Leverage and IPO Pricing: Evidence from Malaysia

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ABSTRACT

The pricing of IPOs is a challenging task among underwriters as they require resources from firms. Contrary to the non-financial information presented in a prospectus to set an offer price, pre-IPO accounting information could arguably influence IPO offer price. This study aims to investigate the relationship between leverage and IPO offer price. A cross-sectional Ordinary Least Square (OLS) regression was implemented to investigate the relationship between leverage and offer price based on a sample of 129 Malaysian IPOs issued between January 2009 and December 2018. As a result, it was proven that leverage was negatively related to offer prices. Accordingly, it was proposed in the findings that fit, which issued higher leverages prior to IPO listing, often posed high financial risks. Subsequently, underwriters and issuers set a lower price for IPOs to

compensate for a higher degree of information asymmetry among retail investors. Among the implications of this study's findings include investor concerns on accounting information, especially leverage upon determining IPO value and IPO investment.

1.   Introduction

Art or science is the possible pricing of IPOs. From the aspect of science, it involves the use of a quantitative model to determine the approximate worth of organisations. For instance, underwriters employ valuation model (relative or absolute method) to determine the approximate intrinsic value of firms (How et al., 2007; Kim & Ritter, 1999). In terms of the art aspect, underwriters determine offer prices by assessing the market conditions of IPOs and identifying the potential demand for IPO shares. Specifically, underwriters and issuers determine firms' offer prices through the pricing mechanism. In emerging markets, specifically Malaysia, the majority of IPOs are issued through a fixed-price mechanism (Tajuddin, Mohd-Rashid, Abdullah, & Abdul-Rahim, 2015). In this case, underwriters and issuers set the offer price of IPOs without taking the demands of potential investors into account. In this case, potential investors would face challenges in determining the firms' values as they are informed asymmetrically. Nevertheless, the book-building mechanism has been more prevalent since 2002 despite the small number of organisations employing book-building in pricing IPOs. Moreover, the book-building mechanism in Malaysia is adopted in a hybrid form, which comprises a combination of fixed-price and book-building mechanisms. Underwriters employ fixed-price mechanism in IPO pricing and allocation of shares to retail investors. Meanwhile, the IPO issued through book-building incorporates its valuation based on institutional investors. Theoretically, the IPO pricing should reflect its intrinsic value to encourage aftermarket buying and ensure a steady increase in price.

It has been indicated in previous studies that fixed-price IPOs are under-priced as compared to book-built IPOs. In the case of fixed-price IPOs, investors who receive share allocations ought to earn higher initial returns. This perception has become a concern among underwriters. Despite the issuers' attempt of increasing IPO price in order to raise the proceeds from the IPOs, the underwriters are inclined to set a lower IPO price. Subsequently, low IPO price would be more appealing among potential investors, and a full subscription of IPO shares could be guaranteed. Therefore, setting appropriate IPO offer price would be challenging for underwriters and issuers, specifically in fixed-price mechanism

markets where the offer price is determined before investors' demands or opinion on the firms' prospects are acquired. For this reason, diverse opinions are formed among investors towards the organisations' values in the IPO market, resulting in the emergence of information asymmetries issues (Carey, Fang, & Zhang, 2016). The investors attempt to determine the essential factors of IPO pricing as their confinement in "lemon" issue is not a favourable situation (Rock, 1986). With that being said, this article attempts to identify several relevant informative resources in determining IPO offer prices.

It could be seen that prior to the recent Malaysian study, firms' offer prices were determined according to specific public information. Specifically, Mohd-Rashid, Masih, Abdul-Rahim, and Che-Yahya (2018) found that issuers offered their IPOs at discounted prices, provided if the firms were issued by prestigious underwriters and individuals who made high share allocations to institutional investors. Lower IPO prices offered by issuers and underwriters often attracted potential investors to subscribe to shares. Contrary to information which is publicly available in the firms' prospectuses, no study has been conducted on the influence of pre-IPO accounting information on offer prices in the relatively high information asymmetry of the Malaysian IPO market. Therefore, this article attempts to provide further insights from Mohd-Rashid et al.'s (2018) study and findings from the literature about the capital structure of firms, specifically in terms of firms' offer prices.

Other than the study by Mohd-Rashid et al. (2018), previous studies were conducted on the factors of IPO pricing and evaluation. As a result, accounting information (Aggarwal et al., 2009; Cotter, Goyen, & Hegarty, 2005; Lai & Lo, 2012; Sahoo & Rajib, 2012), signalling variables (Keasay & McGuinness, 1991; Leland & Pyle, 1977), and comparable firms of price-earnings (Cotter et al., 2005; How et al., 2007; Kim & Ritter, 1999) were found to be the significant factors. However, no conclusive evidence was found regarding the influence of accounting information on IPO pricing in the Malaysian market. Therefore, it is required for this study to determine the informational role of accounting variables on IPO offer price in the context of the Malaysian market. The Malaysian Accounting Standards Board (MASB) introduced the implementation of the Malaysian Financial Reporting Standards (MFRS) framework, effective 1 January 2012. The framework implementation often enhances the transparency and credibility of financial reports. It could also be said that the prices are determined based on information acquired by underwriters and issuers in the fixed-price regime. For this reason, there may be differences in price valuation based on the accounting information reported in the pro-forma balance sheets of IPO prospectuses.

This paper aims to provide further insights from the existing works of literature by identifying the accounting information incorporated into the pro-forma balance sheets from IPO prospectuses. This information, for example the

information regarding leverage, was not focused in previous studies. Leverage represents the amount of debt raised by firms before IPOs. Provided that debt ratio is the indicator of a firm's leverage, high-leverage firms possess higher uncertainties and financial risk to the market (Sahoo & Rajib, 2012). There is also a high possibility for IPOs to be overpriced. This phenomenon results in the lack of interest among institutional investors to subscribe to IPOs which issue greater debts. Meanwhile, a higher share portion of the high-leveraged IPOs would be allocated to retail investors. To illustrate this point, they might be confined in the "lemon" issue (Beatty & Ritter, 1986; Rock, 1996). Therefore, high-leveraged firms are assumed in this study to be risky. Therefore, issuers and underwriters should determine lower offer prices so that retail investors could achieve high risk-adjusted returns in the aftermarket. However, no studies have been conducted on the relationship between pre-IPO leverage and offer price in the Malaysian market. As the majority of Malaysian IPO prices are determined through fixed-price mechanism which displays higher information asymmetries (Yong, 2015), this study provides further insights on the investigation regarding the degree of the pre-IPO leverage influence on IPO offer price after other related factors are controlled.

The present study found a negative significant coefficient on debt ratio after the estimation of IPO offer price. This finding indicated that underwriters and issuers determined high-leveraged IPOs at lower offer prices, thereby contributing to existing works of literature. To illustrate this point, the explanation of the results was based on information asymmetry theory (Rock, 1986). Provided that the firms issuing greater debts prior to IPO listing posed greater financial risks, high-leverage firms offered negative information to potential investors. In this case, institutional investors prevented the subscription of firms with greater information asymmetry. Therefore, underwriters and issuers placed discounts on IPO offer price to compensate for the higher extent of information asymmetry among retail investors.

This study consists of particular procedures. Section 2 illustrates the works of literature related to pre-IPO leverage and the developed hypothesis. Section 3 presents data, methodology, and the variables used in this study including the model specification. This is followed by Section 4, which provides the results of analyses and discussion. Section 5 presents, the conclusion and implications of this study.

2.   Literature Review

Investors are usually provided with information on IPO offer price. Rock (1986) highlighted that the issue of "lemon" is prevalent in the IPO market as

institutional investors do not attempt to subscribe to IPOs offered with high prices. However, retail investors generally receive the allocation of shares either from firms which provide higher information asymmetries or small firms offered at high prices. Therefore, this article highlights that retail investors should obtain public information from the firms' prospectuses to prevent the issue of "lemon". This is because the investors have a chance of using the information to decide on share subscription. In respect of accounting information, this study could enhance understanding among investors on the informational role of leverage from the firms' prospectuses as a signal device in offer prices before IPO listing. To attract investors into the IPO market, issuers and underwriters should place discounts on offer prices. However, the amount of compensation should be based on the degree of information asymmetry. To avoid the issue of "lemon" among investors, specifically retail investors, this study aims to reduce information asymmetry by identifying the potential signals of leverage in a firm's prospectus to elaborate on its offer price.

To explain the informational role of pre-IPO leverage on offer prices, this article presents several pieces of evidence on the link between pre-IPO leverage and IPO anomalies. Su (2004) reported that IPOs which issued greater debts posed a higher degree of underpricing in the Chinese market. It was implied that highly leveraged-IPOs posed higher financial risks. Therefore, retail investors receive compensation from the exposure to information asymmetry. This finding was supported by studies from Akyol, Cooper, Meoli and Vismara (2014), Chen, Wang, Li, Sun and Tong (2015), and Huang, Chiang, Lin and Lin (2017), who explained that higher leverage could increase the risk of financial distress. Furthermore, although the leverage issue was for capital raising purposes, high-leverage firms could not deliver their superior qualities to the market. Meanwhile Kim, Pukthuanthong-Le and Walker (2007) focused on a sample of high and low technology firms in the U.S. market. As a result, a positive coefficient of pre-IPO leverage was found when underpricing was estimated. This coefficient was due to the volatile operating cash flows of high-technology firms, besides their higher intangible assets (intellectual properties and patents) and low profitability. In this case, it was challenging for issuers to make repayment to debtors on time. Additionally, investors must be compensated due to their exposure to high information asymmetry in high-tech firms. In this regard, based on winner's curse hypothesis, issuers should offer IPOs with low offer prices to compensate for higher information asymmetry on high leveraged IPOs. This assumption is in agreement with studies by Cotter et al. (2005), Lai and Lo (2012), Reber and Vencappa (2016) and Sahoo and Rajib (2012).

Compared to higher pre-IPO leverage which poses a higher extent of information asymmetry, it is arguable that the higher leverage issued by the organisations serves as a better signal to the market. Kim et al. (2007) found a

negative coefficient on pre-IPO leverage in a sample of low-technology U.S. IPOs when underpricing was estimated. This coefficient could be explained through the capital structure signalling theory. Furthermore, firms have a preference for internal to external financing, such as debt, to raise funds for financing growth activities rather than equity financing. This situation is known as pecking-order hypothesis (Myers & Majluf, 1984). This hypothesis indicates that high leverage of firms could provide positive information to potential investors about their value. Therefore, based on the signalling theory, higher leverage issued by firms prior to IPOs often incurred high offer prices due to superior prospects of the firms.

As mentioned earlier, the majority of the prices of Malaysian IPOs are determined by a fixed-price mechanism, indicating that investors' views on firms' prospects are not incorporated in setting the offer price (Tajuddin et al., 2015). A significant presence of information asymmetry on IPOs is implied in the aftermarket (Yong, 2015). Furthermore, leverage is claimed to be the determinant of financial survival (Ahmed Sheikh & Wang, 2011) if high debts are issued by firms prior to IPO listing. As a result, there is a high possibility for firms to face financial distress, indicating their most disadvantageous qualities to the market. Besides, investors would not desire to subscribe to high-risk IPOs. Based on the arguments on pre-IPO leverage, the information asymmetry theory was implemented in this study (Rock, 1986) to assume that underwriters often undervalue high-leveraged Malaysian IPOs. For this reason, issuers tend to set a lower IPO price so that investors are compensated from their exposed information asymmetry. The following is the hypothesis of the present study:

H_1= There is a significant relationship between pre-IPO leverage and offer price.

3.   Methodology

A sample consisting of 168 IPOs listed in Bursa Malaysia from 2009 to 2018 was employed in this study. The year of research, 2009 was selected for the elimination of sub-prime crisis effects to occur. Notably, this crisis occurred in 2008. The contents of the data comprised several variables, such as offer price, pre-IPO accounting data, offer size, underwriter's reputation, and IPO market conditions. All of the data were manually extracted from the organisations' prospectuses.

Prior to hypothesis testing analysis, the present study highlighted the particular criteria for data collection. However, an exception was applied on IPOs with special types of offers, such as restricted offer-of sale to eligible employees

and indigenous (Bumiputra) investors, tender offer, and special issues (Mohd Rashid, Abdul-Rahim, & Yong 2014). Similarly, IPOs from selected industries sectors, namely, finance, real estate investment trusts (REITs), exchange-traded funds (ETF), and special purpose acquisition companies (SPAC) were excluded due to different presentation formats in financial statements. The exclusion of such data resulted in 150 IPOs as the final total sample in this study, which represented 86.31% of the overall IPOs listed from 2009 to 2018. The distribution of the sample of IPOs is illustrated in Table 1.

Table 1. Selection Process of IPOs' Sample from January 2009 to December 2018.

Description	Number of IPOs
Number of IPOs before exclusion	168
(-) Total number of IPOs issued through restricted offer-to-sale, tender offer and special issues	6
(-) Total number of IPOs from finance sector	2
(-) Total number of IPOs from REITs sector	5
(-) Total number of IPOs from ETF sector	3
(-) Total number of IPOs from SPAC sector	6
Total number of Final IPO sample	150

3.1   Dependent Variable and Independent Variable

The dependent variable of this study was the offer price of IPO *(OP)* reported in the prospectus. The offer price of IPO functioned as the reference for potential investors' decision-making on share subscription. It is claimed in this article that firms with high offer prices are generally large companies with higher information asymmetry, while those with low offer prices are usually small companies with lower information asymmetry. In this case, potential investors could perceive the indicator of the firms' qualities in various ways.

In this study, leverage was the main variable which acted as an indicator in setting offer prices. They were obtained from the pro-forma of the firms' balance sheet. In respect of the firms' leverage, debt ratio *(LEVERAGE)* was used in this study. It was measured in the form of short and long-term total liabilities of the firms over the firms' total assets. Sahoo and Rajib (2012) highlighted that leverage acts as a signal device of the firms' financial strength. Underwriters often undervalue firms which obtain higher debts than equity, as high-leverage firms are perceived to have the most disadvantageous qualities. In line with

winner's curse hypothesis, it is suggested that firms with high debt ratio can be identified as high-risk firms. As a solution, issuers and underwriters should set lower offer prices to compensate for the exposure to information asymmetry among retail investors.

3.2   *Control Variables*

In order to capture the influence of leverage on appropriate IPO pricing, six control variables were employed in this study. The first control variable of this study was the return on equity *(ROE)*, which acted as the indicator of the firms' profitability. Given that firms with greater profitabilty represented "good news" to investors, underwriters would determine the high *ROE* of the firms at high offer prices as this feature is regarded as the firms' better qualities, based on signalling theory (Allen & Faulhaber, 1989; Grinblatt & Hwang, 1989; Welch, 1989). The second control variable was the firm's size *(LNOFFSZ)* through the total amount of shares issued. Given the firm's size as a proxy of information asymmetry was justified by Mohd-Rahsid et al. (2018) and Yung and Zender (2010), large and mature firms possessed fewer uncertainties as compared to small and young firms, and hence capable of influencing IPO offer price. Meanwhile, the third control variable was the underwriter's reputation *(UNDWR)*, which was obtained from IPO prospectuses and Bloomberg. This variable was referred to the annual change in underwriters' market shares. Given the prestigious work of underwriters as promoters to attract investors to subscribe IPOs was justified by Mohd-Rashid et al. (2018) whereby the offer price should be priced lower by underwriters to compensate investors for a higher degree of information asymmetry.

The fourth control variable in this study was board types *(BOARD)*, which was computed as a dummy variable. There are two main types of boards on Bursa Malaysia—Main Market and ACE Market. As discussed earlier, Yong (2015) highlighted that IPOs listed in the Main Market possessed lower levels of uncertainties compared to IPOs in the ACE Market. Therefore, underwriters should set a higher offer price for the IPOs listed in the Main Market. The next control variable was the dummy of pricing mechanism *(BOOK)* used in pricing IPOs. Although the majority of Malaysian IPOs was determined through a fixed-price method, it was known in this study that small entities of IPOs were priced through book-building mechanisms, contributing to varied findings with fixed-price IPOs. According to Kutsana and Smith (2004), book-built IPOs possessed fewer uncertainties due to soliciting investors' demands during roadshows. Accordingly, this could reduce information asymmetry among the book-built IPOs and thus influenced the underwriters' decision on setting offer prices

Finally, this study controlled IPO market conditions *(IPOMKT)* when IPO pricing. The market conditions indicated investors' confidence in the stock market performances. The measurement by Kooli and Suret (2004) was adopted, where IPO market conditions was categorised as ''hot'' and ''cold'' markets. Investors had higher optimism and confidence with IPOs issued in the hot market (Helwege & Liang, 2004). Due to its potential for IPO success, the determined offer price is expected to be higher.

3.3   Model Specification

To examine the effect of accounting information on the offer price in the Malaysian market, Ordinary Least Square *(OLS)* regression model was employed in the present study. The cross-sectional regression model is constructed as follows:

$$OP_i = \beta_0 + \beta_1 LEVERAGE_i + \beta_2 ROE_i + \beta_3 LNOFFSZ_i + \beta_4 UNDWR_i + \beta_5 BOARD_i + \beta_6 BOOK_i + \beta_7 IPOMKT_i + \varepsilon_i \qquad (1)$$

A summary of the variables' measurements in Eq. (1) is provided in Table 2.

Table 2. Variables and Measurements

$LEVERAGE_i$	$LEVERAGE_i = \dfrac{\textit{Total Liabilities prior to incorporation of proceeds}}{\textit{Total asset prior to incorporation of proceeds}}$
ROE_i	$ROE_i = \dfrac{\textit{Net Income prior a year of IPO listing}}{\textit{Shareholder equity prior a year of IPO listing}}$
$LNOFFSZ_i$	$LNOFFSZ_i = LN$(Number of shares issued at the IPO x OP)
$UNDWR_i$	The measurement based on Megginson and Weiss (1991) is described in the below formula: $$UNDWR_i = \frac{UNDT_i}{TOTUNDT_i}$$ Where, $UNDT_i$ = Total underwriting amount for *i*th underwriters in the listing year, and $TOTUNDT_i$ = Total underwriting amount in *i*th listing year. Underwriters is considered as prestigious if the amount of proceeds raised by underwriters is greater than the average of the total underwriting amount in the particular year of listing. Thereby, a dummy variable takes a value of one if an IPO was issued by prestigious underwriter.

(continued)

$$UNDWR_i \quad = \left| \begin{array}{l} 1 = IPO \text{ underwritten by prestigious underwriter} \\ 0 = IPO \text{ underwritten by less reputable underwriter} \end{array} \right.$$

$BOARD_i$

$$BOARD_i \quad = \left| \begin{array}{l} 1 = IPO \text{ listed in Main Market} \\ 0 = IPO \text{ listed in ACE Market} \end{array} \right.$$

$BOOK_i$

$$BOOK_i \quad = \left| \begin{array}{l} 1 = IPO \text{ issued by book-building mechanism} \\ 0 = IPO \text{ issued by fixed-price mechanism} \end{array} \right.$$

$IPOMKT_i$ IPOs are listed in hot market when the sum of the IPO offers exceeds the average of the sample issue size of the year listing. Henceforth, a dummy variable takes a value of one if an IPO was issued in hot market.

$$IPOMKT_i \quad = \left| \begin{array}{l} 1 = IPO \text{ listed in the hot market} \\ 0 = IPO \text{ listed in the cold market} \end{array} \right.$$

4.   Analysis of Results

Prior to further empirical analysis, data cleansing process was conducted to eliminate outliers in the IPO samples. Accordingly, 129 Malaysian IPOs were present for further empirical analysis. Table 3 presents the results of descriptive statistics on variables.

Table 3. Descriptive Statistics

Variable	Mean	Median	Min	Max	s.d
Offer price (RM)	0.963	0.680	0.120	6.500	0.901
Debt ratio	0.443	0.456	172.6	0.833	0.199
Return on equity (percent)	27.068	24.824	3.297	89.187	14.596
Proceeds (RM million)	302	43.750	7.321	6370	833

Note: IPO sample size (N) = 129, starting from January 2009 to December 2018. Min= Minimum value; Maximum= Maximum value; s.d= Standard deviation.

It was found that the average IPO offer price was RM 0.96, with a standard deviation of RM 0.90. Therefore, a high dispersion in offer prices was indicated. Based on the report by Mohd-Rashid et al. (2018) from 2000 to 2014, the average value of IPO offer price was lower than the RM0.96. Abdul-Rahim and Che-Embi (2013) reported that this value was lower than RM1.11

from 1999 to 2008. Notably, the maximum value for offer price amounted to RM6.50, as shown by Lotte Chemical Titan Holdings Berhad listed in 2017. Conversely, Pasukhas Group Berhad listed in 2012 reported that the minimum value for offer price amounted to RM 0.12. In respect of explanatory variable, it was found in this study that an organisation named Cypark Resources Berhad listed in 2010 issued the highest debt ratio at 0.833. Meanwhile, the lowest debt ratio at 172.6 was found in this study, represented by EA Holdings Berhad listed in 2010. Furthermore, the average debt ratio amounted to 0.443, indicating that approximately 44.48 per cent of total assets were used for financing prior to IPO listing. The average value of debt ratio was slightly higher than 0.416 according to Rashid, Ibrahim, Othman, and See (2012) from 2004 to 2008. Meanwhile, 0.412 of debt ratio was found by Tajuddin, Abdullah, and Taufil-Mohd (2016) from 2005 to 2014. Nevertheless, the average debt ratio reported in this study was 0.51 lower, as reported by Ammer and Ahmad-Zaluki (2016) from 2002 to 2014 in the Malaysian IPO market.

In respect of control variables, it was found that the average value for return on equity was 27.07 per cent, indicating that firms were capable of using their assets to generate profits at an average of 27.07 per cent to shareholders. Furthermore, the return on equity was at its minimum value of 3.30 per cent, while its maximum value amounted to 89.19 per cent. There was an average value of RM 302 million for the IPO proceeds, as reflected by the total amount raised by firms for IPOs in ringgit Malaysia. This value included the highest proceeds of RM 6370 million and the lowest proceeds of RM 7.321 million. Notably, this average figure was higher than the figure reported by Mohd-Rashid et al. (2014) from 2000 to 2012. It was also higher than the figure reported by Abdul-Rahim and Che-Embi (2013) from 1999 to 2008 for the Malaysian IPO market.

Table 4 illustrates the correlation matrix of all variables. Based on the table, it was found that most of the variables possessed a correlation lower than 0.7, with four pairs of the relationship as exceptions. The four relationship pairs included *OP* and *LNOFFSZ*, *OP* and *BOOK*, *LNOFFSZ* and *BOOK*, and *LNOFFSZ* and *IPOMKT*, which presented positive coefficients of: 0.807, 0.706, 0.804, and 0.706, respectively. The occurrence of high coefficients indicated possible strong correlation between the two variables. Further analysis was conducted on the two variables using VIF (variance inflation factors) prior to regression analysis. The result showed that the VIF values for these variables were constantly lower than 9.52. This was a value below the 10.00 cut-off point (Gujarati, 2003; Hair, Black, Babin, & Anderson, 2010). This value indicated the absence of multicollinearity issue in these variables. To ensure the reliability of the regression models and their results, diagnostic tests, such as the identification of autocorrelation issue (Durbin-Watson test) and heteroskedasticity test (White's test) was performed to validate OLS assumptions.

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Table 4. Pearson's Correlation Matrix Results between Variables.

	OP	1.	2.	3.	4.	5.	6.
1. LEVERAGE	-0.090						
2. ROE	0.038	0.076					
3. LNOFFSZ	0.807	0.293	-0.057				
4. UNDRW	0.412	0.219	0.159	0.487			
5. BOARD	0.497	0.091	-0.120	0.512	0.276		
6. BOOK	0.706	0.241	-0.076	0.803	0.434	0.292	
7. IPOMKT	0.520	0.252	-0.083	0.706	0.394	0.129	0.656

Note: OP = offer price; LEVERAGE = total liabilities (short-term + long-term liabilities) over total assets; ROE= return on equity; LNOFFSZ = natural logarithm of offer size; BOARD = dummy variable of market board; BOOK= Dummy variable of book-building method issue; IPOMKT= dummy variable of IPO market conditions; the numbers in the column headings correspond to the number of variables in the row headings.

Table 5 presents a comparison between high and low debt ratios in terms of mean differences. Specifically, the high debt ratio group displayed an average offer price of RM 0.92, while the low debt ratio group recorded an average offer price of RM 1.10. Furthermore, it was found that issuers determined the IPOs with low debt ratios at higher offer prices. Meanwhile, the level of leverage was highly diverse across high and low debt ratio groups. Specifically, the high debt ratio group possessed a mean leverage value of 67.4 per cent, while the mean leverage value of the low debt ratio group amounted to 20.1 per cent. The findings shown in Table 5 proved that the high return of equity and large shares offering were associated with high debt ratio IPOs. Moreover, prestigious underwriters showed a preference for issuing IPOs with high debt ratios. Firms issued through the book-building mechanism and those issued in the hot market possessed high debt ratios. There was a high mean difference for offer price, leverage, returns on IPO market conditions between the high and low debt ratio groups. The difference in equity, firm size, reputation of underwriters, dummy book-building, and dummy was at the level of 10 per cent or lower, with the dummy of market board as an exception.

Table 5. Mean Difference between High and Low Debt Ratio IPOs.

	Debt ratio		Mean Difference	T-test	Mann-Whitney test
Variable	*High*	*Low*		*t-statistics*	*z-statistics*
OP	0.916	1.097	-0.181	0.812*	-1.850*
LEVERAGE	67.4	20.1	47.3	25.625***	-7.550***
ROE	0.306	0.245	0.061	1.824*	-1.936*
LNOFFSZ	18.590	17.536	1.054	3.312***	-3.220***
UNDRW	0.530	0.260	0.270	2.494**	-2.412**
BOARD	0.740	0.670	0.070	0.666	-0.668
BOOK	0.290	0.050	0.240	2.904***	-2.771***
IPOMKT	0.320	0.080	0.240	2.739***	-2.629***

Note: ***, ** and * denote statistical significance at the 1 per cent, 5 per cent and 10 per cent levels, respectively. According to Fama and French's (1993), this study segregated the high and low debt ratios by taking IPOs with the lowest debt ratio quartile (30 per cent lowest from the sample) and represented them as low-debt ratio portfolio whereas IPOs in the highest debt ratio quartile (30 per cent highest from the sample) to be represented as high-debt ratio portfolio.

Table 6 illustrates the findings from the cross-sectional regressions regarding the estimation of IPO offer price through leverage and profitability variables. No autocorrelation issue was present after the implementation of the correction by the Newey-West method as the Dublin-Watson value amounted to 1.7959. The adjusted R-squared value for the regression model was 68.58 per cent. It was inferred from this figure that all explanatory variables could elaborate on the variations in IPO offer price in the model, which amounted to at least 68.58 per cent. Additionally, the F-statistics values for the regression model were significant, and the goodness-of-fit of models (p<0.01) were validated.

The coefficients of predicting variables involved an explanatory variable known as debt ratio. These coefficients were placed in the respective directions as predicted in the hypothesis presented in Table 5. The directions of all the coefficients of predicting variables in all models were as per prediction, with the IPO market condition (IPOMKT) as the exception. However, the debt ratio did not affect the offer price set as the results obtained were insignificant. In respect of leverage variable, a negative coefficient was reported on debt ratio *(LEVERAGE)* when the offer price was estimated. Therefore, hypothesis H_1 was accepted in this study. It was indicated from this finding that high debt ratios in the firms' balance sheets led underwriters and issuers to set a low offer price,

while the low debt ratios prompted them to set a high offer price. This finding could be explained through information asymmetry theory (Rock, 1986).

Table 6. Regression Results for Pre-Ipo Leverage Model for 129 Malaysian Ipos, Listed from January 2009 to December 2018.

Variable	Coefficient	t-statistics	p-value
LEVERAGE	-0.7110	-1.8131*	0.0723
ROE	0.2048	0.7752	0.4398
LNOFFSZ	0.4040	3.7621***	0.0003
UNDRW	0.0371	0.3928	0.6951
BOARD	0.2177	1.7067*	0.0904
BOOK	0.5090	3.1622***	0.0020
IPOMKT	-0.1577	-0.9110	0.3641
C	-6.2684	-3.7559***	0.0003
Adjusted $R^2 R^2$	0.6858		
F-Statistics	40.9057***		
Dublin-Watson	1.7959		

Note: Autocorrelation and heteroskedasticity problems are determined by conducting Dublin-Watson test and White test, respectively followed with correction by Newey-West Covariance Estimator. The highlighted adjusted values with the symbols: *, ** and *** represent significance at levels of 0.1, 0.05, and 0.01, respectively.

Moreover, high-leverage firms were exposed to higher financial risks, such as financial distress (Wang et al., 2015). High financial risks in firms were associated with higher information asymmetries, offering their most disadvantageous qualities to the market (Su, 2004). Subsequently, even when the organisations appeared in public, institutional investors would not be interested in subscribing to them. This was due to their awareness that high-leveraged firms would be overpriced after the IPO listing. In contrast, retail investors would receive share allocations from high-leveraged IPOs as they were not informed about the firms' prospects. As most Malaysian IPOs were determined by a fixed-price mechanism, underwriters and issuers offered high-leveraged IPOs at low offer prices to compensate for investors who were trapped in "curses". These findings were in agreement with Reber and Vencappa (2016) and Peng and Wang (2007).

Significant results were found between three control variables and IPO offer price. Specifically, firm size *(LNOFFSZ)* had a significant positive association with IPO offer price. Therefore, it was indicated that a high number of new shares offered by large firms displayed lower information asymmetries. These findings were in agreement with Yung and Zender (2010) and Mohd-Rashid et al. (2018). Subsequently, higher IPO prices were set to indicate the firms' qualities. Furthermore, it was suggested from the results about board types *(BOARD)* in the regression model that the IPOs listed in the Main Market were related to significant high offer prices. According to Yong (2015), the IPOs listed in the ACE Market were exposed to high information asymmetries due to insufficient information on the firms' track record and challenges in securing conventional sources of finance. For this reason, underwriters set higher offer prices for the IPOs listed in the Main Market.

It was indicated from the results for dummy book-building *(BOOK)* that the IPOs priced by the book-building mechanism were positively related to offer prices. This finding was supported by Kutsana and Smith (2004), who proposed that book-built IPOs possessed low information asymmetries as investors' demands were acquired by underwriters during road shows. As for Malaysia, large and developed firms used book-building mechanisms to issue IPOs for improvement in the credibility of firms' signal qualities. Therefore, issuers set high offer prices for book-built IPOs.

Other control variables, such as return on equity *(ROE)* and underwriter reputation *(UNDWR)* were positively related to IPO offer price. However, they displayed insignificant results. The positive coefficient on *ROE* suggested that issuers and underwriters often set high offer prices for firms with high *ROE* prior to IPO listing. Therefore, it was indicated that investors had a preference for the subscription of IPOs with higher profitability as the signal of firms was more superior. In respect of underwriter reputation *(UNDWR)*, the positive signs indicated that high-priced IPOs were offered, provided if they were issued by prestigious underwriters. In this case, prestigious underwriters were employed to reduce information asymmetries according to certification theory (Carter & Manaster, 1990). Such findings contradicted with Mohd-Rashid et al. (2018) who reported a negative coefficient on underwriter reputation when estimating offer price. Another control variable, namely IPO market conditions *(IPOMKT)* had a negative insignificant relationship with IPO offer price. Optimistic investors were supposed to garner interests in IPOs issued in the hot market, resulting in a high offer price being set. However, the negative sign indicated underwriters and issuers' expectations that investors would be interested in the subscription of IPOs with low offer price. Therefore, issuers arranged their listing in the hot market while promoting low offer price of IPOs to investors.

5.   Conclusion

Determining an appropriate offer price is a challenging task for underwriters and issuers. The concerns of issuers and underwriters about accounting variable based on pro-forma financial statements in IPO prospectuses might influence offer prices compared to non-financial information. This study aims to investigate the influence of pre-IPO leverage on offer price by employing a sample of 130 IPOs listed on Bursa Malaysia. This study began from January 2009 to December 2018, which was the duration after the sub-prime crisis in 2008. Based on the cross-sectional regression analysis, a negative coefficient of pre-IPO leverage was found when the IPO offer price was estimated. Therefore, it was indicated that organisations which issued high debts prior to IPO listing posed a higher extent of financial risks. These risks were associated with higher information asymmetries. Subsequently, institutional investors would not be interested in the IPO subscription despite the public appearance of the firms. Consequently, retail investors received the allocation of shares from high-leveraged IPOs. In the case of Malaysian IPOs, their cost was mostly determined by fixed-price mechanism. Additionally, underwriters and issuers offered high-leveraged IPOs at low offer price to compensate for investors who were trapped in "curses".

The implication of this study could be seen from the findings regarding accounting information, specifically the leverage variable that investors need to consider when valuing IPOs and making decisions about share subscription. This study's findings have also resulted in guidelines for regulators when approving offer prices of listed firms. These guidelines would help ensure the effectiveness of offer prices in protecting shareholders' interests. It is recommended that future studies focus on other influencing factors of IPO offer price through the introduction of lock-up provision.

6.   Acknowledgements

References

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