

New evidence of Lockup Provisions: Effects on IPO Demands

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This study examines the impacts of a mandatory lockup ratio and lockup period, together with voluntary lockup, on the initial public offering (IPO) subscription rate in Malaysia. A sample of 390 IPOs launched from 2000 to 2016 was collected for analysis. The findings show that firms that adopt a lower lockup ratio and a shorter lockup period signal uncertainty about their prospects. Issuers would then show the tendency to underprice to increase investors' intention to subscribe to firms' IPO shares. This study concludes that as long as investors are aware of pertinent information about IPO firms, they should continue participating in the IPO market rather than behaving irrationally. Finally, policymakers could use the findings to improve the existing lockup provisions regulation.

Keywords: lockup ratio, lockup period, IPOs, investor's demand, Asian.

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1. Introduction

This study investigates the impact of lockup provisions on public investors' demand for initial public offerings (IPOs). In developed markets such as the United States (US) and the United Kingdom (UK), post-IPO lockup is a voluntary practice with no minimum requirements on ratio and duration. However, IPO lockup is mandatory in Malaysia, prohibiting firm insiders from selling their entire shareholdings for at least six months post-IPO.

The lockup provisions legally restrict excessive selling by insiders who tend to hold higher proportions of shares compared to public investors. By implementing mandatory lockups, public investors are protected from adverse stock price reactions. Therefore, the mandatory lockup implementation is argued to reduce the adverse effect of information asymmetry between insiders and public shareholders, specifically before IPO launch (Brau, Lambson & McQueen, 2005; Che-Yahya, Abdul-Rahim & Yong, 2014; Mohd-Rashid, Masih, Abdul-Rahim & Che-Yahya, 2018). If this contention is true, mandatory lockup provisions may mitigate the level of information asymmetry.

Based on the agency theory, lockups on pre-IPO shareholders are incorporated to mitigate the information asymmetry problem. However, based on the signalling theory, insiders' commitment to the lockup provision can be asserted to induce investors to invest in firms perceived to have good prospects or reduce the moral hazard problem. This study argues that only high-quality firms prefer to hold higher lockup ratios in order to outweigh the costs after the IPO listing. This argument is supported further by Mehmood, Mohd-Rashid and Amin (2021), who discovered that lock-up ratio provides a signal of quality to investors and that insiders prefer to leave money on the table rather than earn a quick profit on the day of listing. Further, this argument is attributable to investors possessing better information on firms' prospects after listing; thus, they may cash out on an IPO if information asymmetry had driven their subscription to such IPO prior to listing.

Therefore, this study investigates the effects of lockup provisions on IPO subscription. This study contributes to the wider literature related to lockup provisions by leveraging the recent regulatory changes on lockup provisions in Malaysia. Given that the regulations on lockup are different between emerging and developed countries, the impact of lockup provisions on IPO subscription is thus still unclear and underexplored.

Consistently, our results show that the lockup ratio and lockup period are negatively related to investor demand, implying that IPO firms with higher proportions of insider shares and longer lockup periods are less attractive because investors are aware that those firms have less money left on the table. A higher lockup ratio and a longer lockup period are used as a signalling device by big and mature firms, with the firms' insiders pledging not to dump their shares immediately after listing. In addition to the mandatory lockup provisions, IPO firms also voluntarily tighten the lockup provisions, including increasing the lockup ratio beyond the minimum requirements. However, the relationship between voluntary lockup and investor demand turns out to be

insignificant, indicating that the incremental impact of a voluntary lockup is insignificant to explain investor demand.

This study contributes to the literature on investors' demand for IPOs from the IPO lockup provisions perspective. First, this study finds that lockup provisions are a significant determinant of IPO demand. Second, the findings provide additional insight into the signalling theory. In a mandatory lockup environment, an IPO firm could use neither lockup provisions to signal firm quality nor management confidence to boost investors' demand. Third, this study relates the concept of lockup to its role as a commitment device.

The remainder of this paper is organised as follows: Section 2 presents the hypothesis development, while Section 3 describes the sample and model specification. Section 4 presents the findings, and finally, Section 5 concludes the paper.

2. Literature Review and Hypothesis Testing

The lockup agreement is an interesting regulation feature due to the diverse requirements for lockups across countries. Generally, there is no minimum lockup requirement in the US and the UK, with the latter having diverse lockup agreements in the context of the conditions required for the firms. In contrast, the Malaysian market requires firms heading for listing to abide by a mandatory lockup agreement. The emerging markets are mostly characterised with high information asymmetry that is compensated in order to ensure the participation of uninformed investors in a given IPO by discounting the offer price to attract their subscription (Tajuddin, Mohd-Rashid, Khaw & Che-Yahya, 2019). According to a recent study by Mohd-Rashid, Abdul-Rahim, Khaw and Mehmood (2021), commitment is the main reason for firms to hold a higher lockup-ratio. In signalling models, it has been argued that the insiders of firms with high information asymmetry, which can be observed from firm size (small firm), tend to hold low lockup ratios due to their inability to commit to higher ratios. This argument has been supported further by Narang and Paradhan (2021), who found that small firms that are not typically underwritten by prestigious underwriters have high information asymmetry. Consequently, a higher lockup ratio will hurt low-quality firms whose managements are aware that the firms will get caught once transparency increases. These arguments have thus provided an opportunity to test the asymmetric information theory. Thus, it is hypothesized that:

H₁. Lockup ratio is negatively related to investors' demand.

The lockup period may pose several effects on IPO subscription. First, a longer lockup period may shift the demand higher due to less supply. However, some studies (e.g. Grinblatt & Hwang, 1989) have shown that firms use such feature for signalling purposes; firms with better information on their prospects relative to outsiders are usually firms with high information asymmetry, and these firms tend to have shorter lockup periods. This argument is further supported by Mehmood et al. (2001a), who discovered that the lockup period provides a signal

and triggers demand for the IPO. Therefore, small firms with high information asymmetry opt for lockups with shorter periods due to their insider shareholders' preference to exit the market at the earliest opportunity possible. The investment risk imposes a costly outcome to investors, causing issuers to put their money in investors' mouth and the subscription rate during listing to be high.

H₂. Lockup period is negatively related to investors' demand.

Though the lockup provision is mandatory in Malaysia, some firms voluntarily commit to higher lockup ratios. In line with the signalling theory, the voluntary act is meant to signal firms' quality. Similarly, Arthurs, Busenitz, Hoskisson and Johnson (2009) contended that a voluntary lockup ratio signals the quality of an IPO and, as a result, increases IPO demand. A good quality firm has lower risk, and thus low returns, as supported by the risk–return hypothesis. Investors that look for short-term returns would find such IPOs less attractive; hence, a voluntary lockup ratio should be negatively related to investors' demand. However, this study argues that the incremental impact of voluntary lockup ratios may be minimal or even insignificant due to the mandatory lockup provisions implemented in Malaysia. Therefore, it is hypothesized that:

H₃. Voluntary lockup ratio is negatively related to investors' demand.

3. Research Methodology

This study's sample included IPOs listed between 2000 and 2016, yielding a sample size of 390 firms after excluding IPOs with missing information or uncommon IPOs. Data for this study were hand-collected from firms' prospectuses, the Bursa Malaysia website, and the Bloomberg database. The dependent variable is the oversubscription ratio "OSR" rate as an indicator of investor demand, and the three independent variables utilised in this study are: 1) lockup ratio (i.e. the proportion of shares restricted from selling on the day of listing), 2) lockup period (i.e. the length of the restriction period from selling shares), and 3) voluntary lockup (i.e. the proportion of shares voluntarily committed to by insiders not for liquidation). This study applied the multivariate cross-sectional regression model, as follows:

$$OSR_i = \beta_0 + \beta_1 LR_i + \beta_2 LP_i + \beta_3 VLR_i + \beta_4 DBOARD_i + \beta_5 INV.SENTIMENT_i + \beta_6 LNSIZE_i + \beta_7 OPP.COST_i + \beta_8 DCRISIS_i + \beta_9 DIPOVOL_i + \beta_{10} RETAIL_i + \beta_{11} UND.RANKING_i + \varepsilon_i \quad (1)$$

Robustness was tested by assessing the interaction effects of voluntary lockup on investors' demand during a crisis period. This study controlled eight variables: listing board, investor sentiment, offer size, the opportunity cost of funds, crisis period, IPO volume, retail, and underwriter ranking.

Listing board (*DBOARD*) is valued at 1 for the Main Market, which usually consists of large firms. Investor sentiment (*INV.SENTIMENT*) is valued at 1 if a given IPO's initial return is

greater than overall IPO returns for the quarter that the IPO was launched and 0 otherwise, with the assumption that optimistic investors would subscribe for the IPO. Offer size (*LNSIZE*) is based on the number of shares offered, serving to control the demand and supply of the offered size. The opportunity cost of funds (*OPP.COST*) is the length of time spanning from the application to subscribe for the shares until listing, indicating investors' opportunity cost from investing in other securities. Crisis period (*DCRISIS*) refers to the 2008–2009 global financial crisis, which is argued to affect the *OSR* rate negatively; it is valued at 1 if a given IPO was listed during the crisis period and 0 otherwise. IPO volume (*DIPOVOL*) is indicated as 1 for an IPO issued in hot market conditions based on the number of IPOs issued throughout the years. Retail is the percentage of shares issued to individuals considered as uninformed investors, while underwriter ranking (*UND.RANKING*) is based on the number of IPOs underwritten by a particular underwriter. The variables used in this study are defined in Table 1.

The current study also employed quantile regression, as proposed by Tiwari (2013) and Uddin, Ali and Masih (2017), to investigate the effects of independent variables on the various stages of IPO oversubscription. Quantile regression was used for the robustness test and the equations were as followed:

$$Q_{0.2}OSR_i = \beta_{0.2} + \beta_{0.2,1}LR_i + \beta_{0.2,2}LP_i + \beta_{0.2,3}VLR_i + \beta_{0.2,4}DBOARD_i + \beta_{0.2,5}INV.SENTIMENT_i + \beta_{0.2,6}LNSIZE_i + \beta_{0.2,7}OPP.COST_i + \beta_{0.2,8}DCRISIS_i + \beta_{0.2,9}DIPOVOL_i + \beta_{0.2,10}RETAIL_i + \beta_{0.2,11}UND.RANKING_i + \varepsilon_i \quad (2)$$

$$Q_{0.5}OSR_i = \beta_{0.5} + \beta_{0.5,1}LR_i + \beta_{0.5,2}LP_i + \beta_{0.5,3}VLR_i + \beta_{0.5,4}DBOARD_i + \beta_{0.5,5}INV.SENTIMENT_i + \beta_{0.5,6}LNSIZE_i + \beta_{0.5,7}OPP.COST_i + \beta_{0.5,8}DCRISIS_i + \beta_{0.5,9}DIPOVOL_i + \beta_{0.5,10}RETAIL_i + \beta_{0.5,11}UND.RANKING_i + \varepsilon_i \quad (3)$$

$$Q_{0.8}OSR_i = \beta_{0.8} + \beta_{0.8,1}LR_i + \beta_{0.8,2}LP_i + \beta_{0.8,3}VLR_i + \beta_{0.8,4}DBOARD_i + \beta_{0.8,5}INV.SENTIMENT_i + \beta_{0.8,6}LNSIZE_i + \beta_{0.8,7}OPP.COST_i + \beta_{0.8,8}DCRISIS_i + \beta_{0.8,9}DIPOVOL_i + \beta_{0.8,10}RETAIL_i + \beta_{0.8,11}UND.RANKING_i + \varepsilon_i \quad (4)$$

Table 1
Variables Definition

Variables	Definitions
<i>OSR</i>	Number of times the IPOs are undersubscribed or oversubscribed
<i>LR</i>	Percentage of shares that major shareholders are prohibited to transfer or sell during the lockup period
<i>LP</i>	Equal to 1 for a six-month lockup period and 0 for a one-year lockup period.
<i>VLR</i>	Percentage of voluntary lockup (over and above the requirements)
<i>DBOARD</i>	Equal to 1 if the IPO is listed on the main market and 0 otherwise
<i>DIPOVO</i>	Take the value of 1 if the IPO is listed during the hot market condition, indicated by the number of IPOs listed throughout the years (2000-2016) and 0 otherwise.

<i>INV.SENTIMENT</i>	Take the value of 1 if the initial return of the IPO is greater than average return of a particular quarter
<i>LNSIZE</i>	The issuance size (number of shares issued x offer price) in natural logarithm.
<i>OPP.COST</i>	Number of days between the IPO's application date and listing date
<i>DCRISIS</i>	Equal to 1 if an IPO listed in 2008 and 2009, 0 otherwise.
<i>RETAIL</i>	Percentage of shares offered to retail investors over the total number of shares issued
<i>UND. RANKING</i>	Numbers of IPOs underwritten throughout the years

Sources: Che-Yahya et al. (2014); Mehmood et al. (2021b); Ong et al. (2020); Mohd-Rashid et al. (2014); Tajuddin et al. (2015)

4. Results and Discussion

Table 2 presents a summary of the descriptive statistics based on quantiles. The highest IPO subscription demand was 264 times, which is lesser than the 315 times reported by Tajuddin et al. (2019), and the lowest was 0.11 times. The large difference between high and low demand highlights the motivations of this study. The average lockup ratio 53% which is comparable to Mohd-Rashid et al. (2021), indicating insiders' tendency to hold higher lockup ratios than required. The lockup ratios were large even after the minimum lockup requirement of 45% was abolished effective February 2008, except for the MESDAQ firms which continued to maintain a lockup ratio of 45%. About 31% of the sample firms were subjected to a six-month lockup period, and the remaining firms were for one year. The voluntary lockup ratios were as high as 38%, indicating the firms' commitment due to signalling reasons.

Table 2
Descriptive Statistics

	Mean	Maximum	Minimum	25th	50th	75th
OSR	31.12	264.42	0.11	6.71	18.03	40.66
LR	53.46	83.53	0.38	50.02	55.00	63.71
LP	0.31	1.00	0.00	0.00	0.00	1.00
VLR	7.26	38.53	0.00	0.00	4.81	12.61
DBOARD	0.61	1.00	0.00	0.00	1.00	1.00
DIPOVOL	0.55	1.00	0.00	0.00	1.00	1.00
INV.SENTIMENT	0.43	1.00	0.00	0.00	0.00	1.00
LNSIZE	17.09	23.25	14.69	16.31	16.79	17.48
OPP.COST	30.48	86.00	14.00	23.00	28.00	36.25
DCRISIS	0.06	1.00	0.00	0.00	0.00	0.00
RETAIL	20.90	100.00	0.00	9.18	16.66	25.00
UND. RANKING	8.15	33.00	1.00	3.00	6.00	12.25

Source: Author's computation

Panel A of Table 3 shows a comparison of the significant differences between IPOs launched before and after the regulatory changes on lockup provisions in the year 2008. The lockup ratio was higher after a 6-month lockup period for the entire proportion of insider shareholders was introduced for both ACE and Main market in year 2009. Further, no voluntary element was present after the introduction of the entire proportion restriction. Then, Panel B provides a comparison between high- and low-demand groups. Based on the high-demand IPOs, firms that tended to hold a lower lockup ratio, shorter lockup period, and low voluntary lockup were mostly small firms with high risk due to information asymmetry and uncertainty. Thus, it can be argued that attracting uninformed investors require these firms to underprice their IPOs, *ceteris paribus*, high demand is expected.

Table 3
Median difference of IPOs by sub-groups

	OSR	LR	LP	VLR	DBOARD	LNSIZE	RETAIL
Panel A							
Post (N=101)	21	61	0.99	0	0.7	18.05	15
Prior (N=289)	32.92	58	0.06	9.78	0.58	16.74	22.76
Wilcoxon Z- statistics	-2.06***	-5.6***	-	-	-2.21***	-	-
			19.46***	13.21***		8.37***	10.04***
Panel B							
High (N=123)	72.55	50.09	0.88	1.33	0.43	16.66	19.01
Low (N=267)	11	58.34	0.04	9.98	0.69	17.28	21.76
Wilcoxon Z- statistics	-	-	-	-	-4.92***	-	-2.84***
	15.48***	5.35***	16.77***	12.45***		4.97***	

Note: ***, **denote statistical significance at the 1% and 5% levels

The adjusted R^2 value in Table 4 indicates that the independent variables explain 22% of the variation in investor demand. The reported adjusted R^2 value was lower than Tajuddin et al. (2019), who discovered a 5% higher adjusted R^2 value. All the independent variables were found to be negatively significant with investor demand, except for voluntary lockup, which was insignificant. The findings on the effects of lockup ratio and lockup period on demand contradict a prior study by Mohd Rashid et al. (2014), which found a positive relationship between these variables and underpricing. Regardless, the findings are consistent with Brav and Gompers (2003), who argue that firms with uncertainty will underprice their IPOs. The negative coefficients suggest that a low lockup ratio and a shorter lockup period allow insiders to quickly leave bad firms to cushion the impact on the IPO value. Therefore, greater underpricing can be expected to attract investors to subscribe to such IPOs. In contrast, the voluntary lockup ratio was insignificant such that it did not serve any signal. However, the interaction of ($VLR \times DCRISIS$) in model 2 was significant and negative, indicating that firms with a lower lockup ratio would have higher demand during a crisis due to the high risk–high return trade-off. To ensure the robustness of the results in model 1, quantile regression was performed at the 20th,

50th, and 80th quantiles in models 3, 4, 5, and 6. It should be noted that the lockup period was only significant when the *OSR* was in the higher quantiles (i.e. 50th and 80th).

Table 4
Regression Results

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Main variables					
LR	-0.16 (-2.19)**	-0.1 (-2.35)	-0.05 (-1.18)	-0.05 (-0.90)	-0.04 (-0.33)
LP	-16.95 (-3.49)***	-18.53 (-3.72)***	0.07 (-0.02)	-10.16 (-2.58)*	-19.87 (-2.87)***
VLR	-0.09 (-0.34)	-0.05 (-0.19)	-0.03 (-0.21)	-0.36 (-1.84)*	-0.17 (-0.41)
Control variables					
DBOARD	-12.58 (-2.99)***	-13.73 (-3.18)***	-2.03 (-0.83)	-9.62 (-2.27)**	-31.41 (-3.62)***
INV.SENTIMENT	13.10 (3.28)***	12.68 (3.18)***	2.43 (-1.31)	3.89 (-1.4)	8.52 (-1.49)
LNSIZE	-4.84 (-3.72)***	-4.59 (-3.52)***	-0.83 (-1.22)	-1.98 (-2.19)**	-6.45 (-3.71)***
OPPT.COST	-0.52 (-3.22)***	-0.55 (-3.37)***	-0.20 (-2.46)***	-0.33 (-2.99)***	-0.50 (-1.70)*
DCRISIS	-27.45 (-5.15)***	-19.28 (-4.22)***	-7.88 (-2.36)***	-14.40 (-3.35)***	-27.29 (-3.25)***
DIPOVOL	-12.64 (-2.92)***	-13.15 (-3.01)***	-0.84 (-0.41)	-3.85 (-1.26)	-12.13 (-2.48)***
RETAIL	-0.38 (-3.26)***	-0.37 (-3.17)***	0.04 (-0.53)	0.00 (-0.05)	-0.30 (-2.15)**
UND. RANKING	-0.77 (-2.72)***	-0.77 (-2.70)***	-0.24 (-1.63)*	-0.59 (-2.68)*	-0.56 (-1.48)
Moderating variable					
VLR*DCRISIS		-2.11 (-3.64)***			
C	168.59 (6.65)***	167.09 (25.28)***	33.10 (2.56)*	85.48 (4.70)***	222.93 (7.97)***
Adjusted R-squared	0.22	0.22	0.04	0.06	0.17
Pseudo R-squared			0.06	0.09	0.19
F-statistic	10.90	10.27			
Durbin-Watson stat	1.40	1.40			

Notes: ***, **, *denote statistical significance at the 1%, 5% and 10% levels. The t-statistics reported in parentheses are based on White heteroskedasticity-consistent standard errors.

5. Conclusions

The debate on lockup provisions in the context of underpricing issues continues to produce mixed results. Therefore, this study aimed to examine the effects of lockup provisions on the *OSR* rate, which was done by comparing the means between high- and low-demand sub-groups. All variables were found to be significantly different between the two sub-groups. We argue that small and young firms listed in the ACE market are likely to have higher information asymmetry due to short operating history and establishment; these firms are highly likely to fail. Furthermore, lockup ratio, lockup period, and voluntary lockup were found to be negatively associated with investor demand, whereby firms associated with high information asymmetry tended to have a lower lockup ratio, shorter lockup period, and lower voluntary lockup. Consequently, such firms would reduce their uncertainty by underpricing their offerings consistently to attract demand from investors. This study contributes in several aspects to policymakers, the government, investors, and the literature. First, better governance should be in place for firms in the ACE market due to information asymmetry problem among young firms. The government may consider outweighing the required lockup proportions for firms in the ACE market. Second, retail investors may find it possible to identify the main reason behind promoters' decision to set a higher lockup ratio. Informed investors are usually less likely to be trapped by underpriced IPO issues compared to retailers. Therefore, investors may proactively respond to the underpricing strategies implemented by issuers and underwriters in fixing the price. Finally, this study extends the available literature on how the signals provided by lockup ratios impact investors' demand. It should be noted that these findings were constrained by other determinant variables that could explain IPO oversubscription. Future research may incorporate corporate social responsibility, culture, and macroeconomic variables that may influence an investor's decision to subscribe to an IPO.

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