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ASYMMETRIC INFORMATION IN THE IPO UNDERWRITING PROCESS ON THE INDONESIA STOCK EXCHANGE: PRICING, INITIAL ALLOCATION, UNDERPRICING, AND PRICE STABILIZATION

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ABSTRACT

This study examines the IPO trading based on asymmetric information among heterogeneous investors. An underwriter plays an active role in the process of the IPO where underpricing is a central issue. The underwriter(s) manages the IPO trading by determining the offered price range and a discriminatory treatment between institutional and individual investors. The underwriter prioritizes institutional investors, especially when they show strong buying interests at the time of book building. The results prove that underpricing is higher when the IPO pricing is closer to the upper limit of the price range. We find that underpricing is higher when the allocation of shares to institutional investors is larger.

Keywords: *asymmetric information, underpricing, IPO allocation, IPO pricing, price stabilization, excess return*

INTRODUCTION

An initial public offering (IPO) is a complex process, in which underpricing a part of the central issues is. This study examines underpricing as a central issue through an asymmetric information approach adopted from the study by Akerlof (1970). Asymmetric information makes it difficult for investors to assess the quality of an issuing firm objectively. Statements presented by underwriter(s), and the issuer in the book-building period are often dubious since both bad and good companies will claim that their companies have good prospects. However, among heterogeneous potential investors it is possible that there are investors who better understand the prospects of an issuer, and market conditions, more so than the underwriter or the issuer per se. The potential investors have the advantage of information, and a variety of amenities, to make accurate investment decisions that will assist the underwriter to execute the underwriting process efficiently. A book-building period is a possible time for an underwriter to exchange valuable information with potential investors (Benveniste & Spindt, 1989).

Benveniste et al. (1996) suggest that institutions are more frequent investors than individual investors. Institutional investors have more and better quality information than do individual investors. The prevalence of information asymme-

try during the IPO, mainly in the pre-market period during the book-building, is in the pricing process. Based on the price range set forth in a preliminary prospectus, prospective investors express their interests about the bid price and the number of shares. When institutional investors consider the shares good, they will bid a price closer to the upper limit of the price range. On the contrary, they might bid a price closer to the lower limit of the price range if the stock offered is deemed less attractive. This process goes on like an open auction and is performed during a certain period. Based on public and private information that develops during the book-building, the underwriter shall determine the IPO price. The IPO price specified is usually a reflection of public and private information held by institutional investors.

The IPO pricing pattern against the price range is a signal which describes the quality of the issuer. The description of this phenomenon basically adopts the Signal Theory proposed by Leland and Pyle (1977). Institutional investors, who dare to give a high bid price for initial shares offered, are a signal that the stock has a high intrinsic value. In most cases, this sort of share offering condition corresponds with a situation where demand for the shares exceeds the number of shares offered (oversubscribed). The discussion above illustrates the importance of institutional investors in the IPO trading to determine the pricing pattern.

A question then arises as to how the influence of the pricing pattern on underpricing is a central issue in the IPO trade. An information gap among heterogeneous investors makes the information more asymmetric with regard to the acquisition of private information and the sophistication in making investment decisions. In the book-building period, the price of information is expensive and there is a uniform access between one investor to another upon the same information. This condition occurs due to the uneven dissemination of information, and the owner of information possibly being not willing to disseminate the information he or she has. The pricing pattern of stock in its initial price range is a signal that conveys information which is certainly costly for potential investors. Determining a share price closer to the upper limit of the price range is a positive signal to the market. If the market responds positively, the subsequent price will tend to be so high that the closing price on the first trading day is also high, thereby creating underpricing. In this case, the pricing of stock indirectly determined by institutional investors (through an underwriting decision) determines the amount of underpricing. Underpricing will be higher if the IPO pricing is closer to the upper limit of the offered price range.

The next question is how institutional investors benefit from the information advantage and the sophistication of decision-making facilities. In fact, an initial price, set by the tug between institutional investors and the underwriter will apply uniformly for all initial investors. This question could be answered by discriminating in the allocation of the initial shares. The underwriter may give a larger allocation of initial shares to institutional investors, although the market is oversubscribed. In contrast, individual investors are treated as minority investors with their limited allocation of initial shares. Some individual investors may not get the stock at all when the market is oversubscribed. The allocation of a large number of underpriced shares will certainly benefit the institutional investors. Under these circumstances, it is clear that the stock price underpricing is done deliberately to reward institutional investors for the information advantage they possess.

Our introductory discussion above shows that the book-building period is a crucial time-period, particularly in the capital markets of developing countries. In such markets (e.g., Indonesia), the level of asymmetric information within the book-building is higher than that in developed countries. Initial price ranges, as well as the selective allocation of shares, are two activities managed by an underwriter during the book-building. On the other hand, the underwriter also has a reputation, built through its past performance. The underwriter's reputation is inseparable with its activities during the book-building period. The question is whether the underwriter's reputation also influences the process

of share trading, which also affects underpricing. The rationale is that a more reputable underwriter will be able to assure the prevalence of underpricing at low level. The rationale is that a more reputable underwriter will be able to assure the prevalence of low underpricing. This study examines this phenomenon by placing the underwriter's reputation as a control factor.

The next question is how the share price performs for at least 30 trading days after its initial first trade. These 30 trading days are a period for an underwriter to stabilize the stock price, if the price falls below the IPO price. Price stability is an underwriter's activity that requires enormous costs. In this case, the underwriter will not be hasty in deciding which institutional investors should be involved in the initial share trading. The underwriter also considers the possibility of price stabilization within the pre-market period. Price stability depends on the share price specified by the underwriter. An "invited" share price shall be a strategic price that prevents the underwriter from stabilizing the price. While underpricing is a reward to investors, especially institutional investors, during the initial offer, the price stabilization period should be a bonding mechanism in the aftermarket. The logic is that if the initial share price is underpriced, the underwriter will be protected from the possibility of price stabilization. The subsequent logic is, if the underwriter is protected from price stabilization, since the price during the aftermarket never goes down below its initial price, the excess return on the 30th day after the initial trade will be positive.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The Effect of IPO Pricing on Underpricing

The IPO allocation and its pricing are two interplaying factors, which cannot be separated in their effect on the level of underpricing. These two factors are also the components of the book-building model (Benveniste & Spindt, 1989). The book-building model is based on the condition of information asymmetry between informed and uninformed investors. It is not surprising that the underwriter revises the estimated initial offering price, and the number of shares offered, based on feedback from the investor community, especially that of the institutional investors, as the potentially informed investors. Underpricing is an incentive (reward) to investors for honest information they disclose. The underwriter takes notice of the interest from potential investors, and makes adjustments to the price and the allocation of IPO shares to the potential investors.

The more optimistic the investors, especially the institutional investors, the more underpriced the IPO shares will be. High initial returns on the first day of trading suggest that the market responds positively to the new shares being traded. The stronger the market response, the more underpriced it will be. This is particularly true when the IPO pricing during the book-building period is closest to the upper limit of its price range. This study refers to Hanley (1993), who used the offered price range set forth in the preliminary prospectus circulated by underwriter(s) during the pre-market book-building period. In the book-building period, when the set IPO price is greater than or equal to the median of the offering price range, the share price formed in the primary market will be more underpriced. The rationale is that investors still show their optimism for the initial shares offered, although the offering price has been increased closer to the upper limit of the offering price range set forth in the preliminary prospectus. Optimistic behavior shown by these potential investors is treated as valuable information addressed to the underwriter. From this valuable information, the underwriter sets a strategic price that enables underpricing as an incentive to the potential investors for their honest information they disclose. This study purports to analyze the problem of asymmetric information among heterogeneous investors, i.e., is underpricing larger when the IPO pricing is closer to the upper limit of the offering price range? Therefore, our first hypothesis is:

H_1: Underpricing is larger when the IPO pricing gets closer to the upper limit of the offering price range.

The Effect of IPO Allocation on Underpricing

The concept underlying this hypothesis is the book-building model (Benveniste & Spindt, 1989), whose main idea revolves around underpricing as an incentive to investors for honest information they reveal in the book-building period. In the book-building period, an underwriter does not merely distribute a prospectus to potential investors, but also collects information on the extent of the interest by potential investors to buy the offered shares (Benveniste & Spindt, 1989). According to the collected information, the underwriter classifies potential investors into institutional investors and individual investors, and subsequently estimates the IPO price. The classification of investors is deemed necessary due to the fact that large-scale institutional investors often have extensive knowledge about the market demand for the stock and the company's prospects, along with its competitors. Institutional investors' interest in the IPO will be perceived as a commitment to purchasing and retaining the stock for a long period of time in the aftermarket period. In contrast, individual investors do not have any of the characteristics possessed by institutional investors.

Institutional investors conspicuously become favored investors for their more credible commitment; hence they are given a larger allocation of IPO stock ownership for a given price. Investors other than institutional investors, in this case individual investors, are considered free riders. Relatively speaking, individual investors (as free-riders) do not have any advantages in information, are less able to assist the underwriter in evaluating share price, and are lacking in experience of participating in an IPO. Hence, they could not provide the mutual benefits, or any other facility, to contribute to the efficiency of the share offering process (Binay et al., 2007). In the process of the IPO share offering, individual investors, as free-riders, might benefit from share trading transactions through their share ownership in the short period, which is often referred to as speculative behavior. In this case, the discrimination against individual investors seems reasonable. Therefore, in the process of initial share issuance, underwriter(s) tends to prefer institutional investors.

Based on the discussion above, our second hypothesis is:

H_2: Underpricing is larger when the share allocation to institutional investors is greater.

The Rating of Underwriter Reputation as a Control Factor

Carter and Manaster (1990) find a significantly negative relationship between underwriter reputation rank and underpricing. The results of Michaely and Shaw (1994) support the findings of Carter and Manaster (1990) that the higher the underwriter's reputation, the lower the initial return on the initial share issuance will be. A highly reputable underwriter is associated with a low risk share offering. An underwriter who has good reputation tends to avoid risky initial share issuance as it may harm its reputation and sustainability. Low-risk share offering engenders a lack of incentives to investors to search for information, thereby minimizing the opportunities for informed investors (Carter and Manaster, 1990; Rock, 1986).

Brau and Fawcett (2006) reveal that a reputable underwriter has well established capability, expertise, and connections within the industry. They also document that a highly reputable underwriter has the ability to manage client investors, both from institutions and as individuals. The decent underwriter is also capable of managing the share price and making an appointment for valuation purposes. In this case, the appointment of a reputable underwriter reduces the need for performing extensive pre-selection analysis on the capability of prospective underwriters. Our preceding discussion leads to the following research issue: Is underpricing lower when the reputation rating of the underwriter is higher? If the hypothesis is rejected, we might conclude that market activities, managed by the underwriter in the pre-market period (i.e., the IPO pricing and the allocation of the IPO) are more likely to affect underpricing.

Price Stabilization

The price stabilization model (Benveniste et al., 1996) is the basis for our subsequent hypothesis. Price stabilization is a bonding mechanism aimed at improving the efficiency of the initial share trading, either in the primary or the secondary market. The system of penalty bid provision that enables price stabilization, is selective and tends to be limited to institutional investors. The efficiency of this strategy depends on the ability of the underwriter to concentrate compensation to those investors who actually have a strong interest. Investors purchase the IPO shares in bundles, so in this case the share price depicts an implicit put options manner, functioning as the underwriter's commitment to price stabilization in the secondary market period. A question arising is do most of the institutional investors receive special treatment based on the valuable information they have?

A Price stabilization activity in the aftermarket period is performed by underwriter(s) to establish their credibility to investors. Price stabilization is an alternative commitment to giving rewards to investors who have information (informed investors) and are willing to honestly convey the information during the pre-offering stage. In this case, the underwriter seeks to sell underpriced shares through the adjustment mechanisms and pricing, as well as the allocation of shares to potential investors. However, from the first week to about 30-45 days after the initial trading, the underwriter will carry out the price stabilization if the share price goes down below its initial price. Hanley et al. (1993) reported that price stabilization is a temporary activity, and part of the marketing strategy designed by an underwriter for marketing the IPO shares. Price stabilization requires enormous funds. Accordingly, in practice only underwriters having access to huge amounts of capital can do so in an effort to preserve their reputation (Hanley et al., 1993). Ruud (1993) finds that an underwriter's commitment to stabilizing price is intended to prevent or slow down the decline in share price. Therefore, our hypothesis is formulated as follows:

H_{3a}: When the IPO stock is more underpriced, there will be no decrease in share price to below its initial price, so price stabilization is not needed.

H_{3b}: Greater allocation of the IPO shares to institutional investors is related to a decline in share price to below its initial price, thus requiring stabilization.

Excess Returns (EXRET)

Underpricing and price stabilization are substitutory activities in a problem-solving mechanism for controlling the IPO price. The major implication is that highly underpriced IPO shares are possibly followed by excess returns on the 30^{th} day[1] after the first day of IPO trading. Hanley et al. (1993) examined the long-term performance of IPOs in relation to offering price revision. Their study tested whether a share price above the initial offering price range had a larger price decline than that within or below the price range. Their analysis is motivated by Ritter's (1991) discovery that firms with high initial returns tend to have poor aftermarket performance. Ritter attributes his findings to potential overreaction that occurs in the IPO market. Findings by Hanley et al. (1993) show that there is no significant relationship between the changes in offering price and long-term share price performance.

Logue et al. (2002) says that the activity of the underwriter in the aftermarket period has a strong relationship with long-run investor returns. Price stabilization activities conducted by the underwriter have a very strong influence on excess returns. The influence of price stabilization on excess returns is stronger than the effect of activities by the underwriter in the pre-market period as a form of partial price adjustment. Accordingly, our fourth hypotheses are formulated as follows:

[1] This study examines excess returns after 30 days of share trading, in accordance with the regulation of the Capital Market Supervisory Agency (BAPEPAM) number XI.B.1 regarding price stabilization. The Capital Market Supervisory Agency regulates the implementation of price stabilization by underwriters at most 30 trading days from the date of registration on the stock exchange.

H_{4a}: When the IPO shares are more underpriced, the excess returns on the 30th day post-IPO are higher.

H_{4b}: When the IPO shares do not require price stabilization as there is no decrease in share price to below the initial price, the excess returns on the 30th day post-IPO are higher.

RESEARCH METHODOLOGY

Research Data and Sample

This study obtained data from multiple sources and databases, including *Bapepam* (Capital Market Supervisory Agency), *KSEI* (Indonesian Central Securities Depository), the Indonesian Stock Exchange (*BEI*), PPA UGM, the Indonesian Capital Market Directory (ICMD), brief prospectuses, preliminary prospectuses, and the Indonesian Stock Exchange Corner of MM UGM. Data on price ranges were collected from the brief prospectuses. Share allocation data were gathered from the Capital Market Supervisory Agency (*Bapepam*), *KSEI* (Indonesian Central Securities Depository), and the Indonesian Stock Exchange (*BEI*) databases. Share allocation data came from unpublished internal data. Data on underwriter reputation rating in Indonesia were obtained from annual transaction reports of the Indonesian Stock Exchange from 2001 to 2010. The collected data were then rearranged so that we obtained the underwriter rating based on transaction values guaranteed by the underwriter(s).

This study uses secondary data as follows: the initial share allocation to institutional investors and individual investors, the IPO price, the number of shares sold, the offered price range, earnings, the closing price on the first day of trading, the closing price after the first 30 days of trading, the combined share price index (CSPI), and the underwriter reputation rating on the Indonesian capital market. The observation period was between January 2001 and December 2010. The share return was observed from the first trading day (day 1) until the 30th day of trading (day 30) since the stock was first traded.

The sample in this study meets specific criteria, i.e., those IPO shares whose implementation procedures were in accordance with the public offering schedule according to the Market Supervisory Agency database number IX.A.2., dated October 27, 2000 that regulates the changes in procedures for public offering registration. In this case, the relevant sample would be the IPO shares on the Indonesian Capital Market issued during 2001-2010. The sample has considered the effect of non-synchronous trading.

Research Models

We employ three equations with repeated sampling to determine a unilaterally causal dependency (causal models). In this model, the IPO pricing variables (AJUST), IPO allocation (ALOC), and underwriter rating (RANK) are treated as predetermined or exogenous variables. Underpricing, price stabilization, and 30-day excess returns are treated as mutually dependent variables or endogenous variables. The examinations of our models are conducted using AMOS 4.01 software. The formulation of the model testing is presented in a path analysis model to test the value of 30-day excess returns:

$$UNDPRI_i = a_1 + \beta_{11} AJUST_i + \beta_{12} ALOC_i + \beta_{13} RANK_i + e_{1i}$$

$$PRISTB_i = a_2 + \beta_{21} UNDPRI_i + \beta_{22} ALOC_i + e_{2i}$$

$$EXRET1_i = a_3 + \beta_{31} UNDPRI_i + \beta_{32} PRISTB_i + e_{3i}$$

Description: $UNDPRI_i$ = Underpricing
$AJUST_i$ = IPO Pricing
$ALOC_i$ = IPO allocations
$RANK_i$ = Underwriter rating (Carter-Manaster, 1990)
$STAB_i$ = Price stabilization
$EXRET_i$ = Excess Returns 30 days

RESEARCH RESULTS

Results of IPO Pricing on Underpricing

Results show that the IPO pricing (AJUST) has a positive effect on underpricing. This finding substantiates the model of Benveniste & Spindt (1989) as well as Benveniste and Wilhelm (1990). The empirical data confirms that the intensity of the underpricing would be higher when the IPO pricing is closer to the upper limit of its offering price range. Our path analysis results are also consistent with those of previous research, where price adjustments in the pre-market period affect underpricing (Hanley, 1993; Logue *et al.*, 2002; Bradley and Jordan, 2002; Loughran and Ritter, 2002; Lowry and Schwert, 2002). Table 1 shows the test results of our path analysis. This test investigates the underwriter's activities in collecting information during the pre-market period. In this case, the final offered price is a reflection of the results of such activities. Asymmetric information among underwriters in the investor circle and information asymmetry among diverse investors form the background for the initial share issuance analyzed in this study.

Results of IPO Allocation on Underpricing

We examine whether underpricing gets higher if the allocation of shares to institutional investors increases. Results from the path analysis indicate that the allocation of initial shares to institutional investors and individual investors (ALOC) is positively related to underpricing. We find that institutional investors have a greater influence on underpricing by 0.343. An underwriter prefers institutional investors as individual investors are less adept at providing and processing information, less skilled in assessing shares, more susceptible to change according to market sentiment rather than based on fundamental values, and more likely to become victims of unscrupulous investment product sellers (Ritter, 2011). Our findings support Ritter (2011), Aussenegg, Pichler, and Stomper (2006), Cornelli, Goldreich, and Ljungqvist (2006), and Knüpfer and Kaustia (2008), who provide consistent evidence of the lack of sophistication in individual investors. Table 2 reports the results of hypotheses testing.

Table 1 examines phenomena occurring in the pre-market period, issue date, and the aftermarket under the circumstances of information asymmetry. Referring to Table 1, the results of the path analysis states that underpricing (UNDPRI) as the dependent variable has a direct effect on the independent variable: the IPO pricing (AJUST), the underwriter rating (RANK), and the IPO allocations (ALOC). Underpricing does not have an indirect effect on the three in-

Table 1. Results of Path Analysis Models

Independent Variables	**Dependent Variables**								
	Underpricing (UNDPRI)			Price stabilization (PRISTB)			*Excess returns* 30 days (EXRET1)		
	DE	**IE**	**TE**	**DE**	**IE**	**TE**	**DE**	**IE**	**TE**
The IPO Pricing (AJUST)	**0.324****		**0.324**		0.030	0.030		**0.138***	0.138
Underwriter rating (RANK)	**-0.104***		**-0.104**		-0.010	-0.,010		-0.044	-0.044
IPO allocations (ALOC)	**0.343****		**0.343**	**0.441****	**0.032**	**0.473**		**0.246****	0.246
Underpricing (UNDPRI)				**0.093**		**0.093**	**0.405****	0.021	**0.426**
Price stabilization (PRISTB)							**0.226****		**0.226**
R^2	**28.70%**			**23.80%**			**26.60%**		

Source: Outputs of Path Analysis Models.

Description**:** ** significant at α 0.05, one tailed test
* significant at α 0.10, one tailed test
DE = direct effect
IE = indirect effect
TE = total effect

Table 2. Results for 30-day Excess Returns (EXRET1) as the Dependent Variable

Relations between Variables	Expected Sign	Standardized Estimate	c.r. Result	Description
UNDPRI ← AJUST	+	**0.324**	**4.806**	Significant (H_1)**
UNDPRI ← ALOC	+	**0.343**	**5.067**	Significant (H_2)**
UNDPRI ← RANK	-	-0.104	-1.565	Significant *
PRISTB ← UNDPRI	+	**0.093**	**1.244**	Insignificant (H_{3a})
PRISTB ← ALOC	+	**0.441**	**5.873**	Significant (H_{3b})**
EXRET1 ← UNDPRI	+	**0.405**	**5.812**	Significant (H_{4a})**
EXRET1 ← PRISTB	+	**0.226**	**3.251**	Significant (H_{4b})**

Description: ** significant at α 0.05, one tailed test
* significant at α 0.10, one tailed test

Source: Outputs of Path Analysis Models.

dependent variables. The results of this path analysis explain simultaneously the relationship between underpricing, price stabilization, and 30-day excess returns through direct and indirect relationships. The IPO allocations (ALOC), as a phenomenon that occurs in the premarket period, had a significant direct effect on the underpricing as do events that occurred in the issue date period. The IPO allocations factor also has a direct effect on the price stabilization that occurs in the aftermarket period. Underpricing and price stabilization simultaneously has a direct effect on excess returns as a phenomenon that occurs in the aftermarket period.

Underpricing, price stabilization, and 30-day excess returns are endogenous variables. The IPO pricing, underwriter rating, and IPO allocations are exogenous variables. The IPO pricing, and IPO allocations are strong exogenous variables in explaining the phenomenon of underpricing and price stabilization. Table 1 shows that the coefficient of the IPO pricing on underpricing is 0.324 directly. The coefficient of IPO allocation on underpricing is 0.343 directly. The coefficient of IPO allocation on price stabilization is 0.441 directly. The three variables are significant at α 0.05, one-tailed test. Underpricing and price stabilization as endogenous variables have an effect on the 30-day excess returns in a structured and significant way. The coefficient of underpricing on the 30-day excess returns is 0.405 directly. The coefficient of price stabilization on the 30-day excess returns is 0.226 directly. The results are significant at α 0.05, one tailed test. The IPO pricing has an indirect effect on excess returns with a coefficient of 0.138 significant at α 0.10, one- tailed test. The IPO allocations factor has an indirect effect on excess returns with a coefficient of 0.246 significant at α 0.05, one-tailed test. The test results provide indirect evidence that the IPO allocations and the IPO pricing are two exogenous variables which give a strong influence on underpricing and price stabilization in the structure. In the last stage, the results of our path analysis showed that the underpricing and price stabilization are two powerful variables in influencing the phenomenon of 30-day excess returns.

Table 2 reports summary statistics for 30-day Excess Returns (EXRET1) as the dependent variable.

Table 2 proves that the entire hypothesis is supported by empirical data, except the relationship between underpricing and price stabilization. Underpricing and price stabilization are two phenomena that do not affect each other, but both do have an effect on the 30-day excess returns. This evidence supports the explanation of Table 1. Table 2 shows that the standardized estimate test results are in accordance with the expected direction. These results provide evidence that the test results are in accordance with the theory. Table 2 also reports test results on underpricing and underwriter reputation rating as a control factor significant at α 0.10, one-tailed test. The next section will explain the test results in more detail.

Results of Underwriter Reputation Rating on Underpricing as a Control Factor

Our path analysis finds evidence that the underwriter reputation rank (RANK) is negatively related to underpricing. The direction of the two factors tested is consistent with the expected sign, but the data only show a marginal significance at the 10% level. Carter and Manaster (1990) and Benveniste et al. (1996) document that highly reputable underwriters have the ability to represent high quality IPO shares, and are generally able to attract a high demand for these shares (oversubscribed). Highly reputable underwriters are able to provide better information access with respect to the shares being offered, and the condition of the issuer. Those underwriters will receive feedback in the form of better information on potential investors. With better information, it would be easier for them to set an initial price strategically, so as to create underpricing and anticipate losses in the IPO share trading. In this case, highly reputable underwriters are considered more able to satisfy the interests of the issuing firms, which expect their stock prices not to be underpriced. Logue et al. (2002) find that a highly reputable underwriter is better at acquiring the amount of capital needed by the IPO company, so the issuer surely prefers a highly reputable underwriter to a less than reputable one.

Results of Underpricing on Price Stabilization

We find that underpricing is positively related to price stabilization as expected. The slope of 0.093 indicates that a $1 increase in underpricing corresponds to an average increase in price stability of 9.30%. However, our results are not statistically significant. Hence, our subsequent discussion is focused on factors that directly support underpricing and do not directly support price stabilization (ALOC and AJUST).

Results of IPO allocation on Price Stabilization

This test deals with the question as to whether a greater allocation of IPO shares to institutional investors is linked to price stabilization. Our results reveal that the relationship between the IPO allocation and price stabilization is positive and significant, thereby substantiating Benveniste et al. (1996).

As described in the preceding discussion, Benveniste et al.'s (1996) model is intended to uncover the pre-IPO phase. During this stage investors reveal their interests to the underwriter(s), and then the underwriter(s) uses the information to determine the allocation of IPO shares and the offering price. Institutional investors, perceived as contributing better information, are treated as potential investors who would get the first preference in the allocation of IPO shares (Benveniste & Spindt, 1989). In addition, institutional investors also have a good relationship with the underwriter, established through a peer or colleague relationship, and this may affect the allocation of any new share issuance (Stoughton and Zechner, 1998). Hence, the underwriter gives rewards to the institutional investors with underpriced shares and a greater number of that share allocation.

Results of Underpricing and Price Stabilization on 30-day Excess Returns

Tables 1 and 2 document a significantly positive relationship between underpricing and the 30-day excess returns. Furthermore, the results of the path analysis indicate that price stabilization has a positive and significant impact on the 30-day excess returns. Underpricing and price stabilization are substitutory activities in a mechanism for an initial price control in the aftermarket period. The implication is that IPO shares with a high level of underpricing are more likely to be followed by excess returns after 30 days of share trading (Logue et al., 2002). The underwriter will carry out price stabilization such that any stock price, which has gone down below the IPO price, will increase to its initial level. Successful price stabilization will result in the formation of positive excess returns, 30 trading days after the initial trading. We use 30 days as the period of time for an underwriter to implement any required price stabilization according to the regulation of *Bapepam-LK* (Capital Market Supervisory Agency-Financial Institutions) on price stabilization. We find evi-

dence that IPO shares with larger underpricing have a better performance in the aftermarket, i.e., 30 trading days post-IPO.

CONCLUSION

This study is designed for the circumstances of asymmetric information, especially prior to the IPO, which triggers underpricing. Ritter (2011) labels such underpricing as conditional underpricing. The facts show that information asymmetry not only explains conditional underpricing but also the average level of underpricing. Ritter (2011) documents that the agency problems between the underwriter and the issuing firm are an important explanatory factor of the conditional underpricing and the average level of underpricing.

We examine phenomena occurring in the pre-market period, issue date, and the aftermarket under the circumstances of information asymmetry. In reality, institutional investors have more and better information than do individual investors. Information asymmetry develops in the pre-market period during the bookbuilding, when the IPO price is being decided. During the pricing process, it is highly possible that price adjustments appear, depending on the information content being developed among investors, especially institutional investors. Information that supports investor interests to buy will generally be reflected in the pattern of the initial price adjustment, and will "invite" underpricing in the IPO.

In the extant literature, the IPO process is seen as a series of separate processes. On the contrary, our study analyzes the IPO pricing process as an integrated process. The link between the allocation of IPO shares and underpricing, as well as the intensity of the relationship, is examined through a review of offered price range integrated with IPO share performance, especially price stabilization and excess returns.

This study provides evidence that underpricing is higher when the IPO pricing is closer to the upper limit of the offered price range. In addition, the higher the allocation of shares to institutional investors, the higher the underpricing will be. We observe a positive relationship between underpricing and price stabilization, but the result is not significant. We also find that the initial share allocation is positively and significantly related to price stabilization. The greater the allocation of IPO shares to institutional investors, the more likely that there will be no decline in the share price to below its initial price, such that price stabilization is not required in the aftermarket trading. Subsequently, we find evidence that IPO shares with a higher underpricing show a better performance in the aftermarket, i.e., 30 trading days after the IPO. The less underpriced the IPO shares, the more likely that price stabilization is needed and excess returns are low.

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