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The impact of public ownership and share warrants on market performance of IPOs: Evidence from the Indonesian Stock Exchange (IDX)

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ABSTRACT

The aim of this study is to examine the relationship between public ownership (public float), share warrants and the market performance of IPOs on the Indonesia Stock Exchange (IDX). The public ownership is measured as the percentage of shares held by the public after the IPO, share warrants are measured as dummy variables, and market performance is measured by both initial returns and 36 months cumulative abnormal returns. The test is conducted by OLS and Quantile Regression to find out whether the percentage of shares held by the public after the IPOs and warrants offering have relationships with both the initial and the long-term shares market performance. The sample consists of 124 IPOs companies during 2009-2014. OLS shows not only that public float and warrant offerings are related to initial returns, but also warrants mediate the relationships between public float and initial performance. The analysis with quantile regression shows that the positive relationship between public float and short-term market performance occurs in the IPO with middle-level initial returns (i.e. between 40th to 60th quantiles). The effect of warrant offerings on initial returns simply does not appear on the lower quantiles (10th through 30th quantiles). We find no relationships between public float and warrant offerings with the long-term market performance, which gives an indication that warrant offerings in Indonesia are a form of staged financing policy.

1. Introduction

Understanding short-term and long-term market performance of IPO shares are very important for investors and issuers. The ability to understand returns patterns will provide an opportunity for investors to get more optimal returns. Issuers are also concerned with the phenomenon of underpricing and long-term market performance. For issuers, underpricing and long-term market performance are closely related to the cost of external equity as well as information on the level of capital market efficiency. This is because through an IPO, shares that are initially owned by internal shareholders of a company, some of which are transformed into public ownership. The percentage of shares owned by public investors (external shareholders) both individuals and institutional post-IPOs are known as public ownership or public float (Michel, Oded, & Shaked, 2014).

Public float determines the risks faced by issuers, because with the increasing proportion of shares owned by the public, the greater the probability of corporate takeover by external parties (Hsieh, Lyandres, & Zhdanov, 2011). The public float also affects the cost of underpricing. Bradley and Jordan (2002) stated that the cost of underpricing will further decrease with increasing stock fractions that remain controlled by internal shareholders (known as overhangs). This resulted in the greater the overhang the greater the underpricing. Nevertheless, Michel et al. (2014) recognize that the larger public float also encourages insiders to engage in activities that tend to only benefit them at the cost of external shareholders. For investors, the higher the public float the higher the risk of investing. This kind of potential will lead to a positive relationship between public float and initial returns.

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Jain and Kini (1994) argue that increasing public float will decrease incentives for management to perform well, and can exacerbate long-term market performance. Despite revealing the same, Michel et al. (2014) also add that a larger public float can actually improve the monitoring of power from external shareholders and thereby improve long-term market performance. Observations of Mikkelson and Partch (1997) showed no consistent relationship between ownership and long-term performance at different observation times.

Warrants are the right for IPO investors to buy additional shares of the issuer at a specified price within a certain period of time. Popular opinion states that warrants are sweeteners of initial offerings given to increase investor interest in issuers. A 50% warrant means that for every two shares purchased on the primary market, investors are entitled to one warrant that can be used to buy one additional share. The exercise period of warrants ranges from 1 to 3 years after stock listing. Schultz (1993) states that warrant offerings are a form of staged financing for high-risk projects. Chemmanur and Fulghieri (1997) propose signaling theory which explains that warrants issuance at an IPO is a mechanism taken by issuers to signal their prospects of risk and future cash flows to investors. Both theories suggest that, because warrants are associated with a higher risk of issuers, the issuance of them will increase initial returns of IPOs. Lee, Lee, and Taylor, 2003, and How and Howe (2001) find a positive relationship between warrants and initial returns.

Research on the influence of public float and warrants on IPO's market performance is still very limited, especially in the emerging capital markets. Several studies conducted in emerging markets regarding determinants of IPOs performance do not specifically discuss the effect of public ownership on IPO's market performance (How, Jelic, Saadouni, & Verhoeven, 2007; Laokulrach, 2015; Leong & Sundarasen, 2015). Meanwhile, warrant research is generally associated with seasoned equity offering (SEO) (Lerskullawat, 2014). Therefore, this study aims to examine the relationship between public float, warrants offerings and the market performance, i.e. both the initial returns and long-term market performance, of IPO stocks in the Indonesian Stock Exchange (formerly known as the Jakarta Stock Exchange). As far as we know, this is the first research study which identifies the role of warrants in the relationship between public float and IPO's performance in Indonesian context.

This article is organized in the following order. Section 2 explains the literature review. Section 3 describes the data and research methods. Section 4 reviews the results and discussion of this study. Section 5 presents the conclusions.

2. Literature review

2.1. IPOs' market performance

Three issues are often discussed in the literatures of IPOs market performance: short-term market performance, long-term market performance, and hot issue market. The IPO's short-term performance is reflected in the underpricing of IPO shares. Underpricing of IPO shares is the trend of positive initial returns on the first day of trading of shares, after the listing on the trading board. Ibbotson (1975) for the first time found that stocks traded in the US Capital Market were underpriced. Carter and Manaster (1990) and Aggarwal, Leal, & Hernandez (1993) suggest that this phenomenon occurred in the United States for a long time. Other research in various countries of the world; English (Levis, 1993), Turkey (Durukan, 2002), India (Pande & Vaidyanathan, 2009), and Australia (Perera & Kulendran, 2016) showed similar results. According to Kunz and Aggarwal (1994), the level of short-term returns is positive and high, because the IPO price is indeed systematically set too low. Several hypotheses have been presented to explain underpricing phenomena; such as: underwriter compensation (Baron, 1982), winner's curse (Rock, 1986), signaling (Allen & Faulhaber, 1989). Baron (1982) explains that underpricing is a compensation for services provided by underwriters. Rock (1986) states that underpricing is a mechanism to increase investor motivation in the primary market by creating benefits for both informed and uninformed investors.

The long-term market performance of IPOs is the return performance of IPO shares several months (generally 12–36 months) after they are traded on the secondary market. The long-term performance of IPO shares can be measured by substracting the monthly rate of return of IPO shares to the market return rate (known as market-adjusted abnormal return). The results of the previous researches indicate that there is a tendency of stock returns of IPO is lower than market returns in the period up to three years after IPO. (Ritter, 1991) for the first time discovered the phenomenon of long-term performance of lower IPO shares (long-term IPO underperform) than its benchmarks. Further long-term market performance research also found the phenomenon of long-term IPO underperform in various countries, such as: Germany (Stehle, Ehrhardt, & Przyborowsky, 2000); England (Espenlaub, Gregory, & Tonks, 2000); Denmark (Jakobsen & Sørensen, 2001). Nevertheless, the long-term market underperformance of IPO shares is not always the case. The results of research in Malaysia (Ahmad-Zaluki, Campbell, & Goodacre, 2007) and Japan (Nielsen, Rimmel, & Yosano, 2015) show long-term IPO outperform.

Several theories explain the relationship between underpricing and long-term market performance. The signal hypothesis (Allen & Faulhaber, 1989; Welch, 1989) states that high-quality issuers use underpricing as a mechanism to reveal signals about their conditions to investors. Based on this theory, companies with high quality will show an increase in operating performance and market performance after the IPO. The Impressario Hypothesis (Ritter, 1991) states that underwriters systematically set IPO prices that are too low to increase demand for IPO shares. This hypothesis states that stocks with high initial returns tend to have low long-term performance. The window of opportunity hypothesis (Kim & Stulz, 1988) states that there is a tendency for companies to go public when loan interest rates are high. To minimize the cost of capital, equity financing is preferred over debt. Companies that go public during this wave of going public activities tend to be overvalued. Therefore, a high period of going public will result in the low long-term performance of IPO shares.

2.2. Public float and IPOs' market performance

Habib and Ljungqvist, 2001 find a negative relationship between the proportion of secondary shares sold during the IPO and underpricing. The sale of secondary shares increases the wealth loss of the old shareholders (internal shareholders), and therefore instead of increase underpricing, the old shareholders prefer to increase the cost of IPO share sales promotion. Bradley and Jordan (2002) argue that underpricing per overhang shares (the proportion of shares owned by internal shareholders that are not traded on IPOs) will decrease with the increase of overhangs. Their study result shows a negative relationship between the proportion of stocks that are not sold at the time of the IPO and underpricing. Alavi, Pham, and Pham (2008) find no relationship between the proportion of original shares held by pre-IPO insiders and underpricing. Michel et al. (2014) state that the greater proportion of public ownership of shares post-IPO will encourage the internal shareholders to engage in activities that tend to only benefit them

at the expense of external shareholders. This means that increasing public float actually increases the risk for new investors. New investors, who consider this, will demand an increase in underpricing. The higher the public float, the higher the power of new investors, which results in a higher level of underpricing.

According to Michel et al. (2014), a larger public float can actually improve the monitoring power of external shareholders. Improved monitoring power will prevent management (and old shareholders) from taking action that tends to benefit themselves and will, therefore, improve long-term market performance. Their study result shows a positive relationship between public float and long-term market performance. A study by Goergen and Renneboog (2003) shows that there is no relationship between the proportion of shares owned by pre-IPO shareholders and long-term market performance of IPO shares. The researches on the relationship between public float and long-term operating performance of IPO shares also show different results. Jain and Kini (1994) find a positive relationship between the proportion of shares held by pre-IPO shareholders and the long-term performance of the firm. Meanwhile, a study by Mikkelson and Partch (1997) does not indicate the relevant relationship between the ownership of the old shareholder and the long-term operating performance.

H1. There is a relationship between public float and the market performance of IPOs

2.3. Warrants offerings and IPOs' market performance

The Indonesian State Law Number 8 of 1995 concerning Capital Market states that warrnts are "securities issued by a company which entitles securities holders to order shares of the company at a certain price after six months or more since the said securities were issued " In general warrants are given free of charge to buyers of newly issued shares and are often regarded as sweeteners when a company offers shares in order to obtain additional capital.

Schultz (1993) argues that the issuance of warrants during the IPO is one form of staged financing. Schultz argue that when the issuer only collects part of the total financing needs for investment, the other parts are met through warrants. IPOs accompanied by warrants can prevent free cash flow problems that arise in high-risk investment alternatives. Through staged financing managers can concentrate on project funding that is still in its early stages. If the investment made has a good performance, the stock price will increase. This will motivate investors to exercise the warrants they have and encourage additional funding for the company. The implication of the theory of staged financing is the level of underpricing on IPOs with warrants (WIPO) will be higher than ordinary IPOs (How & Howe, 2001).

According to Chemmanur and Fulghieri (1997), in markets where high asymmetry information occurs, insiders (managers) have a better knowledge of the level of risk as well as the prospects of future cash flow from the investment that will be made. Issuers with investment plans that have high levels of risk and prospects for future cash flows will include warrants at the IPO. Issuance of warrants, in this case, is a form of signal conveyed by the issuer to illustrate the potential for high risk and cash flow from the company. Mazouz, Saadouni, and Yin, 2008 conclude that the issuance of warrants at IPOs in the Hong Kong capital market is more motivated by the goal of giving signals, which has implications for the positive relationship between warrant offerings and initial returns.

The relationship between warrant offerings and long term performance is quite complex. Under staged financing theory, future project continuity cannot be ascertained. Staged financing, in the form of a warrant exercising, is only carried out if the initial stage of the project shows a success. The relationship between warrant offerings and long-term performance, therefore, cannot be ascertained. On the contrary, signal theory associates warrant with signals about the quality of future cash flows. If this happens then the long-term market performance of IPOs with warrants will be higher than IPOs without warrants.

H2. There is a relationship between warrant offerings and the market performance of IPOs

3. Research methods

3.1. Sample and data

The number of samples is 124 issuers taken from 135 IPOs during the 2009-2014 period on the Indonesia Stock Exchange. Some issuers with incomplete trading data for 36 months after the listing of IPO shares due to delisting or suspension, were excluded as samples. Secondary data were obtained from the Indonesia Stock Exchange (IDX), Indonesian Capital Market Directory (ICMD), Indonesian Capital Market Library (Icamel).

3.2. Measurement

Initial Returns (IR) is used as a proxy of underpricing. Initial returns is the first day returns of stocks traded in the secondary market. It is calculated as the difference in closing stock price on the first trading day on the secondary market with IPO stock price divided by IPO stock price, that is:

$$IR_i = \frac{P_{i,1} - P_{IPO}}{P_{IPO}} \quad (1)$$

Description:

$IR_{i,t}$ = Initial returns of stock i
$P_{i,1}$ = First trading day closing price of stock i
P_{IPO}= IPO price

Abnormal returns estimated using market adjusted abnormal returns:

$$AR_{i,t} = R_{it} - R_{m,t} \quad (2)$$

CAR"t" is accumulation of abnormal returns of 1st to tth month, after the first trading day of IPO shares. We analyzed CAR12 and CAR36 in this study. CARs are calculated as follow:

$$CAR_{n,i} = \sum_{t=1}^{n} AR_{it} \quad (3)$$

Description:

$R_{i,t}$ = monthly returns of stock i in period t
$R_{m,t}$ = monthly market returns in period t
$AR_{i,t}$ = abnormal returns of stock i in period t
$CAR_{n,i}$ = the cumulative abnormal returns of the company i's stock from month 1 to month n after the IPO

This study uses CAR as a measure of long-term market performance, instead of Buy-and-Hold Abnormal Returns. The buy-and-hold method will overstate the real BHAR value if there is a positive return trend within a certain period, and conversely understating in the negative horizon (Fama, 1998 ; Mitchell & Stafford, 2000). Manikam, Gumanti, and Fadah (2013) also show that the use of the CAR method is superior to BHAR for research in the

Indonesian capital market.

The independent variables in this study are warrant offerings and the public float. Warrant offerings are expressed as dummy variables (DWAR); worth 1 in the IPO with warrants and 0 otherwise. The public float (PFL) is the proportion of shares held by the public post-IPO, which not taking into account the proportion of shares offered in warrant offerings. The formula for calculating public float is:

$$PFL_i = \frac{PO_i}{OUT_i} \tag{4}$$

Description:

PFL_i = public float of stock i
PO_i = the number of stock i owned by the public after the IPO
OUT_i = the number of stock i outstanding after the IPO

The control variables in this study are:

- The age of the company, calculated as the natural logarithm of company age at IPO (LNAGE),
- Company size, calculated as the natural logarithm of total company assets at IPO (LNTAS),
- Proceed of IPO is calculated as the natural logarithm of IPO proceeds (LNPROC),
- The reputation of underwriters (UWREP) is calculated by their market share during the study period,
- The inflation rate (INF) is calculated with a 1-year lag inflation data. GDP growth (EG) is also calculated using a 1-year lag economic growth data.
- In the analysis of long-term market performance (CAR12 and CAR36) we also added initial returns as a control variable.

3.3. Model of analysis

OLS and quantile regressions are used in testing the relationship between public float with underpricing and long-term market performance, with the following equations:

$$IR = \beta_0 + \beta_1 PFL + \beta_2 DWAR + \beta_3 LNAGE + \beta_4 LTAS + \beta_5 LNPROC + \beta_6 DUWREP + \beta_7 INF + \beta_8 EG + \varepsilon \tag{5}$$

$$CAR = \beta_0 + \beta_1 PFL + \beta_2 DWAR + \beta_3 LNAGE + \beta_4 LTAS + \beta_5 LNPROC + \beta_6 DUWREP + \beta_7 IR + \beta_8 INF + \beta_9 EG + \varepsilon \tag{6}$$

In this study, we use the quantile regressions developed by Koenker and Basset (1978). This method was chosen with the consideration that the OLS regression may not be appropriate in dealing with extreme values and outliers in the distribution of the dependent variables. Estimation with quantile regressions as a complement to ordinary least square gives an opportunity to compare the marginal effect of independent variables across the conditional distribution of dependent variables. The estimated coefficients of the quantile regression are also not sensitive to outliers of the dependent variable.

Considering (yi , xi) i = 1, ….., N is a sample derived from a population, where xi is a K × 1 vector of independent variables and yi represents the dependent variable, a quantile regression model is specified as follows:

$$y_i = x_i \beta_{(q)} + \varepsilon_{i(q)} \tag{7}$$

For a given quantile of $0 < q < 1$ the value of $\beta(q)$ is obtained by minimising the average weighted distance of y_i and $y_i^{'}$ as follows:

$$\beta_{(q)} = avgmin \left[q \sum_{y_i \geq x_i \beta_{(q)}} |y_i - x_i \beta_{(q)}| + (1-q) \sum_{y_i \geq x_i \beta_{(q)}} |y_i - x_i \beta_{(q)}| \right] \tag{8}$$

4. Results and discussion

4.1. Descriptive

The number of samples obtained covering 91.85% of IPOs during the period 2009-2014 (see Table 1). In general it can be said that the interest of companies in Indonesia to raise funds through the capital market is increasing. Macroeconomic factors also become a constraint of interest of issuers to conduct IPO. This can be observed from the low stock issuers in the crisis period of 2009.

Table 2 shows that the average public float in the Indonesian capital market is 25.05%. The lowest public float is 2.20% while the highest is 70%. In addition, 32.11% of IPOs result in internal shareholders losing 30% or more of their voting rights. Table 2 also shows that 21% of IPOs in Indonesia are accompanied by warrant offerings. The proportion of warrant IPO (WIPO) in Indonesia, in this case, is lower than in the United States, Australia, and Hong Kong (How & Howe, 2001; Mazouz, Saadouni, & Yin, 2008; Schultz, 1993). The average initial returns of IPOs in Indonesia is 18.15%, much lower than in China and even Malaysia which is 66.3% (Song, Tan, & Yi, 2014) and 37.18% (Ahmad-Zaluki & Kect, 2012). The long term market performance (CAR36) of IPOs shows a positive mean. Nevertheless, there are 53% of IPOs that produce negative CAR36. The maximum CAR36 level reached 298.57%.

There is a wide range of characteristics of IPO companies. The average age of IPO firms are 18.52 years, even though there are some relatively new companies that carry out IPOs. Such companies are generally the result of larger corporate spinoffs. There are also large differences in the size of the issuer, with the total assets of the largest listed companies reached 44,992 billion rupiahs. There are 73.5% of issuers with proceeds under the mean (631.64 billion rupiahs), with the maximum proceeds reaching 6,291.60 billion rupiahs. With a mean of 58.18%, the debt ratio of issuers in Indonesia is relatively high. In fact, one issuer has a debt to total assets ratio above 100%.

Table 3 shows the results of the Pearson and Spearman correlation test. Initial returns show a positive correlation with warrant offerings, but do not correlate with the public float. Long-term market performance does not show correlations with public float and warrants. The tendency that high float will be accompanied by

Table 1
Population and sample.

Year	IPO	Sample	%
2009	12	9	75.00%
2010	23	20	86.96%
2011	25	25	100.00%
2012	22	21	95.45%
2013	30	30	100.00%
2014	23	19	82.61%
Total	135	124	91.85%

Source: Own calculations based on data from the Indonesia Stock Exchange (IDX).

Table 2
Descriptive.

Variable	Min.	Max.	Mean	SD
PFL (%)	2.20	70.00	25.05	11.87
DWAR	0	1	0.21	0.41
AGE (years)	1.10	90.42	19.76	15.09
ASSETS (Mill IDR)	34,820	44,992,000	3,084,000	6,097,070
PROCEEDS (Mill IDR)	30,100	6,291,600	631,639	907.342
UWREP (%)	0.03	15.22	2.22	0.03
INF (%)	2.78	11.06	5.62	2.45
EG (%)	4.63	6.49	5.94	0.62
IR (%)	−89.06	123.81	18.15	30.95
CAR36 (%)	−203.60	298.57	13.42	95.18

Source: SPSS output.

warrants is also documented in Table 3. This trend, especially, occurs in issuers at high risk, which is characterized by: younger age, smaller size, and guaranteed by underwriters with a lower reputation. These results somewhat confirm the theories of staged financing and signaling. Correlation test also shows that, while initial returns correlate with many control variables, it is not the case with CAR36 which only relates to proceeds and inflation.

4.2. Public float, warrant offerings and initial returns

Table 4 shows the results of linear regression on initial returns. There are 5 models analyzed. The test results show that public float is positively related to initial returns. The test results support the findings of Bradley and Jordan (2002). The positive relationship of public float and initial returns in Model 1 is due to the characteristics of Indonesia's capital market investors which include: having a low literacy of capital markets, low investor confidence, and low investment mindedness (Meidiaswati, 2017). Under these conditions, investment in the IPO market is always overshadowed by the use of proceeds for the benefit of only managers and old shareholders. The amount of public float, in turn, is attributed to the amount of risk borne by investors. The higher the public float, the higher the investor's perception of the level of investment risk, and therefore the issuer should be more underpriced their shares.

Models 2, 4, and 5 in Table 4 show that warrant offerings are positively related to initial returns. IPO with warrant tends to produce higher initial returns than regular IPOs. These results are in

Table 3
Correlations.

		IR	CAR36	PFL	DWAR	LNAGE	LNTAS	LNPRO	UWREP	INF	EG
		Pearson									
IR	Spearman's rho	1.000	0.050	0.168	0.294**	−0.031	−0.037	−0.219*	−0.193*	−0.272**	−0.228*
CAR36		0.137	1.000	−0.051	−0.053	−0.048	−0.039	-.275**	−0.150	.181*	−0.086
PFL		0.090	−0.092	1.000	0.226*	−0.033	−0.159	−0.068	−0.124	0.032	0.010
DWAR		0.290**	−0.082	0.203*	1.000	−0.195*	−0.166	−0.133	−0.268**	−0.059	−0.110
LNAGE		−0.087	0.044	−0.054	−0.223*	1.000	0.081	−0.029	0.226*	0.120	0.208*
LNTAS		−0.074	−0.026	−0.199*	−0.184*	0.098	1.000	0.694**	0.466**	−0.097	−0.112
LNPRO		−0.273**	−0.220*	−0.045	−0.127	−0.015	0.668**	1.000	0.573**	−0.174	−0.085
UWREP		−0.199*	−0.134	−0.157	-.254**	0.102	0.506**	0.633**	1.000	−0.100	−0.072
INF		-.318**	0.135	0.029	−0.080	0.139	−0.133	−0.169	−0.135	1.000	0.252**
EG		−0.066	−0.120	−0.013	−0.066	0.119	−0.060	0.012	−0.004	−0.143	1.000

Source: SPSS output.
Notes: *, ** indicate significance at the 5 and 1% levels, respectively.

Table 4
OLS Regression Result for Initial Returns during period 2009 − 2014.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6A	Model 6B	Model 7A	Model7B
Constant	7.43	13.75***	187.47**	7.14	151.82**	1.5***	−2.9	5.25	167.58**
	(1.15)	(4.58)	(2.38)	(1.14)	(1.99)	(22.14)	(0.43)	(0.84)	(2.23)
PFL	0.44*			0.28	0.36*	0.03**	0.02*	0.39	0.45**
	(1.88)			(1.2)	(1.71)	(5.9)	(3.47)	(1.62)	(2.16)
DWAR		22.3***		20.48***	16.32***				
		(3.40)		(3.05)	(2.53)				
WAR								0.33***	0.3***
								(3.14)	(3.07)
LNAGE			1.73		2.53		−0.26		2.66
			(0.51)		(0.77)		(1.77)		(0.82)
LNTAS			5.38*		6.56**		−0.09		6.37**
			(1.97)		(2.47)		(0.32)		(2.42)
LNPROC			−9.25***		−10.07***		0.04		−10.32***
			(-2.80)		(-3.15)		(0.04)		(-3.27)
UWREP			−0.52		−0.28		−0.07**		−0.24
			(-1.39)		(-0.76)		(4.96)		(-0.65)
INF			−3.61***		−3.54***		−0.05		−3.57***
			(-3.33)		(-3.38)		(0.71)		(-3.46)
EG			−9.07**		−7.85*		−0.24		−8.86
			(-2.08)		(-1.86)		(1.07)		(-2.14)
Adj. R^2	0.020	0.079	0.175	0.083	0.237	0.06[a)]	0.17[a)]	0.087	0.255
F	3.52**	11.58***	5.36***	6.55***	5.78***	6.04***	21.55***	6.83***	6.28***

Source: SPSS output.
Notes: Table 4 reports the regression results for the period 2009-2014. The dependent variables in Models 1, 2, 3, 4, 5, 7A, and 7B are initial returns. The dependent variable in Models 6A and 6B are warrant offerings dummy. All models except Model 6A and 6B are analyzed using OLS. Model 6A and 6B are analyzed using probit regression. T-statistics are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively. [a)] indicate McFadden R-squared.

line, both with the theory of staged financing (Schultz, 1993) and signaling (Chemmanur & Fulghieri, 1997). IPO issuers with warrants compensate for their higher risk by underpriced their shares more.

Models 4 and 5 show the possibility of warrants mediating the effect of public float on initial returns. For this reason, we conduct further testing about the effects of mediation. We complete the three-step procedure (Baron & Kenny, 1986) to mediation test, namely: 1) regressing the dependent variable on the predictor (Model 1), 2) regressing the mediator variable on the predictor, 3) and regressing the dependent variable on both the mediator and the predictor (Model 4 and 5). Models 6A and 6B are the results of probit analysis to see the relationship between predictor and mediator variables. Positive results of probit regression indicate that the issuance of warrants is conducted to strengthen information that the company plans to conduct staged financing and that the issuer is dealing with a project that has a good potential future cash flow. Old shareholders showed a willingness to lose a large proportion of share ownership at the time of the IPO and would be further reduced during warrants. Therefore, models 4 and 5 in Table 4 show the effects of warrants mediation. Further testing of the mediating effect using the ratio of issuance of warrants (Models 7A and 7B) shows similar results. The findings of this study support both staged financing theory and signaling theory. Issuer companies with potential risks and high future cash flow, plan to stage their project financing and send signals to the market through warrants. The signaling is then followed by a higher underpricing level.

There are four control variables that show the relationship with initial returns. The size of the company is related to the risk of utilization of the free cash flow of the IPO proceeds. Larger companies have risks associated with managing higher free cash flow. Since larger companies generally have access to more diverse sources of funds, the potential use of free cash flow of IPOs discretionarily will rise. This results in greater demands for more underpricing on IPOs conducted by larger companies. The findings in this study are in line with the results of several previous studies (Jones & Ligon, 2009; Murugesu & Santhapparaj, 2010). Ritter (1984) argues that proceeds are related to issuer risk; high-risk issuers tend to raise funds in relatively low amounts. Therefore the higher the proceeds result in the lower underpricing. These results are in line with Guo, Lev, and Shi (2006) and Pande and Vaidyanathan (2009). Inflation is negatively related to underpricing. This is because the increase in the inflation rate can reduce purchasing power. This prompted the issuer to set the price of the IPO stock so that it was not too different from its intrinsic value. Economic growth has a negative effect on underpricing. High economic growth signals a better economic prospect in the future. This may decrease the uncertainty regarding future cash flow and valuation of IPO shares. As a result, the incentives to underprice IPO shares are lower. The results of this study are in line with Marcato, Milcheva and Zheng (2018).

4.3. Public float, warrant offerings and long-term market performance

Table 5 shows the regressions result on cumulative abnormal returns of 12 and 36 months (CAR12 and CAR36) after IPO date. The results show that there is no relationship between public float, warrants dummy and warrants proportion with CAR36 (Models 9A and 9B). The results also show that the public float has no effect on CAR12 (Models 8A and 8B). The results support the findings of Goergen and Renneboog (2003) but are incompatible with Michel et al. (2014). The use of nonlinear models (not shown in this article), based on Michel et al. (2014), also find no relationship between public float and CAR36. The regression results show there is no relationship between warrants dummy and CAR12 (Model 8A); however, the relationship between the proportion of warrants and dependent variables occurs (Model 8B).

Table 5
OLS regression result for CAR12 & CAR36.

	Model 8A	Model 8B	Model 9A	Model 9B
Constant	23.52	5.42	531.33**	507.43**
	(0.12)	(0.03)	(2.06)	(1.97)
PFL	0.20	0.06	−0.22	−0.34
	(0.37)	(0.11)	(-0.31)	(-0.48)
DWAR	−24.10		−20.45	
	(-1.49)		(-0.93)	
WAR		−0.45*		−0.36
		(-1.77)		(-1.06)
LNAGE	−13.88*	−14.14*	−10.70	−10.85
	(-1.71)	(-1.75)	(-0.98)	(-0.99)
LNTAS	17.02**	17.09***	19.77**	19.86**
	(2.55)	(2.57)	(2.19)	(2.20)
LNPROC	−19.56**	−18.85**	−35.90***	−35.36***
	(-2.40)	(-2.31)	(-3.25)	(-3.20)
UWREP	−0.58	−0.63	−0.18	−0.21
	(-0.65)	(-0.699)	(-0.14)	(-0.17)
IR	0.05	0.08	0.004	0.03
	(0.22)	(0.36)	(0.01)	(0.09)
INF	−0.08	0.10	6.40*	6.54*
	(-0.28)	(0.04)	(1.76)	(1.80)
EG	12.70	14.49	−19.56	−18.07
	(1.21)	(1.39)	(-1.38)	(-1.28)
Adj. R^2	0.05	0.06	0.10	0.11
F	1.71*	1.83*	2.57***	2.60***

Source: SPSS output.
Notes: Table 5 reports OLS results on cumulative abnormal returns during the period 2009-2014. The dependent variables in Models 8A and 8B are CAR12. The dependent variable in Models 9A and 9B are CAR36. T-statistics are in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels, respectively.

Mikkelson and Partch (1997) argue that a decrease in ownership concentration due to public float during IPO can cause an increase in agency conflict and worsen long-term market performance. The mean public float IPO in Indonesia (25%) is relatively smaller compared to other countries such as the US (29.4%) (Michel et al., 2014) and the Gulf Cooperation Council (GCC) region (34.5%) (Alanazi & Liu, 2013). This situation causes the absence of predicted relationships. Issuance of warrants results in a further decrease in the concentration of ownership. This resulted in IPO companies with warrants dealing with higher levels of risk and agency problems. The high risk and increase in agency conflict due to the issuance of warrants ultimately resulted in a decline in the long-term market performance of the company. The tendency of most Indonesian issuers is to exercise warrants for a period of one to one and a half years after the date listing. This resulted in the issuance of warrants only affecting CAR12 and not CAR36.

There are two control variables that consistently show significant relationships with CAR. The size of the company are positively related to CAR. This relationship is consistent along the four models utilized. These findings suggest that as the company's assets grow, the greater its operating capacity, leading to higher corporate performance. The negative relationship between proceeds and CAR occurs in all models. This shows the trend that IPOs with high proceeds may not be accompanied by adequate management of IPO proceeds. This condition leads to worsening long-term performance of the company.

4.4. Robustness check on relationship between public float and initial returns

Table 6 shows the results of quantified regression on initial

Table 6
Quantile regressions result for initial returns.

DV = IR	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
Constant	84.12	114.82	179.82***	153.63**	179.84**	277.55***	346.86***	300.85*	−7.77
	(0.74)	(1.32)	(2.68)	(2.12)	(2.09)	(2.72)	(2.98)	(1.88)	(-0.04)
PFL	0.19	0.12	0.25	0.44**	0.45**	0.57**	0.56	0.20	1.08*
	(0.69)	(0.55)	(1.13)	(2.16)	(2.28)	(2.22)	(1.44)	(0.35)	(1.73)
LNAGE	−0.64	−2.49	−1.17	−1.57	−0.32	−1.66	1.19	0.72	0.82
	(-0.13)	(-0.96)	(-0.55)	(-0.81)	(-0.14)	(-0.49)	(0.23)	(0.10)	(0.09)
LNTAS	0.24	2.00	1.55	4.03	6.17**	5.82*	2.54	11.65**	13.22*
	(0.07)	(0.76)	(0.56)	(1.44)	(2.30)	(1.95)	(0.59)	(2.22)	(1.88)
LNPROC	−2.44	−4.69	−6.33*	−8.07***	−10.24***	−13.10***	−12.44***	−17.72***	−8.52
	(-0.49)	(-1.33)	(-1.82)	(-2.84)	(-3.26)	-(3.65)	(-2.84)	(-3.32)	(-0.93)
UWREP	−0.07	−0.03	0.00	−0.06	0.04	0.02	−0.31	−0.47	−1.07
	(-0.16)	(-0.11)	(0.01)	(-0.20)	(0.13)	(0.04)	(-0.61)	(-0.71)	(-1.33)
INF	−4.39*	−3.21***	−2.34**	−2.76***	−2.94***	−3.95***	−2.45	−2.52	−1.57
	-(1.94)	-(2.78)	(-3.21)	(-3.52)	(-2.87)	(-2.66)	(-1.22)	(-1.23)	-(0.69)
EG	−1.90	−4.22	−6.82**	−5.71	−10.20**	−10.09*	−10.13	−17.36**	−14.98
	(-0.30)	(-1.11)	(-2.04)	(-1.48)	(-2.27)	(-1.84)	(-1.43)	(-2.33)	(-1.39)

Source: SAS output.
Notes: Table 6 reports the results from quantile regressions of initial returns during period 2009-2014. The dependent variable is public float. Control variables are company age, size, proceeds, underwriter reputation, 1 year lag of inflation, and 1 year lag of economic growth T-statistics are in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels, respectively.

returns with the main variable public float. The test shows positive relationships between public float and initial returns in 40th to 60th and 90th quantiles. The strength of the relationship between the two variables increases with the increase of quantile. The results of quantile regressions indicate that the higher public float the higher the investor perception of investment risk, which in turn encourages issuers to be more underpriced their shares.

Table 7 shows that the relationship between warrant offerings and initial returns occurs between 30th and 90th quantiles. The regression coefficient increases along the quantile, so do the level of significance. Correlation analysis which shows a negative correlation between initial return and the proceeds and reputation of the underwriter shows that the tendency for issuing warrants is carried out by issuers with a high level of risk. This results in a tendency to increase the warrants coefficient between 30th and 90th quantiles. Table 7 also shows that the use of warrant offerings to control public float, confirms the mediating effect of warrants. There is a decrease in coefficient public float between 40th and 50th quantiles. At higher quantiles (60th and 90th), the public float coefficient becomes even insignificant. Under this condition, warrants then become the only risk proxy relevant to investors. This finding shows that issuers with potential risk and high future cash flow tend to offer warrants. As compensation for the willingness of investors to bear higher risk, the issuer underpriced the IPO shares larger.

The results of quantile regressions analysis on control variables showed similar results with OLS. Only size, proceeds, inflation rate and economic growth rate show significant relationship with initial returns. Nevertheless, economic growth only shows the relationship at the highest level of initial returns (i.e. 80th and 90th quantiles). Proceeds shows a relationship with initial returns between 30th and 90th quantiles, whereas the size shows relationships between 50th and 90th. Unlike other significant variables, the relationship between inflation and initial returns occurs in almost all quantiles except the 10th quantile, with fluctuating regression coefficient values.

5. Conclusion

This study aims to see the relationship between public float,

Table 7
Quantile Regressions Result for Initial Returns with mediation effects.

DV = IR	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
Constant	40.38	90.27	197.04**	202.43***	181.83**	162.10**	291.63***	177.42	183.81
	(0.33)	(1.07)	(2.60)	(2.73)	(2.27)	(1.98)	(2.67)	(1.47)	(1.24)
PFL	0.02	0.12	0.17	0.38*	0.37*	0.30	0.16	0.24	0.16
	(0.06)	(0.49)	(0.79)	(1.80)	(1.78)	(1.34)	(0.55)	(0.65)	(0.32)
DWAR	4.91	2.66	4.25	19.77*	22.46**	22.76**	31.71***	32.84***	27.31***
	(0.27)	(0.27)	(0.43)	(1.96)	(2.28)	(2.30)	(3.10)	(3.85)	(2.79)
LNAGE	0.20	−2.99	−0.61	−1.12	−1.61	−1.12	−2.27	7.05	−1.62
	(0.04)	(-0.91)	(-0.23)	(-0.50)	(-0.68)	(-0.38)	(-0.45)	(1.05)	(-0.19)
LNTAS	1.00	1.77	−0.18	3.01	5.46*	6.77**	3.88	10.24**	14.30***
	(0.29)	(0.67)	(-0.07)	(0.98)	(1.74)	(2.16)	(0.93)	(2.38)	(3.13)
LNPROC	−1.69	−3.87	−5.47*	−8.82**	−10.48***	−11.05***	−12.39***	−12.85***	−14.65**
	(-0.42)	(-1.15)	(-1.76)	(-3.29)	(-4.09)	(-4.12)	(-3.34)	(-2.92)	(-2.55)
UWREP	−0.15	−0.05	0.16	0.22	0.20	0.06	0.17	−0.63	−0.71
	(-0.36)	(-0.14)	(0.48)	(0.67)	(0.62)	(0.17)	(0.33)	(-1.06)	(-1.12)
INF	−4.34*	−2.86*	−2.48**	−2.45***	−2.89***	−3.14**	−2.02	−2.45*	−2.77*
	(-1.74)	(-1.93)	(-2.47)	(-2.85)	(-3.18)	(-2.34)	(-1.16)	(-1.66)	(-1.81)
EG	−1.09	−3.00	−5.51	−6.64*	−5.91	−5.22	−6.26	−15.71**	−20.96***
	(-0.16)	(-0.73)	(-1.46)	(-1.80)	(-1.35)	(-1.01)	(-0.91)	(-2.51)	(-3.05)

Source: SAS output.
Notes: Table 7 reports the results from quantile regressions of initial returns during period 2009-2014. The dependent variables are public float and dummy of warrant offerings. Control variables are company age, size, proceeds, underwriter reputation, 1 year lag of inflation, and 1 year lag of economic growth. T-statistics are in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels, respectively.

warrant offerings and the market performance of IPO shares, both initial and long-term performance. The results show that there is a positive relationship between public float and underpricing. Quantile regressions analysis shows that the positive relationship occurs in the IPO with the middle level of initial return (i.e. 40th to 60th quantiles). This positive relationship shows that Indonesian investors perceive public float as a risk factor. Therefore the higher the risk the higher the expected returns. Testing using mediation models shows that warrant offerings mediate the effect of public float on initial returns. These results indicate that listed companies with high project risk try to reduce agency costs through offering warrants. The potential risks implied by the issuance of warrants are subsequently followed by a higher level of underpricing. Quantile regression analysis shows that the relationship between warrant offerings and initial returns occur between 30th and 90th quantiles. The partial mediation effect of warrants in the relationship between public float and initial returns occurs at 40th and 50th quantiles, while full mediation occurs at the 60th and 90th.

OLS analysis cannot find the relationship between public float and long-term market performance. The proportion of public float IPOs in Indonesia is relatively smaller compared to other countries. This has led to conditions in which the decrease in ownership concentration due to IPOs does not greatly increased agency conflict and, therefore, has no effect on long-term market performance. The relationship between warrants offerings with cumulative abnormal returns cannot be proven. This indicates that the issuance of warrants in Indonesia is carried out as a form of staged financing.

Ownership has different characteristics that allow for different effects on the market performance of IPOs. Some characteristics related to ownership include company ownership by family or by business group. Further research can be directed to analyze public float relationships and market performance of IPOs in family firms, companies incorporated in business groups, as well as companies that are subsidiaries. Results of research that are different from those of previous studies are expected to encourage similar research, especially in emerging capital markets.

In regards to the measurement of long-term market performance, Perera (2014) shows that measurements using the CAR and BHAR methods give rise to the potential of differences in results. There is also the potential for bias in statistical tests on both CAR and BHAR methods that use market indexes as a reference (Barber & Lyon, 1997; Lyon, Barber, & Tsai, 1999). Therefore, further research can be developed using different measurement methods and reference portfolios in calculating long-term market performance.

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