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Book Building vs Fixed Price Revisited: The Case of Indonesia

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ABSTRACT

We revisited the evidence on how IPO methods affect return (opening, close and initial return) and why does return affects the volatility in Indonesia. As one of the emerging countries, Indonesia had a changing regulation regarding the IPO method from the fixed price to the book building method since October 2000. Using a clustering regression analysis method, we find that the opening price and initial price in the book building period are significantly higher than that in the fixed price period. Furthermore, there is no effect of the opening return on the volatility. In contrast, closing return affects the volatility positively, while the relationship between initial return and volatility shows somewhat mixed results.

INTRODUCTION

Initial Public Offerings (IPOs) are showcased and priced in numerous ways around the world. According to Ritter and Welch [1], there are three types of IPO pricing methods used by new issuers around the world, that are auction, fixed-price, and book-building. Prior to 1990, many countries commonly used fixed-price methods. However, Ljungqvist, et al. [2] stated that by July 1999, non-US firm offerings using the book-building method or its hybrids at about 80%. In terms of gathering information and price accuracy, the book-building method is considered superior than other method. The superiority of book building is caused by the ability book building method to accommodate the interests of underwriters, investors and issuers [3].

For its offerings, fixed price method is priced without trying to obtain investor interest, with the majority of price discovery taking place in the secondary market. Book-building, on the other hand, entails roadshows and one-on-one encounters with possible investors, allowing the underwriter to 'discover' investor valuations before determining the offer price [4]. Fixed price method and book building method necessitate leaving money to investors in the form of mispricing (usually is underpricing). In fixed price method, underpricing is required to compensate retail investors that not gain information for the winner's curse they face as informed investors crowd them out of good deals.

Despite the fact that the book building method is used for the majority of IPOs around the world leading by the US, some countries allow for the selection of an IPO method. The choice of an IPO method is permit in countries such as France, Japan, and Taiwan. However, most companies have shifted to book building methods [5-7]. Hanafi [6] believes that this situation provides a one-of-a-kind opportunity to investigate the factor affects return, volatility and underpricing, for example is the effect of IPO method. Furthermore, the Indonesian offers free setting from the endogeneity issues associated with IPO methods and it is important to studying variables affect return, volatility or underpricing. This paper seeks to investigate whether IPO method affect return, volatility or underpricing.

This paper seeks to determine whether the expectations of introducing the book-building method were met, and whether book-building had

a significant impact on the Indonesian IPO market. The following questions will be addressed in the paper: 1) whether there are differences in return (opening return, closing return, and initial return) between two types of IPO methods-fixed price method and book building method; 2) whether opening return, closing return, and initial return affect volatility return in IDX?

Our study has two objectives. Firstly, to test whether there are differences in return on two types of IPO method, and to investigate whether IPO method affects three types of return variables. Secondly, to test whether three types of return variables affect the volatility of returns. Based on our clustering regression analysis, we find that opening and initial return or price is higher in book building than fixed price period. For volatility test, the results shows that opening return has no effect on the volatility of the return on day+1, day+5, and day+30. Closing return affects volatility of the return on day+1, day+5, and day+30 positively. Initial return has no significant effect on day+1 volatility, but affect significant positively to day+5 volatility and day+30 volatility.

Literature Review and Hypothesis Development

The IPO literature is extensive and, for the most part focusing on IPO fashionable facts such as underpricing, long run underperformance, and hot markets. Surprisingly, the IPOs, itself has never become the focus of attention of either researchers or practitioners of finance world. The general focus of IPO research is early returns that newly listed firms' stock prices record [6].

There will always be seemingly ethereal question, why do firms go public? According to the literature, there are three explanations why a firm decides to go public. First, a company's owners can sell a portion of their stock and investment diversity[8]. Second, convenience to access equity capital publicly [2]. Third, Other indirect benefits include increased corporate publicity, improved firm's promotion in products and trademarks[9].

The main challenge of an IPO is determining the value of the issuing company and then determining an offering price that is commensurate with that value. Indeed, degree of uncertainty surrounding the IPO makes the investment risky and volatile; as a result, the return distribution of IPO frequently skewed positively to tail [10,

11]. Pricing decisions and valuations of the firm's potentialities are typically made in the primary market, albeit received relatively little attention.

There are several theoretical explanations that could explain the factors that influence the relationship between IPO volume, return, and market condition. Previous empirical findings suggest a relationship between IPO initial returns and IPO volume. Jamaani and Alidarous [12] has discussed 13 theoretical models to explain the phenomenon of IPO underpricing, including behavioral explanations, institutional explanations, ownership and control system, and information asymmetry. They contended that information asymmetry models are well-established when compared to other model of non-information asymmetry, and the phenomena of underpricing is explained by the existence of asymmetric information in the IPO market. Particularly, Jamaani and Alidarous [12] favored the Entrepreneurial Wealth Losses (EWL) theory developed by [2] to address the issue of information asymmetry between the investor and issuer.

Severini [13] investigate the pricing process in IPO primary market, and emphasizes the parties in an IPO transaction; as a result, this work provides a new perspective of analysis in IPO transaction literature. Her paper provides a comprehensive explanation about Initial Public Offering pricing and the interactions in IPO transaction. The parties in IPO (issuing firms, institutional investor, investment bank), are the subject of analysis in the current paper.

For its offerings, fixed price method is priced without trying to obtain investor interest, with the majority of price discovery taking place in the secondary market. Book-building, on the other hand, entails roadshows and one-on-one encounters with possible investors, allowing the underwriter to 'discover' investor valuations before determining the offer price [4]. The explanation about occurrence of asymmetry information and mispricing in IPO phenomena bring us to formulate the following hypothesis.

Ha: there are differences in return (opening return, closing return, initial return) on two types of IPO method (fixed price method and book building method) or in other word IPO method affects three types of return (opening return-H1, closing return-H2, initial return-H3)

To investigate the evolution of IPO research stream including the methods and clustering effects, we use a structured literature review by using content and bibliometric analysis. We use the following software packages to analyze the bibliometric data: Bibliometrix is a R package that focuses on two main bibliometric techniques: co-citation analysis and bibliographic coupling [14]. The Scopus database's content analysis of 178 reviewed IPO papers using a Boolean function reveals some research clusters. The search spanned from 1989 to 2021 of only English papers sliced into several periods of time (see figure 1. below).

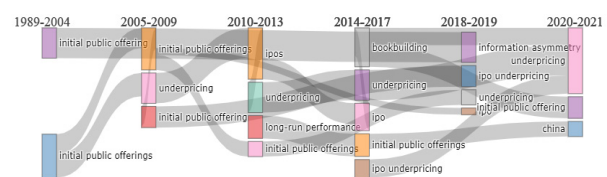


Figure 1. the thematic evolution

The IPO research streams evolution starting from IPO in general in the late 1980s to underpricing in the period starting from early of the 2000s until presents. After 2010, the IPO research started to include other areas in IPO such as underwriters, venture capital, long-run performance, valuation, and book building. However, for the last three years, the research streams are leading towards information asymmetry as well as a country-specific approach such as China (see more detail in network research streams in Figure 2).

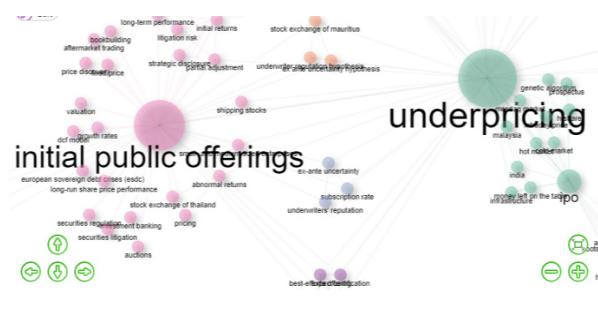


Figure 2. Network of thematic evolution

Furthermore, IPO research has been a popular research stream among the finance society. [1] contributed the most relevant study and received the most citations globally because of its strong connection to the other streams in IPO research with a total citation reaches 2.385. Other notable authors who are also related to Ritter and Welch [1]

and Loughran, et al. [8] from their seminal study published in the Pacific-Basin Finance Journal in June 1994. Other notable authors are [4, 7] who both were producing 3 influential papers related spanned in the period of 1989-2021.

Clustering in IPO market

There are some reservations about the effects of using panel data sets and how the researchers addressed potential biases in the standard errors. Petersen [15] examined the various methods used in the literature and explains when the various methods produce the same (and correct) standard errors and when they diverge. Cameron and Miller [16] consider clustered regression in statistical inference data. They also say that default standard errors can overstate estimator precision, and if the number of clusters is large, statistical inference after OLS should be based on cluster-robust standard errors.

According to Jamaani and Alidarous [12], IPO clustering effect is of concern to some researchers, including the failure to account for clustered error terms in the data lead to bias in their findings [17-20]; finance data can be clustered by one-way clustering (years, industries, and countries) [12, 21]; effect of year clustering on the development of information asymmetry [12, 22, 23]; clustering issue in IPO data is very distinct as it also develops in two-way clustering [17-20] within a particular industry in a particular year [21, 22]. Furthermore, the IPO clustering literature consensually cautions that failure to account for the impact of clustering results in biased standard errors and hence biased statistical results [16, 20].

RESEARCH METHODS

To answer the research questions of this study, we collect data on the Indonesia Stock Exchange from 1990 to 2020, OSIRIS database in Universitas Gadjah Mada and Yahoo Finance. The research question from this study is whether there are differences in return (opening return, closing return, and initial return) on two types of IPO Method (fixed price and book building), and whether opening return, closing return, and initial return affect volatility return. First, we collect company accounting data based on IPO Date from 1990 to 2020 and acquired 890 firms. The final sample

used in this study was 427 firms. The decrease in the sample size used is due to incomplete data on each variable. The data in this study include offer, open, and closing prices, IPO value in Rupiah, outstanding share, IPO Year, industry type, ROA, total assets, and price to book value, JCSI (Jakarta Composite Stock Index).

As an illustration of JCSI, industry index and number of IPO, we will present data on the Jakarta Composite Stock Index and its industry index in Figure 4 and Figure 5 present the data about the Number of IPOs in Indonesia Stock Exchange (1990-2020) combine with initial return.

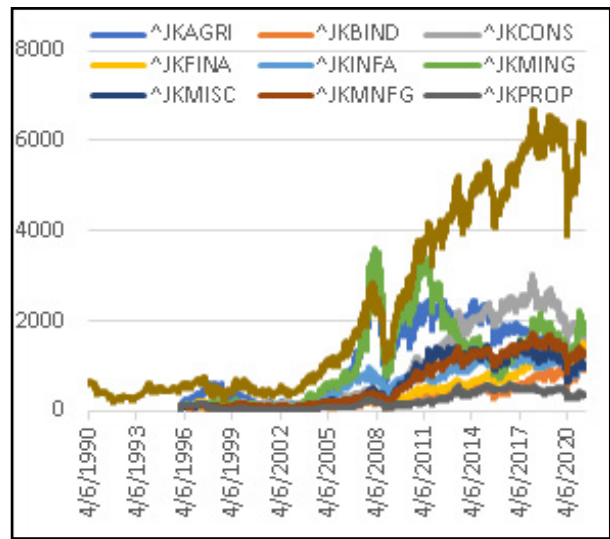


Figure 4. Development of Index

Figure 4 perform the trend of Jakarta Composite Stock Index-JKSE. ^JKAGRI is Agriculture Index; ^JKINFA is Infrastructure, Utility, and Transportation Index; ^JKPROP is Construction, Property, and Real Estate Index; ^JKBIND is Basic Industry and Chemicals Index; ^JKMING is Mining Index; ^JKCONS is Consumer Index; ^JKMISC is Miscellaneous Index; ^JKFINA is Finance Index; ^JKMNFG is Manufacture Index.

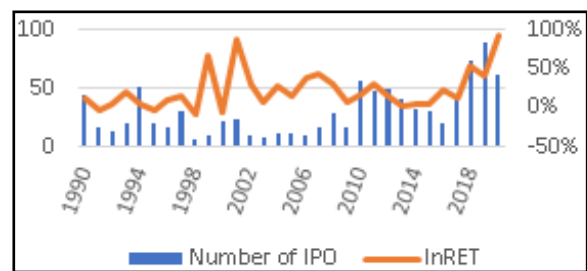


Figure 5. Trend the Number of IPOs in IDX (1990-2020) combine with initial return.

The variables used in this research consist of opening return, closing return, initial return, IPO method, IPO Value, IPO Percentage, market volatility, market return, ROA, total asset, and PBV. The definition and measurement of each variable adopts variable definition in Hanafi [6]. The Definition of variable is summarized in Table 1. Descriptive statistics is summarized in Table 2 and Table 3.

Table 1. Definition of Variables

Variable	Definition
Opening return (%)	The difference of opening price and offering price, scale to offering Price, x 100%
Closing return (%)	The difference of closing price and opening price, scale to opening Price, x 100%
Initial Return (%)	The difference of closing price and offering price, scale to offering Price, x 100%
IPO Method	Dummy of IPO Method, 0 for fixed price (IPO before October 27, 2000, and 1 otherwise (book building)
After market Volatility	Natural logarithm from highest price at day t scale to lowest price at day t (Parkinson, 1980). Volatility day+1, day+5, day+30, calculate using daily volatility average from day+1, day+5, day+30.
IPO value	The size of IPO in Rupiah
IPO percentage	Number of offering shares in IPO scale to outstanding shares
PBV	Offering price to book value ratio in year of IPO
Total Asset	Ln total asset in year of IPO
Market return	$(JCSIt - JCSI(t-1)) / (JCSI(t-1))$

Next, to test the hypothesis IPO method affect opening return (H1), closing return (H2), and initial return (H3) and there is difference in opening return, closing return, and initial return on two types of IPO Method (fixed price and book building) we use regression with clustering effect and independent t-test. This paper use cluster based on year clustering, sector clustering and combining year-sector clustering. The regression model is expressed in equation as follow.

$$IPORET = \alpha_0 + \alpha_1 D_IPOMethod + \lambda Control + \epsilon \quad (1)$$

Where:

IPORET : Return in IPO, consist of opening return, closing return, and initial return

D_IPOMethod : Dummy of IPO Method, 0 for fixed price, and 1 book building
Control : control variables consist of Ln IPO value, IPO percentage, Ln total asset, market return.

To test the hypothesis the effect of opening return, closing return, initial return to after market volatility (day +1, day +5, day +30) we use firms that conduct IPOs with book building method. To estimate the association, regression with clustering effect (year, sector, and year-sector combination) is used. The regression model as follow.

$$Vol(1,5,30) = \alpha_0 + \alpha_1 OpRET + \alpha_2 ClosRET + \lambda Control + \epsilon \quad (2)$$

Where:

Vol (1,5,30) is volatility return at day +1, day +1 to +5, and day +1 to +30. OpRET is opening return. ClosRET is closing return. InRET is initial return. Control is control variables consist of Ln IPO value, IPO percentage, Ln total asset, market return.

RESULTS AND DISCUSSION

IPO Methods and Return Variable

Table 2 shows the mean of offering price, closing price, opening price, ROA, total asset in Rupiah, IPO value in Rupiah, IPO percentage to the outstanding share, market return, and PBV. There is a significant difference between fixed priced method and book building method in value of Offering price, closing price, opening price, ROA, IPO value, market return and PBV. Opening price, closing price, and initial price in book building method are lower than fixed price method. No significant different between fixed price and book building method in total asset and IPO percentage to outstanding share. The total asset is higher in book building method than fixed price method. No differences in total asset indicate that no differences in firm size. The mean of IPO percentage in fixed price method is 22,85% and 23,7% in book building method. Refer to [6] states that this number is typical in Indonesia. This IPO Percentage is comparable with previous research from [6].

Table 2. Descriptive Statistics

Variable	Fixed priced	Book Building	t-value (p-value)
Offering Price	4956.0	652.3	19.91 (<.0001)
Closing Price	5420.2	724.9	17.62 (<.0001)
Opening Price	4322.7	731.4	16.07 (<.0001)
ROA	0.0669	3.5294	-4.13 (<.0001)
Total Asset	5.963E11	1.881E12	-0.92 (0.3606)
IPO Value	1.201E11	4.526E11	-3.90 (0.0001)
IPO Percentage	0.2285	0.2370	-0.46 (0.6459)
Market Return	-0.1511	0.0721	-2.38 (0.0175)
PBV	6.1485	2554.7	-2.30 (0.0221)

Table 3a. Descriptive Statistics of Opening Return

	Opening Return	
	Fixed Price	Book Building
Mean	-0.0879	0.3822
t-value	-2.97 (0.0032)	
Std. Deviation	0.5318	1.7781
Minimum	-0.8750	-0.9524
Maximum	1.3226	23.8750
N	131	296

Table 3b. Descriptive Statistics of Closing Return

	Closing Return	
	Fixed Price	Book Building
Mean	0.7800	0.4309
t-value	1.38 (0.1686)	
Std. Deviation	1.6064	2.6924
Minimum	-0.5648	-0.9317
Maximum	11.0000	43.0000
N	131	296

Table 3c. Descriptive Statistics of Initial Return

	Initial Return	
	Fixed Price	Book Building
Mean	0.0938	0.3252
t-value	-3.89 (0.0001)	
Std. Deviation	0.2177	0.6652
Minimum	-0.7414	-0.9029
Maximum	1.2222	5.8102
N	131	296

Table 3a,b,c shows the opening return, closing return and initial return in both IPO method. Table

3a shows that the mean of opening return in book building method is 38,22%, while the mean of opening return in fixed price method is -8,79%, and the difference from both IPO method is significant. This result indicates that there is association between opening return and IPO method (preliminary support to H1). In Table 3b, the mean of closing return in book building method is 43,09%, while the mean of closing return in fixed price method is 78%, and the difference from both IPO method is not significant. The mean of closing return in book building method tends to be lower than fixed price method. This result indicates that no association between closing price and IPO method (preliminary rejected to H2). Table 3c shows that the mean of initial return in book building method is 32,52%, while the mean of opening return in fixed price method is 9,38%, and the difference from both IPO method is significant. This result indicates that there is association between initial return and IPO method (preliminary support to H3. Standard deviations of opening return, closing return, and initial return are higher in book building method, than fixed priced method. This result indicates that the precision in book building method is lower, than fixed price method.

Table 4a. The Effect of IPO methods on Opening, Returns with Clustered Regression Effect

Coefficient (p-value)	Dep Var: Opening Return		
	By year	By sector	By year-sector
Intercept	1.2844	1.3627	1.3627
Book	0.1762 (0.0617)	0.1871 (0.0020)	0.1871 (0.0004)
Ln IPO Value	-0.0625 (0.0053)	-0.0664 (<.0001)	-0.0664 (<.0001)
IPO Percentage	1.5665 (0.0001)	1.5816 (0.0007)	1.5816 (<.0001)
Ln Total Asset	0.0021 (0.7832)	0.0026 (0.5416)	0.0026 (0.6259)
Market Return	1.5831 (<.0001)	1.5753 (<.0001)	1.5753 (<.0001)
R-square	0.9076	0.8928	0.8928
F (p-value)	69.02 (<.0001)	89.96 (<.0001)	56.04 (<.0001)
N	427	427	427
Number of Clusters	31	13	198

Table 4b. The Effect of IPO methods on Closing Returns with Clustered Regression Effect

Coefficient (p-value)	Dep Var: Closing Return		
	By year	By sector	By year-sector
Intercept	1.4787	1.5428	1.5428
Book	0.1697 (0.6951)	0.1738 (0.5288)	0.1738 (0.6052)
Ln IPO Value	-0.1214 (0.0457)	-0.1232 (0.0169)	-0.1232 (0.0051)
IPO Percentage	0.8523 (0.1554)	0.8163 (0.0084)	0.8163 (0.1057)
Ln Total Asset	0.0788 (0.0298)	0.0778 (0.0169)	0.0778 (0.0122)
Market Return	-0.6471 (0.0779)	-0.7255 (0.0873)	-0.7255 (0.0977)
R-square	0.0794	0.08220	0.08220
F (p-value)	3.41 (0.0147)	81.39 (<.0001)	7.51 (<.0001)
N	427	427	427
Number of Clusters	31	13	198

Table 4c. The Effect of IPO methods on Initial Returns with Clustered Regression Effect

Coefficient (p-value)	Dep Var: Initial Return		
	By year	By sector	By year-sector
Intercept	1.7197	1.7715	1.7715
Book	0.3001 (0.0026)	0.3069 (<.0001)	0.3069 (<.0001)
Ln IPO Value	-0.0797 (0.0110)	-0.0822 (<.0001)	-0.0822 (<.0001)
IPO Percentage	1.5547 (<.0001)	1.5666 (0.0001)	1.5666 (<.0001)
Ln Total Asset	-0.0003 (0.9675)	-0.0001 (0.9776)	-0.0001 (0.9831)
Market Return	0.0035 (0.8918)	-0.0010 (0.9509)	-0.0010 (0.9594)
R-square	0.2877	0.2924	0.2924
F (p-value)	10.22 (<.0001)	9.41 (0.0008)	13.96 (<.0001)
N	427	427	427
Number of Clusters	31	13	198

Table 4a,b,c show the effect of the IPO method on closing return, opening return, and initial return by including control variables. The control variable is used in this study consist of Ln IPO value, the percentage of IPO, Ln total assets, and market return. Because of clustering effect is a common issue in business and economics, some previous research then classifies IPO clustering by year,

sector, industry, country, and price terms [6, 11, 12, 23]. This paper use clustering effect based on year, sector and combination of year-sector clustering. In this study we use one-way clustering (year, sector) and two-way clustering (the combination of year with sector), the result is present in Table 4.

The results in Table 4a and Table 4c show that after including control variable, the IPO method affect opening return (H1 is supported) and initial return (H3 is supported). This result is consistent with the result in Table 3a and Table 3c. Table 3a and Table 3c shows that there is significant difference in opening return and initial return between book building method and fixed price method. The result in table 3a and Table 3c indicate that IPO method associated with opening return and initial return. Using OLS Regression in Table 4a and Table 4c the result is still consistent. Table 4a, Table 4b, and Table 4c observe the regressions that including clustering effect. After including clustering effect, the result is still consistent and very strong and survive with clustering effect. This result indicates that the effect of IPO method on opening return and initial return not affected by clustering issue. The result also indicates that there are opening and initial return differences in IPO method, the book building method shows higher opening and initial return value than the fixed price method. There is no significant difference in closing return between fixed price method and book building method.

Results (OLS regression) also show consistent conclusions. To ensure that OLS results are not affected by the clustering effect, clustered regression is used and the results are also consistent. This findings are consistent with Busaba and Chang [4] and Hanafi [6], who predict that in phenomena of IPO, the underpricing phenomena is lower in fixed price method than book building method.

Return in Book-building Method and Volatility

Table 5 presents descriptive statistics of dependent and independent variables used in volatility clustered regressions. Descriptive statistics are calculated based on 271 firms used in Volatility day +1, Volatility day +5 and Volatility day +30 regressions for all variables. The average of opening return, closing return, and initial return are 33.72%, 25.89%, 31.47% respectively. The average of market return is 0.0488, ROA is 3.7366. The average of IPO percentage from outstanding share is 0.2348. For

volatility in day +1, day+5 and day +30 are 19%, 10%, and 5% respectively. This result indicates that on the day around the IPO there is price volatility that reached 19% for day +1.

Table 5. Descriptive Statistic in volatility test

Variable	Means	Std. Dev	Min.	Max.
Opening Return	0.3372	1.6525	-0.8942	23.8750
Closing Return	0.2589	0.9922	-0.9316	10.2222
Initial Return	0.3147	0.6780	-0.9028	5.8101
Market Return	0.0488	0.9314	-0.9108	13.6323
ROA	3.7366	9.8482	-77.8100	30.9700
Ln IPO	25.8674	1.5034	20.5671	30.1368
IPO Percentage	0.2348	0.2090	0.0004	3.0141
Ln Total Asset	21.9839	4.3783	11.0064	33.1658
Volatility day 1	0.1907	0.1330	0.0071	0.8183
Volatility day 5	0.1004	0.0609	0.0151	0.3728
Volatility day 30	0.0568	0.0335	0.0064	0.1689

Table 6a. The Effect of Three Returns Variable to Volatility using Clustered Regression

	Dep Var: Volatility1		
	By year	By sector	By year-sector
Intercept	0.4310	0.4310	0.4310
Opening Return	-0.0328 (0.1198)	-0.0328 (0.4630)	-0.0328 (0.2972)
Closing Return	0.0400 (0.0240)	0.0400 ($<.0001$)	0.0400 (0.0028)
Initial Return	0.0213 (0.4621)	0.0213 (0.6128)	0.0213 (0.4950)
Market Return	0.0535 (0.1093)	0.0535 (0.4688)	0.0535 (0.3056)
ROA	0.0005 (0.1707)	0.0005 (0.5043)	0.0005 (0.4007)
Ln IPO Value	-0.0076 (0.2086)	-0.0076 (0.2618)	-0.0076 (0.1609)
IPO Percentage	0.0235 (0.4568)	0.0235 (0.6498)	0.0235 (0.5171)
Ln Total Asset	-0.0026 (0.2174)	-0.0026 (0.2427)	-0.0026 (0.1651)
R-square	0.1153	0.1153	0.1153
F (p-value)	16.86 ($<.0001$)	16.94 ($<.0001$)	4.00 (0.0003)
N	271	271	271
Number of Clusters	21	13	133

Table 6b. The Effect of Three Returns Variable to Volatility using Clustered Regression

	Dep Var: Volatility5		
	By year	By sector	By year-sector
Intercept	0.2462	0.2462	0.2462
Opening Return	-0.0174 (0.1620)	-0.0174 (0.1939)	-0.0174 (0.1667)
Closing Return	0.0093 (0.0357)	0.0093 (0.0039)	0.0093 (0.0112)
Initial Return	0.0294 (0.0021)	0.0294 (0.0456)	0.0294 (0.0155)
Market Return	0.0293 (0.1602)	0.0293 (0.2078)	0.0293 (0.1650)
ROA	-0.0008 (0.0720)	-0.0008 (0.1653)	-0.0008 (0.0894)
Ln IPO Value	-0.0038 (0.1691)	-0.0038 (0.0904)	-0.0038 (0.0890)
IPO Percentage	-0.0226 (0.4250)	-0.0226 (0.2618)	-0.0226 (0.3595)
Ln Total Asset	-0.0020 (0.0821)	-0.0020 (0.0225)	-0.0020 (0.0379)
R-square	0.1335	0.1335	0.1335
F (p-value)	7.95 ($<.0001$)	23.14 ($<.0001$)	5.74 ($<.0001$)
N	271	271	271
Number of Clusters	21	13	133

Table 6c. The Effect of Three Returns Variable to Volatility using Clustered Regression

	Dep Var: Volatility30		
	By year	By sector	By year-sector
Intercept	0.1504	0.1504	0.1504
Opening Return	-0.0124 (0.0084)	-0.0124 (0.0817)	-0.0124 (0.0840)
Closing Return	0.0041 (0.0157)	0.0041 (0.0196)	0.0041 (0.0294)
Initial Return	0.0216 ($<.0001$)	0.0216 (0.0099)	0.0216 (0.0035)
Market Return	0.0208 (0.0082)	0.0208 (0.0768)	0.0208 (0.0784)
ROA	-0.0005 (0.0023)	-0.0005 (0.0569)	-0.0005 (0.0071)
Ln IPO Value	-0.0029 (0.0456)	-0.0029 (0.0049)	-0.0029 (0.0174)
IPO Percentage	-0.0182 (0.1536)	-0.0182 (0.1420)	-0.0182 (0.1807)
Ln Total Asset	-0.0007 (0.2080)	-0.0007 (0.2085)	-0.0007 (0.1351)
R-square	0.1713	0.1713	0.1713
F (p-value)	47.44 ($<.0001$)	70.61 ($<.0001$)	6.39 ($<.0001$)

	Dep Var: Volatility30		
	By year	By sector	By year-sector
N	271	271	271
Number of Clusters	21	13	133

Based on the results in Table 6a,b,c which including the clustering effect, can be concluded that the opening return has no effect on the volatility of the return on day+1, day+5, and day+30. Closing return affects the volatility of the return on day+1, day+5, and day+30 positively. This result indicates that the differences between the closing price and opening price are the trigger for the change in return volatility. The greater difference between the closing price and opening price makes the volatility of return will be greater too. The initial return has no significant effect on day+1 volatility, but affect significant positively to day+5 volatility and day+30 volatility. This finding indicate that investment bankers tend to make observations in advance and indirectly buying shares on the first day of the IPO. Our result is similar to Hanafi [6] concludes that underpricing has a positive relationship with aftermarket volatility in the book building method.

CONCLUSION

The first purpose of this study is to test whether there are differences in return (opening return, closing return, and initial return) on two types of IPO Method (fixed price and book building) and investigates whether IPO Method affects three types of return variables. The second objective of this study is to test whether three types of return variables (opening return, closing return, and initial return) affect the volatility of returns in day+1, day+5, and day +7. This research performs clustering regression analysis. The clustering effects consist of clustering by year, clustering by sector, and clustering by year-sector combination. The result shows that initial and opening price in book building are significantly higher than fixed price

period. For volatility test, the result shows that the opening return do not affect volatility of the return on day+1, day+5, and day+30. Closing return affects volatility of the return on day+1, day+5, and day+30 positively. Initial return has no significant effect on day+1 volatility, but affect significant positively to day+5 volatility and day+30 volatility.

Various implications are given from this research. To academics, this research expands previous literature on the IPO topics. This study also performs clustering effect in regression, to account the issue clustering effect. It is important to do, not considering clustering effect in regression may lead to bias in standard errors, and lead to bias conclusions [6, 12, 15, 16]. This finding gives implication to policy, that is the need to improve IPO method. This study contributes to give additional insight in IPO method debate, especially book building method and issue superiority in each IPO method.

This paper identify the important areas for future research and antecedents that are yet to be explored to cover the possible causes of the mixed results. Majority of studies conducted in developed market can be further examined in the context of both developing markets. There is also a need for empirical testing for country-specific environments such as micro and macroeconomic conditions, the quality of legal listing regulations, and socio-political factors. As suggested by Hanafi [6], since book building increases problem in agency, future research could investigate the relationship between IPO parties including underwriters, institutional investors, and issuing companies.

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