

Impact of Lock-Up Provision on Two IPO Anomalies in the Immediate Aftermarket

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Abstract: Lock-up provision may extend its role as a signaling tool, albeit its practice is mainly to ensure the commitment of major shareholders to the well-being of IPO companies at least during lock-up period. Despite the mandatory lock-up ratio of 45 percent of outstanding shares, the voluntary action of major shareholders which is revealed through higher locked ratios signals some information about the IPO companies, for instance quality of the issuers. The information signaled through the voluntary action elicits different investors' trading behavior and subsequently performance of IPO in the immediate aftermarket. This paper examines the impact of lock-up provision on two IPO anomalies in the immediate aftermarket; initial return and flipping activity. Employing data of 383 Malaysian IPOs listed from January 2000 to December 2013, multiple regression analysis reveals that lock-up provision (period and ratio) influences flipping activity, more via its committing role instead of signaling role.

Keywords: Lock-up Provision, Initial Return, Flipping Activity, Malaysian IPO Market

JEL Classification: G12, G31

1. Introduction

Over the decades, the IPO anomalies which in most cases have been associated with abnormal returns of the IPOs at the initial days of listing continue to attract widespread attention from theoretical and empirical studies on IPOs (e.g., Bradley and Jordan 2002; Habib and Ljungqvist 2001). The number of studies on such an anomaly using Malaysian data is also quite impressive (e.g., Abdul-Rahaim *et al.* 2012; Mohd-Rashid *et al.* 2014). The wide investigations on IPO initial returns show that the anomaly are explained by various factors including demand, offer size and firm size (Yong and Isa 2003). While the abnormal IPO initial returns and its determining factors have received wide support, another IPO anomaly, the abnormally high trading volume during the first few days of IPO listing, has attracted attention only recently (Che- Yahya and Abdul-Rahim 2015; Ellis 2006). The recent attention on the anomalous trading behavior on the initial listing days suggest that the anomalies of IPOs are not only attributed by anomalous initial returns but also by the anomalous trading volumes. This is in line with a recent finding by Kayani and Amjad (2011) that high initial return and trading volume occur concurrently in the IPO immediate aftermarket. Priory, Ellis (2006) reports that in the United States (US) the trading volume reaches 81.91 percent during the first two trading days.

Similar patterns on the abnormally high trading volume in the first few days of listing are also observed in Malaysian IPO market. As illustrated in Figure 1, the mean trading volume

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of 310 IPOs issued from 2000 to 2012 is the highest on the first trading day compared to the rest of the trading days. Based on the trend, coupled with the recent empirical evidence, this study proposes that in Malaysia, the IPO anomalies are also shaped by the abnormally high trading volume in the immediate aftermarket. More specifically, this study proposes that IPO anomalies in the immediate aftermarket be examined from two perspectives; initial returns and flipping activities. While the IPO initial return is measured by changes in its prices (open price versus offer price), IPO trading volume on the first trading day is reflected by flipping activity (Aggarwal 2003; Ellis 2006; Yong 2010).

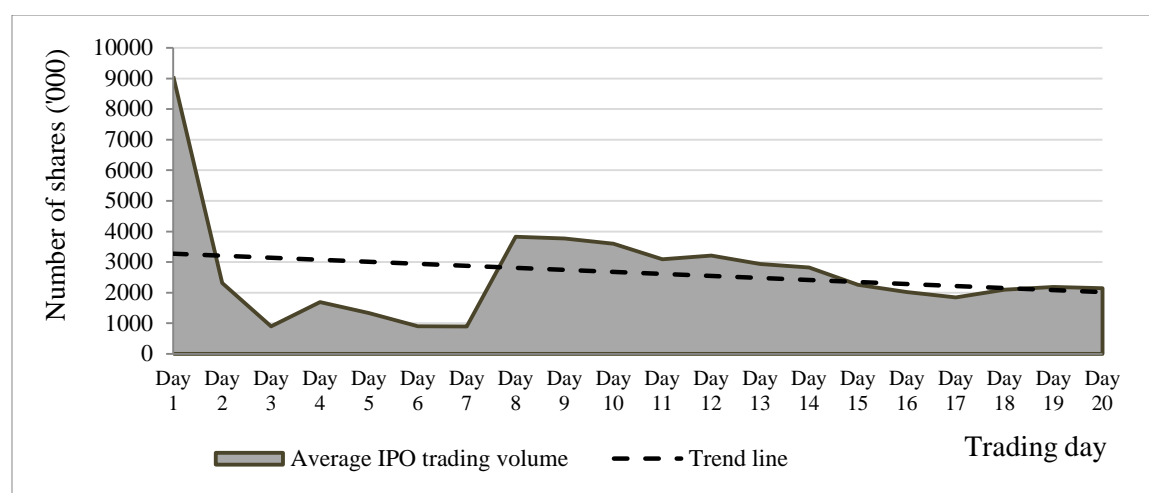


Figure 1: Pattern of IPO trading volume for the first 20 days after listing

Note: Average trading volume is estimated based on the total number of shares traded ('000) on the respective trading day divided by 310 sample IPOs.

Sources: 1) Bursa Malaysia, 2) DataStream Database.

In specific, this study examines the signaling effect of lock-up provision based on its role in explaining IPO initial returns and flipping activities. Formally known in Malaysia as share moratorium, lock-up provision prohibits the sale or disposal of a certain percentage of shares by major shareholders (or promoters in the case of Malaysia) of IPO issuers over a pre-determined length of time. In contrast to the US and UK where lock-up provision is practiced on voluntary basis (Georgen *et al.* 2010), lock-up provision is mandatory for IPO issuers in Malaysia effective 3 May 1999. The Securities Commission (SC, the Malaysian capital market regulator) has set the compulsory lock-up ratio at 45 percent of the total shares outstanding to be held by the major shareholders for at least one year period starting from the commencement of the IPO listing. While some may argue that the mandatory ruling will cause lock-up provision to be irrelevant to investors as it seems to be a norm to all IPOs, the case is different in Malaysia because the affected major shareholders of most IPO companies voluntarily lock more of their shares than they are required to. The preliminary analysis of this study shows these shareholders voluntarily lock-in up to a total of 83 percent of their shares.

In the US and UK, the voluntary action in the practice of lock-up provision carries an important signal. Brau *et al.* (2005) and Arthurs *et al.* (2009) argue that major shareholders of high quality firms are likely to hold more and longer of their shares although they are aware that these decisions cause them to bear higher liquidity cost and to remain less diversified. These two studies argue that lock-up provision serves as a signal of quality of the issuers. Similarly, the present study posits that in Malaysia major shareholders of high quality companies agree to voluntarily lock a larger proportion of their shares to communicate the companies' quality to the potential investors. The communication on quality of the IPO

companies is crucial since the irrational behavior of investors (i.e., avoid bidding for the IPOs and/or flip all new shares that they acquire at the soonest time possible) may lead to adverse outcomes. These include unsuccessful IPOs and loss of faith in company's credibility which jeopardize the companies' chance with seasoned equity offerings. Therefore, the IPO issuers must find effective ways to ensure that they could be fairly evaluated by investors (e.g., explicitly through information reported in prospectus and/or indirectly through the signal conveyed based on the actions of the firm's insiders).

Following signaling hypothesis, this study posits that initial return (flipping activity) is positively (negatively) influenced by the portion and duration of shares that are locked. This is because retaining a large portion of shares will deny the insiders the chance to reap abnormal profits in the early IPO aftermarket. Rationally, these profit-driven shareholders are unlikely to forego the opportunity unless if the benefits of holding the shares of the high quality companies are greater than the costs (Brau *et al.* 2005). Perceiving that a higher portion of shares that are locked during a longer period are a good signal about the company (Liao *et al.* 2011), potential investors will be tempted to request for the shares and eventually, will stay in the companies for a longer term instead of flipping their allocated shares. Such investors' behavior will help to disseminate positive information about the IPO issuers that it will result in a favorable reaction from the other market participants. Specifically, such investors' behavior will increase returns while reduce flipping activity of the IPOs in the immediate aftermarket.

This study enriches the literature on IPO since as far as this study is concerned, nearly none of the past studies have examined the signaling effect of lock-up provision on two dimensional aspects of IPO anomalies. The following section, Section 2, reviews relevant literature. Section 3 describes the data and methodology used in this study. Section 4 presents and discusses the empirical results while Section 5 concludes the findings.

2. Literature Review

2.1 IPO Initial Return

Over the years, underpricing or positive initial return of IPOs has been one of biggest puzzles in finance literature. The literature focuses on the factors that lead to IPO underpricing or initial returns. Among factors found to be significantly related to initial return are firm age (Beatty 1989); offer size (Mohd Rashid *et al.* 2014); shariah-compliant status (Abdul Rahim *et al.* 2012); and market condition (Helwege and Liang 2004). Lock-up provision is another factor that has starting to receive attention in recent years. For instance, Mohan and Chen (2001) and Georgen *et al.* (2006) find no significant relationship between lock-up provision and underpricing although the studies argue that firms with longer lock-up period and higher lock-up ratio possess a higher uncertainty that should lead to a higher underpricing. In contrast, employing IPOs issued in NASDAQ market, Zheng *et al.* (2005) show that lock-up provision is significantly related to initial return.

In Asian markets, Lihui (2011) finds that time lags (lock-up period) influence initial returns positively. The finding is supported by Liao *et al.* (2011) in which firms that lock a larger proportion of their shares during a longer period will produce higher initial return. This could be because of the favorable reaction from the market due to the belief and confidence about the quality and prospects of the firms. In Malaysia IPO market, the only earlier study on IPO lock-up provision (Wan-Hussin 2005) covers the period before lock-up provision become mandatory in May 1999. The study finds that lock-up provision has a positive and significant relationship with underpricing. Overall, studies that examine the impact of lock-up provision on the price-based IPO anomaly particularly the IPO initial return using Malaysian data is still at the early stage.

2.2 IPO Flipping Activity

Flipping activity is one approach used to understand the investors' behavior in the immediate aftermarket. By definition, flipping activity is a sale of IPOs in the first few listing days by the original investors who are allocated the new shares at the offer price (Aggarwal 2003). Our review on previous studies of flipping activity indicate that most evidence are from the UK and US. In the US, the early studies of flipping activity focus more on the role of underwriters in stabilizing the shares' price downturn due to flipping activities. Other studies (e.g., Krigman *et al.* 1999; Bash 2001; Aggarwal 2003; Gounopoulos 2006) in the US focus more on the flipping activity instead of the underwriters. Krigman *et al.* (1999) and Bash (2001) find that institutional investors flip more of overpriced IPOs. Using 617 IPOs from May to June 1998, Aggarwal (2003) finds that more of hot IPOs are flipped by the institutions. Gounopoulos (2006) reports similar results as to that of Krigman *et al.* (1999) and Bash (2001).

In Malaysia, the pioneering studies (Chong *et al.* 2009; Chong 2009) investigate flipping activity from the behavioral aspects. Using 132 IPOs listed on Bursa Malaysia from 1991 to 2003, the studies find that noise effect and disposition effect (both measured by initial returns) have a significant positive relationship with flipping activity. Yong (2010), using 219 IPOs listed from 2004 to 2007, reveals that initial returns and institutions' participation are positively correlated with flipping activity. Another study by Chong *et al.* (2011) finds that representative heuristic is negatively related to flipping activity. Recently, Sapian *et al.* (2012) find that flipping activity of 187 IPOs issued from 2003 to 2008 is significantly related to initial return, institutions and offer size. Abdul Rahim *et al.* (2013), examining 243 IPOs during similar time frame, also find similar results. More recently, Che Yahya *et al.* (2014) offer a support on the significant effect of institutions' participation on flipping activity of Malaysian IPOs. Overall, based on studies of IPO flipping activity, none has exclusively related it to lock-up provision.

2.2 IPO Lock-up Provision

Previous studies that examine the role of lock-up provision in the immediate aftermarket are mostly relying on its mixed roles: signaling and commitment. Some studies find supports for the commitment hypothesis (Mohan and Chen 2001; Brav and Gompers 2003). Mohan and Chen (2001) argue that lock-up period signals level of risk as it is practised based on the request of influential buyers. Similarly, Brav and Gompers (2003) that cover 2,794 U.S IPOs from 1988 to 1996 show that the issuers are likely to commit to a longer lock-up period when the potential for moral hazard is higher. In France and German, Georgen *et al.* (2006) find that lock-up is as a commitment to compensate investors from asymmetric information.

In a later study, Brau *et al.* (2005) question the finding in Mohan and Chen (2001) and Brav and Gompers (2003). They argue that lock-up provision is a signaling quality tool of the issuers since the true value of the new issuers is generally less transparent and hence, insiders must send a signal through a tool that low quality companies would not be able to mimic. Partitioning the sample of 4,013 US IPOs and 3,279 US SEOs between 1988 and 1999, Brau *et al.* (2005) find that lock-up provision (ratio and period) signals the quality of IPO companies, and thus supporting the signaling hypothesis. Arthurs *et al.* (2009), using 640 US IPOs from 1990 to 2005, also find that lock-up period signals the issuers quality. Another recent study by Yung and Zender (2010) re-examines the role of lock-up due to the conflicting findings from Brau *et al.* (2005) and Brav and Gompers (2003). The study, analyzing 4,025 IPOs from 1988 to 2006, posits that IPO issuers suffer both moral hazard problem and information asymmetry. Overall, studies on IPO lock-up provision suggest that lock-up provision is a commitment tool and signaling device although the signal can be in the form of quality, risk, moral hazard or information asymmetry.

3. Data and Methodology

3.1 Sample Size and Procedures

The final sample of IPOs used in this study consist of 383 IPOs listed on Bursa Malaysia from January 2000 to December 2013. January 2000 is selected as the starting period for this study because the mandatory IPO lock-up provision in Malaysian market was made effective on 3 May 1999. The eight months delay (from May 1999 to January 2000) is to allow an ample time for the IPO market players to adjust to this significant amendment in the listing requirement. The sample of 383 IPOs, which represents nearly 75 percent of the total population (Table 1), is finalized after dropping all IPOs issued by financial and insurance companies, rare type IPOs and IPOs with missing value. Data for this study are sourced from prospectuses of the IPO companies, website of Bursa Malaysia and database of DataStream.

3.2 Definition and Measures

3.2.1 Dependent Variable

Two dependent variables are employed in this study: flipping activity and initial return, which will be regressed separately in two different models.

i) Flipping Activity

This study measures flipping activity as the proportion of listing day's trading volume against the total number of shares issued (e.g., Abdul Rahim *et al.* 2013; Yong 2010). The measure is illustrated as follows;

$$FLIP_i = VOL_i / NOSHI_i \quad (1)$$

where,

$$\begin{aligned} VOL_i &= \text{trading volume of the } i\text{th issuer on the first trading day, and} \\ NOSHI_i &= \text{number of shares issued for the } i\text{th issuer at the IPO.} \end{aligned}$$

ii) Initial Return

This study estimates initial return (RETURN) as the percentage change in price, between the opening price on the first listing day and the offer price (Yong and Isa 2003; Yong 2010; 2011), that is;

$$RETURN_i = \left(\frac{P_{OPEN_i} - P_{OFFER_i}}{P_{OFFER_i}} \right) \times 100 \quad (2)$$

where,

$$\begin{aligned} P_{OPEN_i} &= \text{opening price on the first trading day for the } i\text{th issuer, and} \\ P_{OFFER_i} &= \text{offer price for the } i\text{th issuer.} \end{aligned}$$

3.2.2 Control Variables

The examination on the impact of lock-up provision (period and ratio) on flipping activity and initial return is done by controlling for the effect of seven other determinants which have been widely tested and are found to be significant in influencing initial return and flipping activity: IPO offer size (*OFSIZ*) (e.g., Gounopoulos 2006), market condition (IPO market condition (D^{VOL}) and overall stock market condition (*STOMKT*)) (e.g., Aggarwal 2003; Chong *et al.* 2011; Krigman *et al.* 1999), issuer's age (*AGE*) (e.g., Chong *et al.* 2009; Bayley *et al.* 2006), issuer's sector (D^{TECH}) (Sapian *et al.*, 2012), heuristics representation (*HEUREP*) (Bayley *et al.* 2006) and over-subscription ratio (*OSR*) (Yong 2010).

Table 1: Sample Distribution, January 2000 to December 2013

Panel A. Distribution of IPO population and sample by year															
Listing Year	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	Total IPOs
Population	38	20	51	58	72	79	40	26	23	14	29	28	17	17	512
Sample	24	13	34	44	60	60	28	13	16	12	27	25	14	13	383
Percentage	6.26	3.39	8.88	11.49	15.67	15.67	7.31	3.39	4.18	3.13	7.05	6.53	3.66	3.39	100
Panel B. Sample distribution based on technology industry															
Year	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	Total
Sample	24	13	34	44	60	60	28	13	16	12	27	25	14	13	383
Technology	1	0	3	15	19	28	14	2	2	0	4	4	0	0	92
Percentage	1.09	0	3.26	16.3	20.65	30.44	15.22	2.17	2.17	0	4.35	4.35	0	0	100
Panel C. Sample distribution according to listing board and sector															
Industry	Main Market		ACE Market		Total		Percentage (%)								
Technology	7		86		93		24.28								
Consumer product	61		0		61		15.93								
Industrial product	82		24		106		27.68								
Properties	15		0		15		3.92								
Finance and Insurance	0		0		0		0								
Trading and services	51		36		87		22.72								
Construction	11		0		11		2.87								
Plantation	3		2		5		1.31								
IPC and SPAC	5		0		5		1.31								
Total	235		148		383		100								

Notes: The yearly population is based on the list reported on Bursa Malaysia's website, January 2000- December 2013. Percentage in each sample year and each sector is calculated based on 383 IPOs issued during the sample period

Sources: Company prospectus, 2000-2013 and website of Bursa Malaysia.

Offer size (*OFSIZ*) is quantified as the natural log of the total number of shares issued for an IPO multiplied by its offer price ($\text{LN}(\text{NOSH} \times P^{\text{OFFER}})$). IPO Market condition (D^{VOL}) is assessed using a dummy variable that carries a value of 1 if the IPOs are pooled under a group of hot market. A hot market is where the total issuing size of the *i*th year exceeds the mean of the sample issue size. Meanwhile *STOMKT* is measured using the average one week returns of FTSE Bursa Malaysia Emas index. Firm age (*AGE*) is the duration of time that an issuer has been incorporated prior to listing and is measured in years. Industry represents the group in which the IPO issuers belong to in the sector and is measured using dummy technology companies (D^{TECH}). *HEUREP* is measured by the average returns on the opening trading day of the three most recent new issues listed prior to an IPO. Lastly, over subscription ratio (*OSR*) is defined as the number of times that an IPO is demanded.

4. Empirical Results and Discussion

4.1 Preliminary Results

Discussion on the finding starts with the descriptive statistics. As shown in Table 2, the mean flipping activity is 58.53 percent ranging from nil to 99.76 percent. The mean flipping activity shown in this study is slightly higher than the values reported on US IPOs with 45.40 percent (Krigman *et al.* 1999) and 48.10 percent (Bash 2001). The mean flipping activity of 58.53 percent also is higher than the figures during the earlier observation periods on Malaysian IPOs. For instance, the average flipping activity of Malaysian IPOs is only at 24.60 percent (Sapian *et al.* 2012) and 33.86 percent (Abdul Rahim *et al.* 2013) during the period from 2003 to 2008 and the 38.33 percent (Che Yahya *et al.* 2014) during the period from 2000 to 2012. The increasing mean values indicate that flipping activity in Malaysian IPO market experiences an uptrend. Meanwhile, this study finds the mean initial return (offer to open) of 29.23 percent which ranges from a minimum of -68.13 percent to a maximum of 360 percent. The average initial return reported in this study is quite comparable to the figures recorded on Malaysian IPOs during the period from 2003 to 2008 when 27.77 percent, 39.23 percent and 30.10 percent is reported in Yong (2010), Sapian *et al.* (2012) and Abdul Rahim *et al.* (2013), accordingly but very much lower than the figures reported in the 90s such as the 167.4 percent in Yong (1991) and 72.9 percent in Yong (1997).

For explanatory variables, Table 2 reports that the mean lock-up ratio is 48.70 percent which ranges from a minimum of 20.00 percent to a maximum of 82.64 percent. The mean and the maximum figure of lock-up ratio suggests that despite the mandatory requirement of 45.00 percent lock-up ratio particularly during the period from May 1999 to August 2009, there are IPO issuers that voluntarily lock more of their shares than the requirement. For comparison, the mean lock-up ratio in this study appears to be lower than the mean 20.00 percent in Wan-Hussin (2005) found for Malaysian IPOs issued between August 1996 and June 2000; during the period when lock-up provision is still an option to the profit guarantee contract for IPO issuers. In the US, the mean lock-up ratio is reported to be as high as at 83.90 percent (Brav and Gompers, 2003) and 93.40 percent (Brau *et al.* 2004). In terms of the lock-up period, this study finds the average of 322 days, indicating that IPO issuers lock their promoters' shares toward the maximum lock-up period. In the US, the average lock-up period is only 163 days (Brau *et al.* 2005) and 187 days (Field and Hanka 2001). Overall, comparing with those reported in developed markets, the smaller lock-up ratio but rather longer lock-up period are found in the Malaysian IPO market.

Table 2: Descriptive statistics

Basic Variables	Mean	Std. Dev.	Min.	Max.
Flipping activity (%)	58.53	0.36	0	99.76
Initial Return (%)	29.23	0.48	-68.13	360.00
Lock-up ratio (%)	48.70	0.08	20.00	82.64
Lock-up period (days)	322	73.44	180	360
Offer size (units million)	75.44	2.34	2	250
Stock market condition (%)	0.90	0.36	-1.55	107.26
Heuristic representation (%)	27.32	0.35	-84.13	174.24
Company age (years)	4.4	5.80	0	39
Subscription ratio (times)	31.83	49.30	0	377.96

Note: Sample size, n = 383 for the period from January 2000 to December 2013.

Table 3 presents correlations among independent variables which are far below the 0.90 cut-off point (Asteriou and Hall 2007) for any severe threat of multicollinearity. An exception is the 0.720 correlation between DLUPER and LURAT, two parameters of lock-up provision, which indicate the possibility of high correlation between the two main independent variables. Further scrutiny on the two variables using the variance inflation factors (VIF) (see Appendix) shows values that are consistently less than 2.50, which are far below the 10.00 cut-off points (Gujarati, 2003). Thus, the values suggest that there are no issue of multicollinearity between LURAT and DLUPER. In ensuring the reliability of the regression models and results, other diagnostic tests consisting of autocorrelation (Durbin-Watson d statistics), model specification (RAMSEY test) and heteroskedasticity (White's General test) are performed.

Table 3: Pearson Correlation Coefficient

Variables	2	3	4	5	6	7	8	9	10	11
1. FLIP	0.146	-0.031	-0.029	-0.341	0.053	0.031	-0.007	0.121	0.026	0.185
2. RETURN	1	0.128	-0.091	-0.207	-0.048	0.108	-0.021	0.063	0.403	0.438
3. LUPER		1	-0.720	-0.446	-0.389	-0.071	-0.112	0.199	0.157	0.113
4. LURAT			1	0.273	0.265	0.032	0.088	-0.130	-0.211	-0.097
5. OFSIZ				1	0.161	-0.016	0.112	-0.266	-0.022	-0.237
6. IPOMKT					1	0.148	0.033	0.088	-0.045	0.103
7. STOMKT						1	0.002	-0.047	0.100	-0.008
8. AGE							1	-0.123	0.040	0.000
9. DTECH								1	-0.045	0.145
10. HEUREP									1	0.272
11. OSR										1

Notes: Abbreviations FLIP = flipping activity on first trading day; RETURN = initial return (offer to open) on first trading day; DLUPER = lock-up period; LURAT = lockup ratio; OFSIZ = offer size of IPOs; IPOMKT = IPO market condition; STOMKT = overall stock market condition; AGE = company age; DTECH = company sector; HEUREP = Heuristics representation; and the numbers in column headings correspond with the number of variables in row.

4.2 Main Empirical Results

The main results of this study are presented in Table 4 using two model specifications. Model A reports regression result when the IPO anomaly is reflected by initial returns while Model B presents result using flipping activities. To begin with, the two models in Table 4 satisfy all OLS assumptions relating to heteroskedasticity (White's general test) and model specification

(RAMSEY' test). In regards to autocorrelation, the Durbin-Watson d statistics in Model A and Model B record values of less than 2, indicating the potential existence of autocorrelation. Hence, the Newey-West test is employed to correct for the threat of autocorrelation.

Overall, Model A produces an adjusted R-squared of 29.00 percent which is higher than an adjusted R-squared of 16.30 percent in Model B. The two figures indicate that collectively, all explanatory variables tested in this study are able to explain at least the 29.00 percent and 16.30 percent of the variations in IPO initial returns and IPO flipping activities on the opening trading day, accordingly. The F-statistics verify the goodness-of-fits of both of the models are satisfactory ($p < 0.01$). In terms of the factors that have significant coefficient (t-statistics > 1.645) in both models, only IPO offer size and over-subscription ratio are in the list. If only Model A is observed, representation heuristics, stock market and IPO market condition are also included in the list. Meanwhile the main independent variables, lock-up period and lock-up ratio are other significant factors in Model B.

Referring to Table 4, a negative (positive) coefficient sign for lock-up ratio is shown in Model B (Model A). For lock-up period, a negative coefficient sign is found in both models. The result implies that the sign of coefficients for both of the lock-up provision parameters in Model B are consistent to the prediction while, for Model A, only the sign of coefficient for lock-up ratio is in line with the prediction of this study. Recall that in the Introduction section, this study predicts that initial return (flipping activity) is positively (negatively) related with the lock-up portion (LURAT) and lock-up duration (LUPER). The consistency between results and prediction is found only in Model B when LUPER and LURAT are significantly and negatively related to flipping activity at 0.01 level. Meanwhile, this study finds insufficient level of confidence that LURAT in Model A has a significant influence on initial return of Malaysian IPOs on the opening listing day.

To a certain extent, if the indication could be made based only on the sign of coefficient, LUPER and LURAT in Model B while LURAT in Model A seem to signal the quality of IPO issuers, that is consistent to the proposition. However, since LUPER and LURAT have significant impacts only on flipping activity (Model B), this study suggests that the two lock-up parameters work more effectively as a commitment tool and controlling tool for flipping activity instead of as the signaling of quality tool. This suggestion is made consistent to the uniqueness in the practice of lock-up provision in Malaysian market. Specifically, the practice of IPO lock-up period in Malaysia does not seem to deviate from its mandatory requirement. That is, all IPO issuers listed prior to August 2009 commit to the 360 days lock-up period while all IPO issuers listed during the period from September 2009 to December 2013 abide by the 180 days lock-up period. The willingness of the affected shareholders, i.e., those who are required to lock their shares during the longer period, implies a commitment to guarantee the well-being of their companies. The longer the period of lock-up, the longer the time period that the promoters would remain committed to their companies. In that sense, the longer lock-up period serves more like a "product warranty" which ensures that the affected shareholders' interest continues to be aligned with those of other shareholders. In the presence of such warranty, new and unaffected shareholders will be more willing to retain their shares rather than to sell their IPOs immediately upon listing. In short, the results suggest that lock-up period serves more as a security that encourages the willingness of shareholders to remain in the company for a longer term rather than the signal that reflect the confidence of investors on the company which can help to increase the IPO initial returns.

Similarly important is the finding on the negative significant relationship between both of the lock-up parameters and flipping activity which indicates them as effective devices to control flipping activity in the IPO market. Even though lock-up period probably be argued to have less influence in controlling the IPO flipping activity, the restrictive role is pertinent on lock-up ratio.

Table 4: Regression results on the influence of LURAT and LUPER on IPO anomalies

Variables	Model A: RETURN		Model B: FLIP	
	Coefficient	t-statistics	Coefficient	t-statistics
Main Independent Variables				
Lock-up period	-0.001	-0.492	-0.293	-5.486***
Lock-up ratio	0.250	1.076	-0.617	-2.799***
Control Variables				
Offer size	-0.044	-2.438***	-0.121	-10.392***
IPO market condition	0.121	2.077**	0.004	0.094
Stock market condition	0.080	1.875*	0.009	0.237
Dummy technology	0.010	0.178	0.039	0.864
Age	-0.001	-0.787	0.001	0.420
Representation Heuristics	0.426	4.882***	0.014	0.273
Over-subscription ratio	0.003	3.926***	0.000	2.031**
R ²	0.307		0.183	
Adjusted R ²	0.290		0.163	
F-statistics	18.406		9.301	
p-value (F-stats)	0.000***		0.000***	
Durbin-Watson	1.840		1.766	
VIF Range	1.270 - 2.325		1.025- 2.718	
Ramsey TEST:				
F-Test Statistics	0.924		0.751	
p-value	0.336		0.386	

Notes: Sample size (N) =383. Asteriks***, ** and * indicate significant at 1%, 5%, and 10%, respectively. Initial return and flipping activity are estimated on the first trading day.

Specifically, this study suggest that lock-up provision leaves a lesser number of shares for allocation to public investors. Thus, indirectly, lock-up ratio reduces the supply of IPOs that are available for trading activity in the early aftermarket (Garfinkle *et al.* 2002). In short, lock-up period and lock-up ratio is a controlling tool that restricts the availability of the new shares as well as a commitment that provides a warranty to shareholders. As supported in Brav and Gompers (2003), the issuers are likely to commit to a longer lock-up period when the potential for moral hazard is higher.

In regards to the control variables, over-subscription ratio appears to affect both initial return and flipping activity significantly and positively because investors perceive that the highly demanded IPOs as indicating the value of the shares at the early listing days as well as the quality of the issuing companies. Accordingly, investors are more likely join the pool to subscribe for the shares while investors who are allocated successfully with the IPOs are more likely to let go such a good investment to optimize their returns since the “price is right”. The offer size is also found to influence both of the IPO anomalies significantly and negatively. The results suggest that the larger the supply of shares, the more subscription will be fulfilled, and thus, the lesser the demand on the IPOs will be created. The demand-supply theory would

suggest that the lower demand will reduce the pressure on IPO price which then reduces the investors' motivation to flip their shares.

Meanwhile, the positive and significant relationship between IPO market condition and overall stock market condition in Model A appears to be consistent to the proposition that the hot and good IPO market and overall stock market condition is more likely to be characterized with higher investors' optimism and confidence (Helwege and Liang 2004). The optimism will drive the IPO trading price to be higher and hence, increases the initial return. Similar proposition applies for the results of heuristics representation in Model A.

4.3 Further Empirical Results

For robustness, the influence of lock-up period and lock-up ratio on initial return and flipping activity is tested again using alternative measurements. Firstly, this study re-measures the IPO initial return based on the percentage change between the closing price on the first trading day and the offer price ($\text{RETURN}^{\text{CLO}}$) (Yong 1991; Zheng and Li 2008). Secondly, this study re-estimates flipping activity using the measurement that is initiated by this study. Given the unavailability of data on actual flipping activity in Malaysian market, the trading volume-based proxy must recognize the facts that (i) the activity of flipping may not be restricted only to the shares issued at IPO but it can also involve pre-IPO shares, and (ii) the act of selling the IPOs during the first few days of listing might not only involve investors who are allocated with the new shares at IPO (actual flippers) but it can also involve pre-IPO shareholders who are not affected by the mandatory lock-up provision. Therefore, trading volume on the listing day may not be limited only to the total number of shares issued but up to a maximum of total number of shares outstanding. This argument is relevant because the inaccessible of data offer difficulty to differentiate trading activities of pre-IPO shareholders from the subscribers who have acquired the new shares at the IPO. Hence, this study proposes a modification on the estimation of flipping activity. That is, the modified flipping activity (FLIP^{MOD}) is measured as the proportion of first trading day volume against the total number of shares outstanding.

The results as reported in Table 5 display that the overall explanatory power (adjusted R^2) of Model A (10.20 %) and Model B (9.00 %) are lower compared to those reported earlier in Table 4. Despite that, the F-statistics report that both models estimation are acceptable at 1 percent significant level. In terms of the role of controlling variables, all predictors retain their signs and significance similar to those reported in both models of Table 4. Exceptions are for IPO and stock market condition when the two variables loses their significance in Model A. Meanwhile, in regards to the main independent variables, lock-up provision (period and ratio) retain its sign and significance similar to that reported in Model B of Table 4, offering further indication about their roles as commitment tool and restrictive tool for flipping activity. Thus, no further discussion is needed.

5. Conclusion and Recommendation

This study examines the impact of lock-up provision (period and ratio) on the two Malaysian IPO anomalies in the immediate aftermarket: initial return and flipping activity. Using a final sample of 383 IPOs listed in Bursa Malaysia for the period from January 2000 to December 2013, this study contributes to the IPO literature by emphasizing on the role of the two lock-up parameters as signalling of quality tool and their influence on the two anomalies. The finding of this study shows that lock-up period and lock-up ratio are negatively and significantly related to flipping activity. Meanwhile, this study finds insufficient degree of confidence that lock-up

period and lock-up ratio have a significant influence on IPO return on the listing day, although the positive sign for lock-up ratio on initial return is consistent to the prediction. In spite of that, the finding on the negative and significant association between lock-up provision parameters and flipping activity indicates their roles more as a commitment and a controlling tool instead of a signaling of quality tool.

Table 5: Regression results on the influence of LURAT and LUPER on IPO anomalies using alternative measurements of RETURN and FLIP

Variables	Model A: RETURN ^{CLO}		Model B: FLIP ^{MOD}	
	Coefficient	t-statistics	Coefficient	t-statistics
Main Independent Variables				
Lock-up period	0.001	0.790	-0.181	-4.794***
Lock-up ratio	1.095	1.428	-0.569	-4.549***
Control Variables				
Offer size	-0.171	-1.819*	-0.035	-4.891***
IPO market condition	0.096	1.208	0.014	0.669
Stock market condition	-0.099	-1.531	-0.007	-0.365
Dummy technology	-0.044	-0.608	0.007	0.325
Age	6.78E	0.014	-0.000	-0.712
Representation Heuristics	0.531	3.343***	-0.026	-1.108
Over-subscription ratio	0.002	3.498***	0.000	2.066***
R ²	0.123		0.111	
Adjusted R ²	0.102		0.090	
F-statistics	5.853		5.207	
p-value (F-stats)	0.000***		0.000***	
Durbin-Watson	2.047		1.732	
VIF Range	1.247 - 4.546		1.088 - 4.572	
Ramsey TEST:				
F-Test Statistics	0.751		0.580	
p-value	0.254		0.306	

Notes: Sample size (N) =383. Following Asteriou and Hall (2007), an independent variable is considered significant at 90 percent confidence or at t-statistic of 1.645 (a rule of the significance of an indicator at 0.1 percent level). Asterisk ***, ** and * indicate significant at 1%, 5%, and 10%, respectively. Initial return and flipping activity is estimated on the first trading day.

In short, this study offers a preliminary understanding on the role of lock-up provision particularly in Malaysian IPO market. Still, before concrete conclusion on the committing role and restrictive role of lock-up provision can be drawn, more extensive analyses are needed. For suggestion, firstly, future studies may consider to conduct a similar analysis using data on other IPO markets. Secondly, future studies might consider developing a comparative analysis on the role of lock-up provision prior to and during the period of its mandatory practice in Malaysian IPO market. This study proposes that the signalling effect may be more prevalent during the period when lock-up provision has been practiced entirely voluntary compared to the period from May 1999 to the present when lock-up provision has started to be practiced mandatorily. Hence, a significant signalling role of lock-up provision on initial return and flipping activity in Malaysia prior to May 1999 may be established.

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Appendix

Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Lock-up period	1.57E-07	63.36660	2.325416
Lock-up ratio	0.054055	66.80968	1.314627
Offer size	0.000328	374.0142	1.879761
Stock market condition	0.003425	1.357549	1.270405
IPO market condition	0.001858	2.602423	1.326685
Technology	0.003686	1.804986	1.557891
Age	6.37E-06	2.673845	1.568872
Represnetation heuristics	0.007614	2.648571	1.490683
Over-subscription ratio	7.40E-07	2.953209	1.398362