

Information asymmetry, corporate governance, and IPO underpricing: Evidence in Indonesia

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ARTICLE INFO

Article History:

Received 09-20-2021

Revised 07-19-2023

Accepted 08-21-2023

Kata Kunci:

IPO underpricing,
asimetri informasi,
tata kelola perusahaan,
pasar berkembang, Indonesia

Keywords:

IPO underpricing,
information asymmetry,
corporate governance,
emerging markets, Indonesia

ABSTRACT

Studi ini menganalisis hubungan antara asimetri informasi, tata kelola perusahaan, dan underpricing IPO pada sampel pasar IPO di Indonesia. Penelitian terdahulu tentang underpricing IPO telah menunjukkan hasil yang beragam, sehingga terdapat beberapa celah penelitian yang menarik untuk dieksplorasi, terutama dalam konteks pasar Negara berkembang. Oleh karena itu, tujuan dari penelitian ini adalah untuk mengkaji lebih lanjut apakah asimetri informasi dan tata kelola perusahaan menjadi penyebab underpricing IPO. Untuk mencapai tujuan, digunakan teknik purposive dan diperoleh 318 sample IPO selama periode 2010 hingga 2020 di Bursa Efek Indonesia (BEI). Selanjutnya, dibangun model regresi berganda dan diuji menggunakan perangkat lunak EViews 9. Hasil penelitian menunjukkan bahwa reputasi underwriter berpengaruh negatif terhadap underpricing IPO, yang menunjukkan tingkat asimetri informasi yang tinggi di pasar IPO Indonesia. Selanjutnya, bukti kami mengungkapkan bahwa ukuran dewan dan ukuran karyawan memiliki pengaruh negatif dan signifikan terhadap underpricing IPO. Sementara itu, kepemilikan manajer dan keluarga menunjukkan hasil yang positif dan tidak signifikan karena adanya efek piramida. Akhirnya, kami juga menemukan bahwa penjamin emisi terkemuka mengenakan biaya penjaminan emisi yang lebih tinggi dibandingkan yang lainnya. Secara umum, penelitian kami menyarankan bahwa mempekerjakan penjamin emisi terkemuka dan menerapkan praktik tata kelola perusahaan yang baik dapat memitigasi underpricing selama IPO.

ABSTRACT

This paper analyzes the relationships between information asymmetry, corporate governance, and IPO underpricing in the Indonesian IPO market. Previous studies on underpricing IPO have shown mixed results, offering several interesting research

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gaps to explore, especially in emerging markets. Accordingly, the purpose of the research is to examine further whether information asymmetry and corporate governance are the causes of IPO underpricing. A purposive technique is used, and 318 samples of IPOs are selected from 2010 to 2020 on the Indonesian Stock Exchange (IDX). Next, a multiple regression model is developed and tested using the EViews 9 software. Our evidence shows that underwriter reputation negatively affects IPO underpricing, indicating a high level of information asymmetry in the Indonesian IPO market. Further, our evidence reveals that board size and number of employees negatively affect IPO underpricing. Meanwhile, manager and family ownership exhibit insignificant results due to the pyramidal ownership structure. Finally, we also find that reputable underwriters charge higher underwriting fees than non-reputable ones. In general, our study demonstrates that hiring a reputable underwriter and implementing good corporate governance practices can minimize underpricing during the IPO.

INTRODUCTION

Initial Public Offerings (IPOs) are an alternative method for firms to raise capital, which is beneficial for business expansion and financing capital expenditures, debt repayments, research and development (R&D), and working capital (Badru, 2021). Since issuers receive lower funding than the intrinsic value of their assets if the offered share prices are too low (underpricing), they must ensure that the offered share prices accurately reflect the actual values of their asset or future growth opportunities.

The literature suggests that IPO underpricing is caused by adverse selection bias (Ritter & Welch, 2002) resulting from asymmetric information conditions between issuers, issuing banks, and investors (Baron, 1982; Rock, 1986). In a similar vein, Banerjee *et al.* (2011) document that a greater degree of information asymmetry leads to higher IPOs underpricing in developing countries. Several studies predict a positive relationship between underwriter ratings and IPO underpricing since investors cannot observe managers' actions (Ammer & Ahmad-Zaluki, 2016; Chen *et al.*, 2015; Dimovski *et al.*, 2011; Nielsson & Wójcik, 2016; Rumokoy *et al.*, 2019). However, using the winner's curse model (Rock, 1986), other studies have demonstrated that underwriter reputation is negatively associated with IPO underpricing (Chemmanur & Krishnan, 2012; Gusni *et al.*, 2019; Kotlar *et al.*, 2017; Tong & Ahmad, 2015; Utamaningsih *et al.*, 2013; Yan *et al.*, 2019; Yuliani *et al.*, 2019).

A recent study indicates that good corporate governance may reduce agency conflict and information asymmetry, thus, minimizing IPO underpricing (Singh & Maurya, 2018). Several theories can explain how corporate governance can affect IPOs. Although each theory has a unique point of view on this issue, they all agree that board activities affect firm performance (Albada & Yong, 2017). However, studies on corporate governance and IPOs underpricing still yield mixed results. For example, Gao & Hou (2019) reveal that board size negatively affects IPO underpricing.

Meanwhile, Gusni *et al.* (2019) do not discover a significant relationship between board size and IPO underpricing in Indonesia. Another study examines the effects of family and managerial ownership on IPOs underpricing. Ammer & Ahmad-Zaluki (2016) demonstrate that family and managerial ownerships reduce IPOs underpricing in Bursa Malaysia. Meanwhile, Gusni *et al.* (2019) do not find a significant relationship in Indonesia.

In addition, although IPO underpricing has been extensively studied, its main drivers remain debatable (Albada & Yong, 2017). Further, Albada & Yong (2018) argue that studies conducted in developed countries can be extended further in emerging markets. IPO underpricing remains prevalent in the Indonesian capital market. Our preliminary study indicates that IPOs on the Indonesian stock market have been underpriced by an average of 39.65 percent over the last decade. Such conditions imply that further studies on the relationship between corporate governance and IPO underpricing remain necessary to investigate the drivers of IPO underpricing, especially in the emerging market context.

In this paper, we employ Ritter & Welch's (2002) asymmetric information model. This paper offers a scientific contribution by expanding the existing literature in several ways. First, the existing literature suggests that hiring a reputable underwriter can reduce IPO underpricing; however, the only proxy used is the underwriter writing rating (e.g., Ammer & Ahmad-Zaluki, 2016; Chen *et al.*, 2015; Dimovski *et al.*, 2011; Nielsson & Wójcik, 2016; Rumokoy *et al.*, 2019). Meanwhile, Reber & Vencappa (2016) argue that underwriter fees reflect the ex-ante uncertainty surrounding the characteristics of the agreement, where costs will be higher for issuers with less public information, such as less established and younger firms. In addition, increasing promotion costs could also reduce adverse selection problems (Habib & Ljungqvist, 2001). Accordingly, underwriters' compensation is likely to be a function of information costs and deal characteristics (Hughes, 1986). This paper examines the effect of reputable underwriters on IPO underpricing as well as underwriting fees as two deal characteristics.

Second, existing literature documents that corporate governance, such as board size and ownership structure, affects firms' market capitalization (Ammer & Ahmad-Zaluki, 2016; Gao & Hou, 2019; Gusni *et al.*, 2019). Meanwhile, Nam & Nam (2004) argue that employees might also play a pivotal role in corporate governance, which affects firms' productivity and profitability (Børing, 2019; Doğan, 2013) and boosts firm growth (Sahoo & Raj, 2022). In a similar vein, several authors point out that the number of employees is a robust proxy for firm size (D'Souza *et al.*, 2020; Popescu, 2019; Spallini *et al.*, 2021). In other words, the number of employees arguably signals firm quality that reduces information asymmetry and eventually underpricing (Habib & Ljungqvist, 2001). Therefore, this paper examines the effect of corporate governance on IPO underpricing by utilizing board size, ownership structure, and number of employees as corporate governance proxies.

Third, as suggested by Albada & Yong (2018), this paper was conducted in a developing country setting to provide distinct market characteristics and additional evidence regarding the driver factors that underlie IPO underpricing in developing countries.

LITERATURE REVIEW

Signaling Theory, Information Asymmetry, Underwriter Reputation, and IPO Underpricing

In situations involving information asymmetry, signals can be used to resolve the asymmetry problem (Spence, 1973). During an IPO, issuing firms' visibility increases drastically due to the vast information made public. In this context, the media plays an important role in conveying information to investors, who rely heavily on the news as a source of information. Bajo & Raimondo (2017) argue that news released close to an IPO can boost investor confidence and share demands, increasing underpricing. Using over 2,800 IPOs in the United States and more than 27,000 newspaper articles, they demonstrate that positive news about issuers has a significantly positive relationship with IPO underpricing; this effect is stronger when the news is published closer to the IPO date or is reported by the leading media.

Prior studies on asymmetric information among underwriters, issuers, and investors in the IPO underpricing context show mixed results. In this regard, scholars offer several perspectives regarding information asymmetry in IPO underpricing. Using the lens of agency theory, Baron (1982) explains that underwriters have more information about the capital market than issuers; thus, they are hired to provide advice and conduct underwriting and valuations on the shares offered. In this case, the value of their services will increase if the issuers have highly uncertain market demands.

On the one hand, Baron (1982) argues that underwriters will set an offering price below the issuers' intrinsic values to sell the shares offered. On the other hand, Loughran & Ritter (2004) argue that issuers prefer underwriters with strong analytical skills over those with a reputation for setting low prices. Such conditions indicate that the underwriter's reputation contains agency problems. Since investors cannot observe managers' actions, Loughran & Ritter (2004) predict that underwriter ratings positively affect IPOs underpricing. Several studies support this perspective and concur that greater underwriter ratings lead to greater IPOs underpricing (Ammer & Ahmad-Zaluki, 2016; Chen *et al.*, 2015; Dimovski *et al.*, 2011; Nielsson & Wójcik, 2016; Rumokoy *et al.*, 2019; Yatim, 2011).

The winner's curse model developed by Rock (1986) offers a different perspective. In his model, Rock (1986) classifies investors into informed (II) and uninformed investors (UI). He argues that II will outperform UI in assets allocation, forcing UI to allocate their assets to less profitable stocks. Such conditions result in

markets consisting only of II as UI will exit because their IPO transaction returns are always negative. Since the demand is insufficient when firms engage IPOs if the markets consist only of II, UI must earn at least a rate of return commensurate with the break-even point to maintain its market participation (Rock, 1986). Accordingly, this perspective implies that all IPOs are underpriced to compensate for UI participation.

In contrast, Beatty & Ritter (1986) argue that IPO underpricing is related to pre-IPO uncertainty, with greater uncertainty causing greater expected underpricing. In other words, investors demand a risk premium over the uncertainty risk of the IPOs. More studies have shown that underwriting selection affects IPO underpricing (Carter & Manaster, 1990; Megginson & Weiss, 1991). In this regard, reputable underwriters are known for their expertise, connections, and 'reasonable price' offerings, which reduce IPO risks. In the meantime, reputable underwriters must establish reasonable IPO prices to maintain their excellent reputation and earn higher fees.

Since reputable underwriters are associated with lower IPO risk, the incentive to obtain information will be lower, thereby reducing uninformed investors (Carter & Manaster, 1990). In addition, reputable underwriters could reduce IPO underpricing by minimizing the gap between offering and listing, selecting high-quality firms to underwrite, and reducing information asymmetry between issuers and investors (Hu *et al.*, 2021). Several studies support a negative relationship between underwriter reputation and IPO underpricing (Chemmanur & Krishnan, 2012; Gusni *et al.*, 2019; Kotlar *et al.*, 2017; Tong & Ahmad, 2015; Utamaningsih *et al.*, 2013; Wang & Yung, 2011; Yan *et al.*, 2019; Yuliani *et al.*, 2019). Thus, hiring a reputable underwriter is likely to minimize IPO underpricing.

Based on the discussion above, the following hypothesis is proposed:

H1a: More (less) reputable underwriters are associated with lower (greater) IPO underpricing.

Prior studies suggest that underwriters' compensation is a function of information costs and deal characteristics (Hughes, 1986), reflecting the ex-ante uncertainty surrounding the deal attributes (Reber & Vencappa, 2016). In this regard, Reber & Vencappa (2016) argue that underwriters are likely to charge higher fees to less public-informed issuers, such as less established and young firms. Such conditions indicate that underwriters' compensation is a deal characteristic that reflects the deal's risk level, with higher compensation indicating the deal's higher risk level.

However, as a competing perspective, the reputation premium hypothesis (Simunic, 1980) argues that reputable underwriters tend to charge higher compensation fees (Carter & Manaster, 1990; Chemmanur & Krishnan, 2012) to reflect their high-quality services. In this regard, high-quality services refer to underwriters' ability to sell off IPO prices 'correctly,' thus, satisfying both issuers and

investors (Beatty & Ritter, 1986). In addition, according to the winner's curse model (Habib & Ljungqvist, 2001), underwriters' compensation is likely a function of promotional cost to reduce asymmetric information and solve adverse selection problems to minimize IPO underpricing. In other words, underwriter fees are promotional costs paid by issuers to promote their firms through underwriters' reputations. Thus, reputable underwriters are likely to charge higher fees.

Based on the discussion above, we propose the following hypothesis:

H1b: More (less) reputable underwriters are associated with higher (lower) underwriting costs.

Corporate Governance and IPO Underpricing

Several studies demonstrate a positive relationship between corporate governance and firm capitalization (Ammer & Ahmad-Zaluki, 2016; Gusni *et al.*, 2019). Meanwhile, other studies suggest that corporate governance is a function of boards of directors, employees, and firm ownership (Gao & Hou, 2019). Such conditions indicate that corporate governance, including boards of directors, employees, and firm ownership, may also affect IPO capitalization. Boards of directors affect firm performance through their actions and decisions that determine their firms' actions (Albada & Yong, 2017). Several proxies, i.e., board size, board composition, and leadership structure, would represent corporate governance (Katti & Phani, 2016).

Board size reflects the breadth of firms' contracting environments (Booth & Deli, 1996), which exhibit the ability to secure and extract critical resources (Goodstein *et al.*, 1994), such as external funding and leverage from the environment, thus, affecting firm performance (Dalton *et al.*, 1999). Accordingly, a large board size would increase firm performance. Since each board member has expertise, a larger board size could provide a vast array of skills to increase firm performance (Gusni *et al.*, 2019) and enable firms to improve their post-financial crisis performance (Villanueva-Villar *et al.*, 2016).

Larger boards affect firm performance by allocating tasks according to the expertise of each board member (Gusni *et al.*, 2019). Using 2012-2017 IPO data in the Indonesian capital market, Irhamni (2021) reveals that board size as the proxy of corporate governance and independent board members negatively correlates with IPO underpricing. These findings suggest as a corporate governance proxy, board size reduces information asymmetry. In high information asymmetry, larger boards may positively signal to the market and reduce underpricing compensation needed by issuers during IPOs. Therefore, a larger board size will reduce IPO underpricing.

Based on the discussion above, we predict the following hypothesis:

H2: Larger (smaller) board size is associated with lower (greater) IPO underpricing.

The agency theory suggests that managers with higher firm ownership are more likely to undertake non-value-maximizing projects (Albada & Yong, 2017). Using managerial ownership and CEO duality as proxies for corporate governance, Gao & Hou (2019) examine the effect of corporate governance on Taiwanese hi-tech firms' IPO underpricing in 2009-2011. In line with the signaling hypothesis, they find that managerial ownership positively affects IPO underpricing. Meanwhile, Ammer & Ahmad-Zaluki (2016) discover that family and managerial ownership negatively affect IPO underpricing in *Bursa Malaysia* in 2002-2012. Further, Gusni *et al.* (2019) find that family and managerial ownership do not affect IPO underpricing in Indonesia. However, they only use a limited sample size, thus warranting further studies using a larger sample size.

The agency theory also predicts that management ownership increases firm value due to reduced agency costs. Consequently, conflicts of interest between executives and outside shareholders are higher when executive shares decrease, which reduces performance (Gao & Hou, 2019). Conversely, when executives retain equity, they signal to outside investors that their firms are of high value (signaling hypothesis). Therefore, stock retention signals firms' optimal quality because founders know more about their firms' future cash flows. Lower agency costs motivate investors to pay higher prices for IPO shares. Hence, retained ownership is a positive indicator of an IPO firm's value.

This line of argument motivates us to propose the following hypothesis:

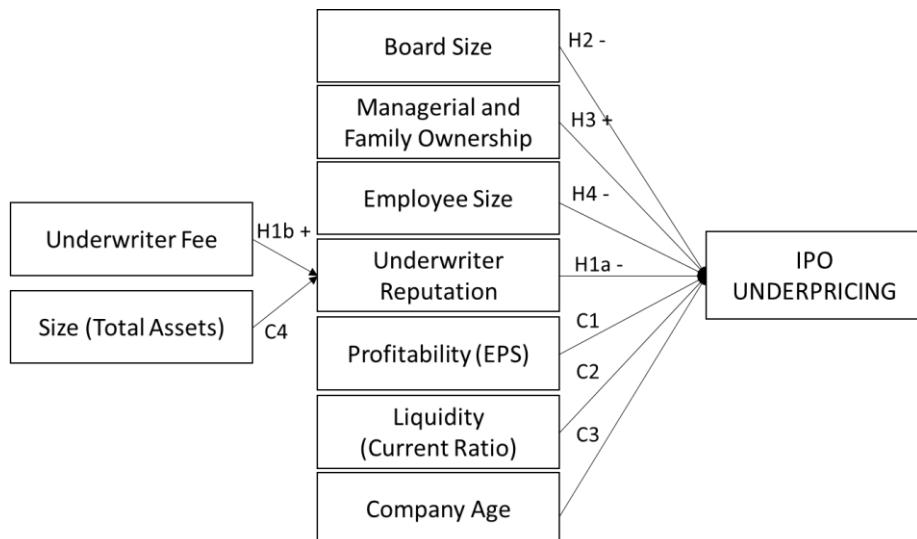
H3: Higher (lower) managerial and family ownerships are associated with greater (lower) IPO underpricing.

In the corporate governance context, we assume that the number of employees may also correlate with IPO underpricing because number of employees affects firm productivity (Børing, 2019). Further, Doğan (2013) documents that the number of employees positively affects firm profitability. According to Kourtzidis *et al.* (2019), the number of employees and total assets indicate firm size, where larger firms tend to exhibit better performance. In other words, the number of employees signals issuers' quality. Meanwhile, Nam & Nam (2004) argue that employees could also play a pivotal role in corporate governance, which affects firms' productivity and profitability (Børing, 2019; Doğan, 2013), and firms' growth (Sahoo & Raj, 2022). In a similar vein, several authors point out that the number of employees is a robust proxy for firm size (Kessler *et al.*, 2020; Popescu, 2019; Spallini *et al.*, 2021).

Based on the discussion above, the following hypothesis is proposed:

H4: A larger (smaller) number of employees is associated with lower (greater) IPO underpricing.

Figure 1 below illustrates our research framework representing the relationships between IPO underpricing, information asymmetry, and corporate governance.



Source: Developed for this research (2021)

Figure 1 Research Framework

RESEARCH METHODS

Sample Construction

We use IPO data from 2010 to 2020 from the Indonesia Stock Exchange (IDX). This study defines underpricing as a condition in which the first-day market price of a stock is higher than the price offered to the public (Beatty & Ritter, 1986). In addition, this study utilizes data from the Bloomberg's Indonesia Capital Market report on the Indonesia Equity & Rights Offering table. Our data is cross-sectional, with data collection at a certain time (Cooper & Schindler, 2014). We generate our sample firms using the purposive sampling method with the following criteria: a) firms conducting IPOs on the Indonesia Stock Exchange (IDX) in 2010-2020; and b) the IPOs were underpriced.

Variable Definition

We follow prior studies (Gao & Hou, 2019; Gusni *et al.*, 2019; Huang *et al.*, 2019) in measuring the dependent variable. Specifically, we calculate IPO underpricing as follows:

where CP_i is the closing price on the first day for firm i , OP_i is the bid price for firm i , and UP_i is the underpricing for firm i .

We use reputable underwriter (dUNBR) to examine the relationship between information asymmetry and underpricing. Reputable underwriters are frequently associated with lower information asymmetry, better long-term performance, higher analytical skills, and greater information ownership (Dong *et al.*, 2011; Wang & Yung, 2011). Prior studies operationalize underwriter reputation with various measures, including binary measurement and four-tier rank (Johnson & Miller, 1988), ten-tier rank (Carter & Manaster, 1990), and relative market share rank (Megginson & Weiss, 1991). However, these measures are arguably less applicable for retail investors due to data and calculation difficulties, necessitating media-related measure that is more easily accessible by all IPO investors. Chen *et al.* (2014) demonstrate that underwriting quality is positively related to underwriting market share. Further, Bajo & Raimondo (2017) reveal that media affects underpricing. Thus, we measure dUNBR using the Indonesia Capital Market from the Bloomberg business magazine's Indonesia Equity & Rights Offering table. The dUNBR metric utilizes data from the previous year (t-1), such as Bloomberg League Tables in 2009, to determine underwriter reputation in 2010, etc.

This study utilizes board size (BOD_SIZE), managerial and family ownership (MFOWN), and number of employees (HR) as proxies for corporate governance to investigate the relationship between corporate governance and underpricing. Following Albada & Yong (2017); Gusni *et al.* (2019); Irhamni (2021), we operationalize BOD_SIZE as the number of boards of commissioners plus the company's board of directors in the IPO year.

Ammer & Ahmad-Zaluki (2016); Gao & Hou (2019); Gusni *et al.* (2019) measure managerial ownership as the percentage of shares owned by the executive directors during the IPO. Additionally, they measure family ownership as the percentage of shares owned by the family of the board of directors during the IPO. Accordingly, we measure MFOWN as the total percentage of shares owned by the board of directors plus the percentage of shares owned by the family of the board of directors during the IPO. First, we identify the individuals registered as owners and board of director members. Second, we determine the number of shares owned by each of these individuals. Finally, the number of shares owned by the family and the board of directors is divided by the number of outstanding shares after the IPO. Greater MFOWN indicates higher managerial and family ownership.

The number of employees (HR) is defined as the number of employees of a firm during the IPO, including the board of directors, managers, staff, and contract employees. This measurement follows (Børning, 2019; Doğan, 2013; Kourtzidis *et al.*, 2019) who discover the relationships between HR, firm performance, and profitability. We also add several control variables for profitability (PROFIT), liquidity (LIQUID), and firm age (AGE) during IPOs (Ammer & Ahmad-Zaluki, 2016; Chemmanur & Yan, 2019; Chua, 2014; Colombo *et al.*, 2019; Li *et al.*, 2019; Wang *et al.*, 2021).

Table 1
Variable Definitions

Variables	Definition
UP	The difference between the closing price and the offer price divided by the bid price during the IPO multiplied by 100.
dUNBR	A dummy of reputable underwriters based on Bloomberg business magazine's Indonesia Capital Market report, one if the underwriter is listed in the Bloomberg League Tables, zero otherwise.
BOD_SIZE	The number of boards of commissioner and board of director members of a firm during IPOs.
MFOWN	The total percentage of shares owned by the board of directors plus the percentage of shares owned by the family of the board of directors during the IPO.
HR	Total employees owned by the firm during the IPO.
PROFIT	Firm profitability, measured using the company's earnings per share (EPS) during the IPO.
LIQUID	Firm's liquidity, measured using the Current Ratio (Current Assets / Current Liquidity) during the IPO.
AGE	Firm's age, measured by subtracting the IPO year with the firm's establishment year (based on the deed of establishment).
UN_FEE	Underwriter's fees, including underwriting, management, and selling fees, are in billions of Rupiah (IDR).
SIZE	Firm size, measured by total assets during the IPO.

Sources: Ammer & Ahmad-Zaluki (2016); Beatty & Ritter (1986); Chemmanur & Yan (2019); Chua (2014); Colombo *et al.* (2019); Gao & Hou (2019); Gusni *et al.* (2019); Li *et al.* (2019); Rumokoy *et al.* (2019); Wang *et al.* (2021); Yan *et al.* (2019)

We also examine the relationship between dUNBR and underwriter fees (UN_FEE). According to Carter & Manaster (1990); Chemmanur & Krishnan (2012); Habib & Ljungqvist (2001), reputable underwriters tend to charge higher fees. Thus, underwriters must price IPOs fairly to maintain their reputation and receive higher commissions. Thus, higher underwriter fees as promotion costs will reduce IPO risk and serve as a signal for investors, reducing adverse selection problems and underpricing. We measure UN_FEE as follows:

where UF_i is the underwriting fee, MF_i is the management fee, and SF_i is the selling fee for firm i .

Model Specification

We test the hypotheses by constructing multiple regression models using EViews 9 software, with UP as the dependent variable and UNBR, BOD_SIZE, MFOWN, and HR as the independent variables. We also add PROFIT, LIQUID, and AGE as the control variables that have been commonly used in prior IPO underpricing studies (Ammer & Ahmad-Zaluki, 2016; Chemmanur & Yan, 2019; Chua, 2014; Colombo *et al.*, 2019; Li *et al.*, 2019; Wang *et al.*, 2021).

$$UP_{i,t} = \beta_0 + \beta_1 BOD_{SIZE_{i,t}} + \beta_2 MFOWN_{i,t} + \beta_3 HR_{i,t} + \beta_4 PROFIT_{i,t} + \beta_5 LIQUID_{i,t} + \beta_6 LEV_{i,t} + \varepsilon \dots \quad 4$$

$$UP_{i,t} = \beta_0 + \beta_1 dUNBR_{i,t} + \beta_2 BOD_SIZE_{i,t} + \beta_3 MFOWN_{i,t} + \beta_4 HR_{i,t} + \beta_5 PROFIT_{i,t} + \beta_6 LIQUID_{i,t} + \beta_7 LEV_{i,t} + \varepsilon \dots \quad 5$$

Equation 3 examines the effect of underwriter reputation on IPO underpricing, while Equation 4 investigates the effect of corporate governance on IPO underpricing. Meanwhile, equation 5 simultaneously measures the effects of underwriter reputation and corporate governance on IPO underpricing. Further, to test the entrepreneur losses model (Habib & Ljungqvist, 2001), we use dUNBR as the dependent variable, with UN_FEE as the independent variable and SIZE as the control variable.

RESULTS

Descriptive Statistics

Table 2 presents the descriptive statistics of IPO underpricing in Indonesia between 2010 and 2020. Panel A displays an average IPO underpricing of 39.68 percent with a median of 49.52 percent, indicating that more than fifty percent of IPO firms exhibit above-average underpricing. In other words, the level of underpricing is significant. The standard deviation is 24.32 percent, ranging from 70 percent to 0.34 percent.

Panel A of Table 2 suggests that the average IPO underpricing in Indonesia is greater than that of prior studies. For instance, the average underpricing is 21.03 percent in Global Markets (Li *et al.*, 2016), 21.22 percent in Bursa Malaysia (Ammer & Ahmad-Zaluki, 2016), 18.1 percent in the USA (Nielsson & Wójcik, 2016), 30.26 percent in Taiwan (Gao & Hou, 2019), and 32 percent in the Indonesia Stock Exchange (IDX) in 2013 to 2017 (Gusni *et al.*, 2019).

Panel B displays a year-by-year data description. The number of underpricing IPOs has increased significantly in the last four years. Moreover, the level of underpricing has dramatically increased since 2017. The greatest IPO underpricing is in 2019, with a mean and standard deviation of 54.75 percent and 17.20 percent, respectively.

Table 2
The Descriptive Statistics of the IPO Underpricing

Panel A: Descriptive statistics of the underpricing of 318 Indonesian IPOs between 2010-2020						
Dependent Variable	Mean	Median	Std. Dev	Min	Max	Jarque-Bera
						z-value
UP	39.688	49.523	24.322	0.347	70.000	28.451 0.0001

Panel B: Distribution of UP by year				
Year	n	Mean	Median	Std. Dev
2010	22	31.053	18.874	23.227
2011	17	20.137	11.111	20.335
2012	20	29.405	23.635	23.035
2013	21	24.308	13.043	23.368
2014	20	27.703	13.974	24.527
2015	14	29.813	19.970	25.533
2016	14	25.597	12.939	27.084
2017	34	45.250	50.000	25.733
2018	54	52.573	50.000	19.359
2019	51	54.755	50.000	17.201
2020	51	39.156	34.782	19.377

Source: Primary Data, Processed (2021)

Table 3 also presents the descriptive statistics of IPO samples. The table indicates that the mean and standard deviation of the dummy underwriter variable are 0.53 and 0.49, respectively. The median value of 1 indicates that more than fifty percent of IPOs in Indonesia use reputable underwriters on the Bloomberg League Tables. The average total board of director members of IPO firms 7.01. PT Indofood CBP Sukses Makmur Tbk and PT Mitrabahera Segara Sejati Tbk have the greatest number of directors (sixteen), while 34 firms have the lowest number of board members (four).

The average value of the management and family ownership variables is 15.67 percent, with a maximum value of 98.94 percent by PT Sentra Food Indonesia Tbk. PT Salim Ivomas Pratama Tbk has the largest number of employees, i.e., 31,162. The average number of employees is 1,186.59, with a standard deviation of 2,874.89. Meanwhile, the underwriter cost variable (UN_FEE) has an average of IDR 7.23 billion with a standard deviation of IDR 15.03 billion. PT Indofood CBP Sukses Makmur Tbk has the highest underwriter cost of IDR 144.7 billion in 2010, with PT Credit Suisse Securities Indonesia, PT Kim Eng Securities, PT Deutsche Securities, and PT Mandiri Sekuritas as its lead underwriters. Meanwhile, the lowest underwriter cost is IDR 0.225 billion by PT Sejahteraya Anugrahjaya Tbk, with PT Evergreen Capital as its lead underwriter.

Table 3
Descriptive Statistics for 318 Indonesian IPOs between 2010 and 2020

	Mean	Median	Std. Dev	Min	Max
dUNBR	0.534	1.000	0.499	0.000	1.000
BOD_SIZE	7.018	6.000	2.311	4.000	16.000
MFOWN	15.676	0.800	26.556	0.000	98.943
HR	1186.59	295	2874.89	7.000	31162
PROFIT	28.785	8.615	68.729	-33.122	577.768
LIQUID	2.051	1.238	3.337	0.056	34.66
AGE	17.855	14.512	13.746	0.528	64.865
UN_FEE	7.232	2.004	15.032	0.225	144.706
SIZE	1784.30	624.151	3801.61	9.796	32410.33

Source: Primary Data, Processed (2021)

Table 4 informs the Pearson correlation coefficients for our variables. The underwriter dummy variable is significantly and positively correlated with board size and number of employees. Nevertheless, it is negatively correlated with management and family ownership. Hence, larger firms tend to use reputable underwriters, although the decision is also influenced by management and family ownership because firms with greater management and family ownership tend to reduce IPO costs. Lastly, the underwriter variable is positively and significantly associated with underwriting fees.

Table 4
Correlation Coefficients between Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
dUNBR (1)	1.00								
BOD_SIZE (2)	0.29***	1.00							
MFOWN (3)	-0.045	-0.10*	1.00						
HR (4)	0.26***	0.51***	-0.05	1.00					
PROFIT (5)	0.19***	0.33***	0.00	0.43***	1.00				
LIQUID (6)	0.047	-0.10**	0.02	-0.10*	0.06	1.00			
AGE (7)	0.029	0.22***	0.05	0.28***	0.23***	-0.02	1.00		
UN_FEE (8)	0.43***	0.43***	-0.16***	0.45***	0.38***	-0.06	0.01	1.00	
SIZE (9)	0.32***	0.53***	-0.12**	0.58***	0.39***	-0.22***	0.21***	0.58***	1.00

*, **, and *** denote the 10%, 5%, and 1% significance level, respectively.

Source: Primary Data, Processed (2021)

Determinants of IPO Underpricing

Model 1 of Table 5 shows that the underwriter reputation dummy variable (dUNBR) is negatively related to IPO underpricing at a one percent significance level ($t = -4.196$). The value of -11.021 explains that hiring a reputable underwriter will reduce IPO underpricing by 11.021 percent, assuming other control variables are zero. The F value is 9.444 and is significant at one percent. The R-squared value is 0.107, explaining that corporate governance, with underwriter reputation as the proxy, and other control variables simultaneously explain 10.7 percent of IPO underpricing on the Indonesia Stock Exchange (IDX) in 2010-2020.

Model 2 of Table 5 indicates the relationship between board size, management and family ownership, number of employees, and IPO underpricing. The F-value is 13.261, significant at one percent, while the R-squared value is 0.203. Board size

(BOD_SIZE) and number of employees (HR) are negatively associated with IPO underpricing at a significance level of one percent (-2.705 and -0.201). Further, management and family ownership (MFOWN) have an insignificant relationship. The PROFIT, LIQUID, and AGE control variables exhibit the same direction as Model 1, although LIQUID and AGE are insignificant.

Table 5
Determinants of IPO Underpricing

Expected Sign	Model 1		Model 2	Model 3
	Information Asymmetry variables only	Corporate Governance variables only	All variables	
dUNBR	-	-11.021*** (-4.196)		-5.569** (-2.130)
BOD_SIZE	-		-2.705*** (-4.402)	-2.447*** (-3.928)
MFOWN	+		0.056 (1.213)	0.054 (1.165)
HR	-		-0.201*** (-3.412)	-0.181*** (-3.051)
PROFIT		-0.050*** (-2.624)	-0.032* (-1.787)	-0.030* (-1.668)
LIQUID		0.773** (1.98)	0.386 (1.031)	0.428 (1.147)
AGE		-0.174** (-1.838)	-0.049 (-0.538)	-0.050 (-0.546)
Constant		48.552*** (18.229)	63.767*** (14.202)	64.336*** (14.384)
R-squared		0.107	0.203	0.215
F		9.444***	13.261***	12.145***
Std. Error		23.121	21.911	21.788
n		318	318	318

*, **, and *** denote the 10%, 5%, and 1% significance level, respectively. To avoid skewness, the square root of HR is applied.

Source: Primary Data, Processed (2021)

We use dummy underwriter reputation (dUNBR), board size (BOD_SIZE), management and family ownership (MFOWN), and number of employees (HR) to investigate the effects of information asymmetry and corporate governance on IPO underpricing (Model 3 in Table 5). The F-value is 12.145 and significant at the one percent level, implying that underwriter reputation, board size, management and family ownership, number of employees, and other control variables simultaneously affect IPO underpricing. The largest Variance Inflation Factor (VIF) value is 1.399, indicating no serious multicollinearity problem.

Model 3 in Table 5 shows that the dUNBR value is -5.569 and p-value as 0.034, implying that reputable underwriters significantly and negatively affect IPO underpricing. Thus, H1a is empirically supported. As the corporate governance proxies, BOD_SIZE and HR have a p-value < 0.01, indicating board size and number of employees significantly reduce IPO underpricing. Thus, H2 and H4 are also empirically supported. Meanwhile, MFOWN exhibits an insignificant relationship

with IPO underpricing. Thus, H3 is not supported.

Determinant of Reputable Underwriter

Another hypothesis predicts a significant and positive relationship between underwriter fees and underwriter reputation, assuming that underwriters will charge higher fees because of their high reputation. Thus, issuers' ability to hire reputable underwriters will increase promotion costs and reduce information asymmetry and IPO underpricing (Chemmanur & Krishnan, 2012; Habib & Ljungqvist, 2001). Table 6 presents the regression results between underwriter reputation (dUNBR) and underwriter fees (UN_FEE) 6. We also add a control variable of firm size (SIZE), measured with the issuer's total assets during IPOs.

Model 3 in Table 6 indicates that the UN_FEE variable positively and significantly affects dUNBR, indicating that reputable underwriter services are IDR 0.005 billion more expensive than non-reputable ones. Thus, H1b is empirically supported. In addition, the SIZE control variable also has a positive and significant relationship with dUNBR. Interestingly, the presence of the control variable (Model 3 in Table 6) increases the R-squared by 2.4 percent compared to Model 1 in Table 6, indicating that SIZE effectively explains the relationship between UN_FEE and dUNBR.

Table 6
Determinants of Underwriter Reputation

	(1)	(2)	(3)
UN_FEE	0.009*** (5.114)		0.005*** (2.971)
SIZE		0.103*** (5.868)	0.078*** (2.971)
Constant	0.468*** (15.639)	-2.264*** (-4.740)	-1.638*** (-3.169)
R-squared	0.076	0.098	0.122
F	26.163***	34.435***	22.060***
Std. Error	0.480	0.475	0.469
n	318	318	318

*, **, and *** denote the 10%, 5%, and 1% significance level, respectively.

Source: Primary Data, Processed (2021)

DISCUSSIONS

Our findings show that underwriter reputation significantly and negatively affects IPO underpricing. In other words, issuing firms hire reputable underwriters to give signals to the market, thereby reducing underpricing. This finding is consistent with previous studies (Chemmanur & Krishnan, 2012; Dong *et al.*, 2011; Gusni *et al.*, 2019; Kotlar *et al.*, 2017; Tong & Ahmad, 2015; Utamaningsih *et al.*, 2013; Wang & Yung, 2011; Yan *et al.* 2019; Yuliani *et al.* 2019). However, our findings differ from other studies (Ammer & Ahmad-Zaluki, 2016; Chen *et al.*, 2015; Dimovski *et al.*, 2011; Nielsson & Wójcik, 2016; Rumokoy *et al.*, 2019; Yatim, 2011) likely because of different settings. Prior studies largely focus on developed countries that have

efficient markets. Meanwhile, the Indonesian capital market arguably exhibits a greater information asymmetry, as indicated by greater IPO underpricing, a common phenomenon in countries with greater information asymmetry (Banerjee *et al.*, 2011). Overall, this test demonstrates that the Indonesian IPO market exhibits greater information asymmetry, as evidenced by the importance of reputable underwriters during IPOs. Therefore, increasing premarket transparency is crucial to reducing the winner's curse for retail investors post-listing period (Ranganathan & Saraogi, 2021).

Board size negatively affects IPO underpricing, implying that issuing firms with more board members exhibit lower IPO underpricing because a larger board size improves managerial performance by having more diverse expertise (Gusni *et al.*, 2019). Thus, highly performing boards of directors will ensure firms' long-term growth, which provides a positive signal for IPO investors. Eventually, firms do not have to offer more incentives for investors through underpricing (Gao & Hou, 2019).

We find that management and family ownership do not significantly affect IPO underpricing. However, we document a positive direction, similar to Gusni *et al.* (2019), who also reveal a positive and insignificant relationship between ownership and IPO underpricing in Indonesia. A likely explanation for our finding is the unique ownership structure, where issuing firms are not directly owned by families but through their other firms or a pyramidal ownership structure (Lepetit *et al.*, 2015). Wang *et al.* (2015) argue that private owners essentially control many newly listed firms through a complex pyramid ownership structure. We argue that issuing firms' shares are owned by other firms as institutional bias, which results in bias. The pyramidal ownership structure will make it difficult for IPO investors to detect the actual percentage of management and family ownership. Therefore, stock retention is less effective as a signaling mechanism to demonstrate optimal firm quality.

Our fourth hypothesis predicts that the number of employees negatively affects IPO underpricing because it indicates firms' productivity and profitability (Børning, 2019; Doğan, 2013; Kourtzidis *et al.*, 2019). We find that HR negatively affects IPO underpricing, implying that the number of employees signals issuers' quality because it mitigates information asymmetry and underpricing.

Reputable underwriters charge higher fees than non-reputable ones. This finding explains that issuers need greater promotional costs to hire highly reputable. However, increased promotion costs may offset the benefits of lower underpricing. Thus, these findings support the Habib & Ljungqvist (2001) entrepreneurial loss model. We also find that firm size is positively associated with reputable underwriters. Therefore, issuers that hire reputable underwriters have greater total assets than their peers, implying that issuers need greater financial capacity to hire reputable underwriters during IPOs.

CONCLUSIONS AND RECOMMENDATIONS

This study investigates the underpricing of the first day of IPOs in Indonesia in 2010-2020. Our examination of 318 IPOs reveals an average underpricing of 39.68 percent. We hypothesize that information asymmetries and corporate governance affect IPO underpricing.

We empirically find that underwriter reputation can reduce information asymmetry, thereby minimizing IPO underpricing. Our findings contradict several prior studies that find a positive relationship between underwriter reputation and IPO underpricing, likely because of differences in research settings. Prior studies focus on developed countries with much less prevalent information asymmetry than developing countries. We also empirically demonstrate that corporate governance, such as board size and number of employees, reduces IPO underpricing. However, managerial and family ownerships do not affect IPO underpricing, likely because of Indonesian firms' pyramidal ownership structure. In addition, our results support the entrepreneurial losses model, where reputable underwriters charge higher fees. Hence, reputable underwriters charge higher fees than non-reputable ones. In return, issuing firms that hire their services will only exhibit lower IPO underpricing as incentives for investors.

Overall, our evidence suggests that underwriters' reputation, board size, and the number of employees are effective signaling mechanisms for investors. Underwriters' reputation is closely related to underwriting cost. Thus, hiring reputable underwriters will signal investors about issuers' quality. Additionally, board size and number of employees indicate firm size, while larger firms arguably exhibit better future profitability. Thus, managers can hire reputable underwriters, although the costs are higher. Further, firms should consider their governance before making IPO decisions because corporate governance sends a positive signal to investors during IPOs. Better-governed issuing firms do not need to offer lower IPO prices to investors to compensate for information asymmetry.

This study is subject to several caveats. First, we use IPO data for ten years (2010-2020). However, as suggested in the previous section, the last four observation years exhibit a significant increase in underpricing, implying a possible bias. Thus, future studies can use panel data on that year to generate more reliable results. Second, we document that managerial and family ownership do not affect IPO underpricing and argue that Indonesian issuing firms' pyramidal ownership structure may explain the results. Accordingly, we advise future studies to analyze the effect of this ownership structure on IPO underpricing. Thirdly, we also find that the number of employees negatively affects IPO underpricing. Consequently, future studies can analyze the effects of employees' other characteristics, such as employment status, age, and education, on IPO underpricing.

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