 1,801 locally incorporated firm's IPOs and 425 foreign countries incorporated firms that are listed on the AIM for secondary listing or offshore listing from 1995 to 2020. Market capitalization and new money raised is quoted in millions of British pounds.

4.2. Descriptive statistics and the correlation matrix

In the Table 4, the descriptive analysis of the variables shows that the average price of IPOs in the AIM was 79.275 British pounds. Most of the IPOs listed on AIM were pre-sold by the sales process known as book building. The average firm size was 42 million pounds and the average offering size was 17 million pounds. The average EPS of the firms in the sample was 6.5%, the average operating cash flow per share was 12.99; the average operating sales per share was 10.61; and the average book value of the stock at the time of the offering was 9.88. According to Amini, Keasey, and Hudson (2012), access to market-based equity finance is easier for small firms in capital markets. The sale and profit growth are 6.46% and 8.95% relatively for young firms (less than 2 years) at the time of offering. These facts suggest that these firms are growing rapidly.

Most firms prefer to issue IPOs into what they believe to be a hot market. Most issuers prefer the offering to be managed by prestigious underwriters, if feasible. Most issuers listed on the AIM are locally incorporated small firms; the evidence relating to the effect on the offer price of the domicile of IPOs issuers shows that the majority of small IPOs are incorporated in the London-based market. According to Amini, Keasey, and Hudson (2012), access to market-based equity finance is easier for London-based firms. Additionally, the AIM is characterized by a substantial concentration of Small Medium Enterprises (SMEs), most of which are located in London. The correlation matrix (Table 4) indicates that no variable is highly correlated with any other which mitigates the difficulties associated with multi-collinearity.

4.3. Results of the basic model with all the Z variables

To disentangle the multiplicity of factors affecting the offer prices of IPOs, we apply the OLS specification represented by equation (3) above. The dependent variable is the offering price of IPOs. In the Model-I, we use all seven Z-variables. These include EPS, operating cash flow per share, sale per share, the book value of equity per share before the offering, profit growth before offering, and the percentage of shares issued. Table 5 presents the results of OLS estimates. The results of Model-I show that there is a significant and positive impact of earnings per share ($\beta = 1.758$, $p < 0.01$), operating cash flow per share ($\beta = 1.402$, $p < 0.01$), and sale per share ($\beta = 0.718$, $p < 0.01$) on the issue price of IPOs in AIM except for the percentage of share issued ($\beta = -0.771$, $p < 0.01$) which has a negative role in deciding IPOs pricing. We found insignificant effect in sales per share, book value of equity per share, profit growth in deciding IPOs pricing in AIM.

In the next step, we include control variables (*i.e.* firm size, offer size, market condition, firm age, underwriters' reputation, and dual-class IPOs). These variables are added to the specification incrementally from Model-II to Model-VII. To test the robustness of the control variables, we apply three

TABLE4
DESCRIPTIVE STATISTIC AND CORRELATION MATRIX

	Mean	Std. Dev	Price	EPS	OCPS	SPS	BVS	SG	PG	PSO	FSize	Osize	MC	FAge	URP	Class
Price	79.275	81.376	1													
EPS	6.573	2.194	.562**	1												
OCPS	12.997	3.795	.434**	.562**	1											
SPS	10.601	4.315	.401**	.530**	.562**	1										
BVS	9.884	3.245	–.027	.016	–.003	–.001	1									
SG	6.462	2.832	.006	.001	–.027	–.012	.014	1								
PG	8.985	2.586	–.024	–.025	–.025	–.002	–.009	–.009	1							
PSO	36.433	13.638	–.070**	.098**	.218**	.249**	.025	–.009	.011	1						
FSize	42.91	70.67	.523**	.436**	.342**	.281**	–.006	.007	–.045*	–.109**	1					
Osize	17.52	37.17	.486**	.410**	.330**	.300**	.004	.002	–.039	–.055*	.526**	1				
MC	0.682	0.466	.003	.006	–.011	–.006	.026	–.007	–.038	–.029	.007	–.008	1			
Firm Age	2.213	1.441	.088**	–.077**	–.233**	–.268**	.017	–.021	–.043*	–.400**	.144**	.111**	.017	1		
URP	0.501	0.500	–.014	–.024	–.011	–.027	–.011	–.015	.018	.026	–.032	–.037	.016	–.017	1	
Class	0.189	0.391	.121**	–.130**	–.345**	–.397**	.017	–.002	–.014	–.586**	.228**	.162**	.053*	.663**	–.020	1

Note: Issue price, (reported in British pounds), EPS is an average of earnings per share(reported in %), OCPS is the operating cash flow per share(reported in British pounds), BVPS is the book value per share(reported in British pounds), SG is the sale growth (reported in %) and PG is profit growth (reported in %). PSO is the percentage of share offered (reported in %), Fsize is firm size(reported in million British pounds), Osize is Offer size(reported in millions of British pounds), and MC is market condition is dummy variable. Firm age is the total age of firm URP is a dummy variable which is assigned a value of 1 if the prestige of the underwriters is high and 0 otherwise and class is categorized as a dummy variable assigned as 1 for local IPOs and 0 for cross-listed IPOs. *P<0.05; ** p<0.01 represent significance level at the 1, and 5% respectively.

TABLE 5
ORDINARY LEAST SQUARES ESTIMATES OF PARAMETERS

	Model–I	Model–II	Model–III	Model–IV	Model–V	Model–VI	Model–VII
EPS	1.758**	1.371**	1.365**	1.366**	1.353**	1.353**	1.312**
	(28.30)	(24.07)	(23.98)	(23.97)	(23.82)	(23.83)	(24.50)
Operating Cash flow/Shares	1.402**	1.149**	1.145**	1.145**	1.178**	1.177**	1.369**
	(18.90)	(17.35)	(17.31)	(17.30)	(17.77)	(17.75)	(21.55)
Sales/Shares	0.718**	0.640**	0.631**	0.631**	0.663**	0.665**	0.894**
	(12.64)	(12.75)	(12.57)	(12.56)	(13.12)	(13.15)	(18.03)
Book Value/Shares	0.029	0.038	0.036	0.037	0.032	0.033	0.014
	(0.59)	(0.87)	(0.84)	(0.85)	(0.75)	(0.77)	(0.35)
Sales Growth	0.038	0.026	0.027	0.027	0.032	0.032	0.038
	(1.15)	(0.90)	(0.93)	(0.92)	(1.09)	(1.11)	(1.38)
Profit Growth	–0.066	–0.030	–0.030	–0.030	–0.021	–0.023	–0.039
	(1.17)	(0.61)	(0.60)	(0.60)	(0.43)	(0.46)	(0.83)
% Share Offered to public	–0.771**	–0.532**	–0.534**	–0.534**	–0.482**	–0.483**	–0.094*
	(17.82)	(13.51)	(13.57)	(13.57)	(11.79)	(11.82)	(2.08)
Firm Size		0.322**	0.280**	0.280**	0.274**	0.274**	0.212**
		(24.88)	(13.65)	(13.65)	(13.42)	(13.42)	(10.83)
Offer Size			0.048**	0.048**	0.044*	0.045*	0.036*
			(2.66)	(2.66)	(2.47)	(2.50)	(2.13)
Market Condition				–0.004	–0.006	–0.007	–0.019
				(0.21)	(0.33)	(0.38)	(1.11)
Firm Age					0.106**	0.106**	–0.052*
					(4.46)	(4.46)	(2.16)
Underwriter's Reputation						0.047	0.053
						(1.56)	(1.86)
Dual Class							1.005**
							(16.62)
constant	–1.925**	–2.266**	–2.178**	–2.173**	–2.584**	–2.604**	–4.665**
	(7.70)	(10.24)	(9.75)	(9.67)	(10.68)	(10.75)	(17.97)
R^2	0.67	0.72	0.73	0.72	0.74	0.73	0.77
df	08	09	10	11	12	13	14
AIC	5265.47	4720.41 4771.61	4715.30 4772.19	4717.26 4779.84	4699.31 4767.59	4698.88 4772.84	4439.311
BIC	5310.99						4518.963

Note: This table displays the findings in a sample of 2185 IPOs. The sample consists of1773 local IPOs and 412 Cross-listed IPOs issued on the AIM from 1995 to 2021. * <0.05; ** p<0.01 represent significance level at the 1, and 5% respectively. The issue price is the dependent variable, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion.

criteria: Akaike's Information Criterion (AIC), Bayesian Information Criterion (BIC) and the R^2. In the Model-II, we added the variable representing firm size. The test statistics are: AIC = 4720.41, BIC = 4771.61, R^2 =0.72. The value of β for that variable is significant at 99% confidence interval ($p < 0.01$).The explanatory power of this Model is superior to Model-I, as is signified by a lower AIC and BIC and a higher R^2. These findings indicate that firm size is systematically related to the prices of IPOs. Larger firm size leads to the probability of higher IPO pricing. In the Model-III, we included the offer size as an explanatory variable. The test statistics are: AIC = 4715.30, BIC = 4772.19 and $R^2 = 0.73$. The value of β for that variable is significant at 99% confidence interval ($p < 0.01$).The economic significance of the offer size is that firms have more options to generate funds in AIM because of its international scope. A reasonable explanation of this finding is that large issuers are attractive to a more diverse population of potential investors; there by generating higher prices in the after-market. In Model-IV, we found that the market condition has an insignificant effect on the pricing of IPOs. This finding constitutes evidence tending to invalidate the window of opportunity hypothesis which suggests during periods of hot market issuers tend to price their issues.

Prior literature reported the positive relationship between underpricing and firm size. (Sahoo and Rajib 2010; Diro Ejara and Ghosh 2004; Mumtaz, Smith, and Ahmed 2016).This evidence supports the ex-ante uncertainty hypothesis that the availability of historical information of firms leads to a lower probability of IPO mispricing. In general, the prestige and expertise of underwriters affect the pricing of IPOs. We found that high prestige underwriters tend to be associated with a smaller degree of mispricing. The statistical findings in Model-VI support the proposition that underwriters' reputation in our sample is not significantly related to the offer price. That finding directly contradicts the finding in Model V. We added the listing classification of IPOs in Model-VII and reported that the price of local and dual-class IPOs systematically varies concerning the nationalities of the issuer and the prestige of the underwriters in the AIM. This finding is consistent with the signaling hypothesis: High-quality large firms intentionally underprice their issue to differentiate their status in the market from the low-quality firm (Badru & Ahmad-Zaluki, 2018).

4.4. Sensitivity analysis using LASSO regression and Extreme Bounds Analysis

To test the sensitivity and robustness of the explanatory variables, this study applies the Extreme Bounds Analysis (EBA) technique. We compare the results of the EBA technique with other methods which include the Akaike's information criterion (AIC) and Bayesian information criterion (BIC).We applied a large number of regressions to predict the values of the coefficients. We include fixed variables (X) in every set of regression, a specific variable of interest, Q and the set of Z variables chosen from a predetermined pool of combinations. The sample statistics are displayed at the bottom of Table 6.

The result of the EBA indicates that EPS (β= 1.205, $p < 0.01$), operating cash flow per share (β= 1.367, $p < 0.01$), and sale per share (β= 0.891, $p < 0.01$) are the robust parameters explaining the pricing of IPOs. Firm size, offer size, firm age, and class of the firm are the fixed variables shown in table (5). Similarly, the result of LASSO indicates that EPS, operating cash flow per share, sale per share, firm size, offer size firm age, and class of the firm arise emerged as robust determinants of the value of IPOs. The optimization of this combination has been tested through lower AIC, and BIC values. Our findings indicate that EPS, operating cash flow per share, and sale per share are significantly correlated with the offer price of IPOs in the AIM.

TABLE 6
COMPARISON OF THE THE EBA AND LASSO WITH OTHER TECHNIQUES

	Pre-OLS	EBA	LASSO	Post-OLS
EPS	1.312**	1.131**	1.101**	1.205**
	(24.50)	(27.97)	(33.73)	(39.75)
Operating Cash flow/Shares	1.369**	1.490**	1.131**	1.367**
	(21.55)	(16.22)	(19.23)	(21.51)
Sale/Shares	0.894**	0.642**	0.639**	0.891**
	(18.03)	(15.12)	(11.51)	(17.96)
Book Value/Shares	0.014			
	(0.35)			
Sale Growth	0.038			
	(1.38)			
Profit Growth	–0.039			
	(0.83)			
% Share Offered	–0.094*			
	(2.08)			
Firm Size	0.212**	0.267**	0.251**	0.300**
	(10.83)	(14.89)	(10.33)	(12.71)
Offer Size	0.036*		0.031**	0.082**
	(2.13)		(3.85)	(4.02)
Market Condition	–0.019			
	(1.11)			
Firm Age	–0.052*	–0.093**	–0.101**	–0.081**
	(2.16)	(2.51)	(3.34)	(2.76)
Underwriter's Repute	0.053			
	(1.86)			
Dual Class	1.005**	0.241**	0.176**	0.289**
	(16.62)	(3.88)	(5.54)	(4.26)
_cons	–4.665**	–0.467**	–0.498**	–0.885**
	(17.97)	(4.35)	(4.94)	(3.40)
R^2	0.64	0.60	0.61	0.61
AIC	4439.31			4038.87
BIC	4518.96			4084.38

Note: This table displays the findings in a sample of 2185 IPOs that consists of 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM from 1995 to 2021. * < 0.05; ** $p < 0.01$ represent significance level at the 1, and 5% respectively. The issue price is the dependent variable, AIC = Akaike's Information Criterion, BIC = Bayesian Information Extreme Bounds Analysis (EBA) was used to predict the robust factor explaining the intrinsic value of IPOs. Total 495 combinations using n!/(k!(n-k)! formula of 7 regressors (3 level combination of variables of interest) from the Z(nx13) vector.

4.5. Firm Age and the issue prices of Initial Public Offerings

To determine the significance of control variables, we further divided our data set based on control variables such as the firm's age. We partition the sample into four sub-samples: sub-sample 1 defined as the issuers with age at the date of issue less than or equal to 1 year, sub-sample 2 defined as 2 year < firm age ≤ 3 years, Sub-sample 3 defined as 3 years < firm age ≤ 5 years and sub-sample 3 defined as 5 years < firm age. Table 7 displays the descriptive analysis relating to issue price and firm age. The data show that the issue price is positively correlated with the age of the issuer.

In Table 8, we applied the OLS separately for each sub-sample of firm age. In all four of the sub-samples, EPS, operating cash flows per share, sales per share, and percentage of shares offered came out as significant factors. In the case of the oldest firms, only EPS and operating cash flows per share emerged as robust factors for IPOs' valuation. This finding implies that strong financial history leads to lower ex-ante uncertainty in terms of the new issue.

TABLE 7
RELATION BETWEEN FIRM AGE AND ISSUE PRICE

Issuer Age (years)	Minimum	Maximum	Mean	Std. Deviation
Less than 1	1	500.000	73.506	66.844
1 ≤ Age ≤ 3	1	750.000	77.874	82.017
3 < Age ≤ 5	1	678.150	78.409	79.334
Age > 5	1	730.000	98.402	109.049

Note: This table exhibits nexus between Firm Age and Issue Price of IPOs of a selected sample of 2185 IPOs

TABLE 8
NEXUS BETWEEN FIRM AGE AND ISSUE PRICE OF IPOS

	Firm Age-I	Firm Age-II	Firm Age-III	Firm Age-IV	Overall
Earnings/ Shares	1.501**	1.762**	1.683**	1.362	1.755**
	(14.44)	(15.43)	(14.31)	(8.79)**	(28.29)
Cash flow/Shares	1.250**	1.287**	1.514**	2.540	1.402**
	(10.94)	(9.53)	(11.11)	(11.72)**	(18.93)
Sale/Shares	1.235**	0.846**	0.848**	0.183	0.713**
	(13.98)	(8.45)	(8.00)	(0.69)	(12.58)
Book Value/Shares	0.088	–0.033	0.052	–0.120	0.029
	(1.23)	(0.38)	(0.59)	(0.76)	(0.60)
Sale Growth	0.061	0.030	0.011	0.164	0.038
	(1.22)	(0.52)	(0.18)	(1.55)	(1.15)
Profit Growth	–0.075	–0.015	–0.006	–0.274	–0.066
	(0.91)	(0.15)	(0.05)	(1.55)	(1.17)

Table 8 (cont.)

	Firm Age-I	Firm Age-II	Firm Age-III	Firm Age-IV	Overall
% Share Offered	–0.181*	–0.457**	–0.755**	–0.100	-0.771**
	(2.33)	(5.37)	(9.22)	(0.57)	(17.83)
_cons	–4.681**	–3.077**	–2.637**	–3.700**	–1.913**
	(10.65)	(6.38)	(5.59)	(3.43)	(7.67)
R^2	0.79	0.70	0.68	0.59	0.67
N	621	639	661	264	2,185

Note: This table displays estimated coefficients is each of the four sub-samples. * < 0.05; ** $p < 0.01$ represent significance level at the 1, and 5% respectively.

4.6. Relationship between firm size and the issue price

The signaling hypothesis is based on the theory that large firms differentiate their status in the market from small firms by issuing IPOs with high offer prices (Badru & Ahmad-Zaluki, 2018; Wahid, Khan, *et al*., 2019). To the extent that theory is valid, it would help to explain the statistical incidence underpricing. We tested this proposition by partitioning the sample into firm size quartiles based on the total assets of the firm. A large variation of firm size ensures that diversified IPOs are included in the sample.

Partitioning the sample into quartiles reveals a systematic relationship between firm size and the offer price. We found that as the firm sizes increase, the offer price tends to increase. This effect is displayed in Table 9. An alternative analytical method is displayed in Table 10. For each quartile formed based on the total assets of the firm, we applied OLS to find out the factors affecting the valuation of IPOs in the AIM. In small size and medium-size firms, EPS, operating cash flow per share, sales revenue per share, sale growth, and percentage of shares offered are systematically related to the pricing of IPOs in the AIM.

TABLE 9
FIRM SIZE AND ISSUE PRICE

Firm Size	Minimum	Maximum	Mean	Std. Deviation
Firm Size < 7.621 (£m)	1	478.000	28.540	43.686
7.621 (£m) ≤ Firm size ≤ 19 (£m)	1	350.000	60.663	52.503
19 (£m) < Firm size ≤ 47.170 (£m)	1	550.340	86.151	56.506
Firm Size > 47.170 (£m)	1	750.000	141.836	108.518

Note: This table displays the relationship between Firm Size and Issue Price of IPOs of a sample of 2185 IPOs. It contains 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM from 1995 to 2021.

TABLE 10
NEXUS BETWEEN FIRM SIZE AND ISSUE PRICE

	Firm Size I	Firm Size II	Firm Size III	Firm Size IV	Overall
Earnings/ Shares	1.628**	1.384**	1.101**	1.121**	1.755**
	(11.51)	(13.57)	(11.46)	(11.02)	(28.29)
Cash flow/Shares	1.402**	0.982**	0.868**	0.792**	1.402**
	(9.43)	(8.15)	(7.57)	(6.17)	(18.93)
Sale/Shares	1.107**	1.086**	0.534**	0.152	0.713**
	(8.01)	(11.55)	(6.40)	(1.87)	(12.58)
Book Value/Shares	0.066	0.062	0.001	–0.086	0.029
	(0.62)	(0.80)	(0.02)	(1.16)	(0.60)
Sale Growth	0.183**	–0.012	0.028	–0.033	0.038
	(2.62)	(0.22)	(0.56)	(0.67)	(1.15)
Profit Growth	–0.077	–0.083	–0.085	0.041	–0.066
	(0.64)	(0.90)	(1.02)	(0.49)	(1.17)
% Share Offered	–0.502**	–0.362**	–0.348**	–0.504**	–0.771**
	(4.82)	(5.04)	(5.24)	(7.32)	(17.83)
constant	–4.265**	–2.496**	–0.059	1.911**	–1.913**
	(7.24)	(6.05)	(0.16)	(4.79)	(7.67)
R^2	0.64	0.71	0.52	0.33	0.67
N	547	546	546	546	2,185

Note: This table displays the coefficients in each sub-sample of firm size *i.e.* Firm size-I (< = 7.621 (£m), firm size-II (> 7.621 (£m) and < = 19 (£m), firm size-III (> 19 (£m) and < = 47.170 (£m) and firm size IV (> 47.170 (£m) of overall sample of 2185 IPOs placed on the AIM during 1995 to 2021. * <0.05; ** p<0.01 represent significance level at the 1, and 5% respectively.

4.7. The Offer size and the issue prices of Initial Public Offerings

If a larger ex-ante uncertainty is associated with larger issue sizes, that would help to explain why the mispricing of large issues is generally of greater magnitude than the mispricing of smaller issues (Rathnayake *et al*., 2019; Wahid *et al*., 2020). We tested this proposition by partitioning the sample into quartiles defined by the size of the offer measured by gross proceeds. The lowest and the highest offer size £1 million and £750 million display large sample-variability due to the heterogeneity of the IPOs *i.e.* local and offshore listed firms. The relationship between the offer size and the issue price is shown in Table 11. The results of the OLS are displayed in Table 12. The findings suggest that there is no significant systematic relationship between the offer price and the size of the offering.

TABLE 11
OFFER SIZE AND ISSUE PRICE

Offer Size	Minimum	Maximum	Mean	Stand. Dev.
Offer Size < = 2 (£m)	1.00	285.000	28.839	38.117
Offer Size > 2 (£m) and < = 5.010 (£m)	1.00	400.000	57.692	53.984
Offer Size > 5.010 (£m) and < = 15 (£m)	5.00	730.000	96.325	69.856
Offer Size > 15 (£m)	1.10	750.000	135.917	104.969

Note: This table exhibits nexus between Offer Size and Issue Price of IPOs of a selected sample of 2185 IPOs that consists of 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM during 1995 to 2021.

TABLE 12
NEXUS BETWEEN OFFER SIZE AND ISSUE PRICE

	Offer SizeI	Offer Size II	Offer Size III	Offer Size IV	Overall
Earnings/ Shares	1.381**	1.448**	1.224**	1.076**	1.755**
	(10.51)	(12.29)	(13.36)	(9.86)	(28.29)
Cash flow/Shares	1.593**	1.110**	0.855**	0.623**	1.402**
	(11.39)	(8.18)	(7.70)	(4.69)	(18.93)
Sale/Shares	1.133**	1.075**	0.350**	0.269**	0.713**
	(8.46)	(10.24)	(4.26)	(3.24)	(12.58)
Book Value/Shares	0.061	–0.011	–0.053	–0.008	0.029
	(0.60)	(0.12)	(0.76)	(0.10)	(0.60)
Sale Growth	0.141*	0.042	–0.008	–0.026	0.038
	(2.03)	(0.70)	(0.17)	(0.50)	(1.15)
Profit Growth	–0.094	–0.122	0.011	0.029	–0.066
	(0.80)	(1.19)	(0.13)	(0.33)	(1.17)
% Share Offered	–0.481**	–0.699**	–0.418**	–0.455**	–0.771**
	(5.07)	(8.49)	(6.59)	(6.47)	(17.83)
_cons	–4.305**	–1.582**	0.465	1.794**	–1.913**
	(7.83)	(3.47)	(1.24)	(4.43)	(7.67)
R^2	0.65	0.68	0.51	0.30	0.67
N	555	538	562	530	2,185

Note: This table displays the coefficient of the issuer's offer size * < 0.05; ** p < 0.01 represent significance level at the 1, and 5% respectively. It contains 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM from 1995 to 2021.

4.8. The nationality of the IPO and the issue price

The signaling hypothesis proposes that high-quality firms intentionally set the IPO offer price high to differentiate their offering from low-quality firms (Alim & Ramakrishnan, 2017; Badru & Ahmad-Zaluki, 2018).We tested this proposition by partitioning our sample into two sub-samples: they are the sub-sample of 1,773 local IPOs and the sub-sample of 412 Cross-listed IPOs. We presume the cross-listed IPOs are high-quality firms because only those kinds of domestic firms can elect offshore listing. The firms in high-quality sub-sample are well established and have sound financial histories. Descriptive statistics in Table (13) indicate that the offer prices of cross-listed IPOs are an average of £99.640. That statistic is significantly higher than the average offer price of local IPOs.

The results of OLS are shown in Table 14, the statistical findings indicate that for local IPOs, EPS, operating cash flow per share, sales per share, and percentage of shares offered have statistically significant explanatory power. In the sub-sample of cross-listed IPOs, only EPS, and operating cash flow per share play a significant role in determining the prices of cross-listed IPOs. In summary, firm nationality or duality is powerfully influential in the determination of the offer price. The signaling hypothesis implies that cross-listed IPOs might set high offer prices to attract the attention of the local investors. Alternatively, it is also consistent with the ex-ante uncertainty hypothesis which is related to information asymmetry. The information asymmetry hypothesis proposes that the prices of cross-listed IPOs are higher than the offer prices in single-market IPOs because of strong financial track records of cross-listed IPOs in their parental market and full access to that information by underwriters. As a consequence, underwriters have more guidance and useful information for the valuation of cross-listed IPOs. This leads to more clarity and conciseness about the pricing of offshore listings.

TABLE 13
NATIONALITY OF IPOS AND ISSUE PRICE

Class	Minimum	Maximum	Mean	Std. Deviation
Local Incorporated Firm's IPOs	1	750	74.542	72.288
Cross-listed IPOs	1	730	99.640	110.212

Note: This table exhibits nexus between the nationality of IPOs and Issue Price of IPOs of a selected sample of 2185 IPOs that consists of 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM during 1995 to 2021.

TABLE 14
NEXUS BETWEEN NATIONALITY OF IPOS AND ISSUE PRICE

	Local IPOs	Cross-listed IPOs	Overall
Earnings/ Shares	1.559**	1.377**	1.755**
	(24.16)	(11.84)	(28.29)
Cash flow/Shares	1.347**	2.496**	1.402**
	(19.01)	(14.57)	(18.93)
Sale/Shares	1.218**	0.249	0.713**
	(22.28)	(1.21)	(12.58)
Book Value/Shares	–0.012	0.031	0.029
	(0.28)	(0.26)	(0.60)
Sale Growth	0.052	0.100	0.038
	(1.72)	(1.21)	(1.15)
Profit Growth	–0.026	–0.252	–0.066
	(0.51)	(1.79)	(1.17)
% Share Offered	–0.059	–0.189	–0.771**
	(1.19)	(1.38)	(17.83)
_cons	–5.341**	–3.772**	–1.913**
	(19.48)	(4.56)	(7.67)
R^2	0.78	0.58	0.67
N	1,773	412	2,185

Note: This table exhibits beta coefficient based on nationality selected sample of 2185 IPOs that consists of 1773 local IPOs and 412 Cross-listed IPOs issued and placed on the AIM from 1995 to 2021.

4.9. Discussion and analysis

Our findings are two-folds: First, EPS, operating cash flow per share and sales revenue per share are all significantly and positively correlated with the value of IPOs in the AIM. We also found that the percentage of shares issued is negative and significantly correlated with the price variability of IPOs. Second, the age of the firm and financial history are systematically related to the price of IPOs. Firm size and nationality are strongly correlated with the price variability of IPOs. The variables capturing underwriter's prestige, market conditions, and offer size are not significantly related to the variation in the pricing of IPOs. These findings suggest the importance of ex-ante expectations and signaling in the price behavior of IPOs listed on the AIM. The empirical evidence could not explain the role of the window of opportunity hypothesis, underwriter's reputation hypothesis, and information asymmetric hypothesis in the pricing of IPOs.

Our results further indicate that the valuation of IPOs in the AIM follows the conventional theory regarding valuation: positive earning and positive cash flows along with reasonable sales and profit growth. We found that most of the IPOs listed on the AIM are small startups, designed to exploit innovative ideas. The inception of many of these start-ups in universities contributes to the growth and survival of these firms (Amini & Keasey, 2013). Our findings are consistent

with the research findings of those researchers who infer a higher probability of success of small IPOs in the AIM as compared to the IPOs of large-sized firms. The rationale behind this evidence is that new startups which are based on innovative ideas are especially likely to prosper when public shareholders consisting of local businesses are involved in generating the financial synergies. These findings suggest that prospective investors can value the IPOs based on financial performance and the position of the firm in its market before going public in the AIM.

5. Conclusions

We examined the relationship between financial indicators of performance for firms before the launch of their IPOs and the offer price of those IPOs. We used a sample of 2,185 IPOs consisting of 1,773 local IPOs and 412 Cross-listed IPOs. All the firms in the sample were issued and listed on the AIM from1995 to 2020.Our research addressed the task of identifying the set of explanatory variables that are the significant drivers of the value of the IPO prior to the offering. A secondary question we addressed is whether the value of the IPO is significantly correlated with the size of the firm, the age of the firm, market conditions, offer size, and classification of local and cross-listed firms as the control variables.

In previous studies, it is found that ex-ante uncertainty has greater penetration on the value of IPOs in the main markets, in our findings; the same patterns have been observed in AIM. Firm size, age of the firm prior to the offering, offer size, class of IPOs whether newly listed or cross-listed and the dummy variable that represents the 'hot' period for IPOs have significant contribution in the variation of the value of IPOs even having same accounting credentials prior to offering. We observe that the value of IPOs is varied for firms having different firm sizes, different offer sizes, firm age, and nationality. Similarly, accounting information specifically earning per share, sales per share, cash flow per share, and margin of share offered to the public significantly affect the value of IPOs in AIM. This depicts that IPOs' characteristics including the EPS, sale per share, cash flow per share, and ex-ante uncertainty play a vital role in defining the value of IPOs. Our findings support the view that the quality of financial statements helps reduce information asymmetries that affect IPO valuations in AIM. Higher the symmetric information, the higher the chances of defining the intrinsic valuation of IPOs. Specifically, our results point out that lessening the information gap between informed and uninformed investors leads to ease for underwriters in defining the value of IPOs.

Moreover, this study also suggests that investors working in AIM should keep the level of both local and cross-listed shareholding the same because it still has to respond to ups and downs of the home market as well as parental market dynamics which further leads to variation in the value of IPOs. Similarly, underwriters of local firms should also be aware that the competition and complexities in the

primary market increases after cross-listing IPOs. Underwriters, thus, need to equip themselves with both the knowledge and the psychological preparation to deal with the complexities and frustrations associated with parental market dynamics of cross-border listed as well as AIM primary market. The findings of this study may be of interest to regulatory bodies and policymakers. The policymakers and regulatory bodies should be concerned about how they can both improve AIM regulatory framework to enhance the volume of the primary market and strengthen enforcement strategies so that both categories of IPOs would be valued fairly. In this study, we used only accounting information for the valuation of IPOs. Building on these findings, we propose that future research may be conducted to determine the value of IPOs using forecasted financial data through comparable firm methods. Secondly, a comparison between the value of IPOs quoted in AIM and the main market may also be made using accounting information and sensitivity analysis of various factors.

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