![emerald**insight**]

Journal of Islamic Accounting and Business Research
Shariah-compliant status and IPO oversubscriptions
Ahmad Hakimi Tajuddin, Nur Adiana Hiau Abdullah, Kamarun Nisham Taufil Mohd,

Article information:

Users who downloaded this article also downloaded:

Perpustakaan
Sultanah Bahiyah
SULTANAH BAHIYAH LIBRARY
Universiti Utara Malaysia

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Shariah-compliant status and IPO oversubscriptions

Ahmad Hakimi Tajuddin

Taylor's Business School, Taylor's University, Malaysia and School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Malaysia, and

Nur Adiana Hiau Abdullah and Kamarun Nisham Taufil Mohd

Department of Finance, School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Malaysia

Abstract

Purpose – The purpose of this paper is to examine the impact of *Shariah*-compliant status on oversubscription of initial public offerings (IPOs) in Malaysia. It is believed that the *Shariah*-compliant status serves as a platform that sends a credible signal to investors which could possibly explain the IPO oversubscription anomaly.

Design/methodology/approach – This study used a multivariate and quantile regression model which involved 252 IPOs listed on Bursa Malaysia from 2005 to 2015.

Findings – The results show a significant positive relationship between *Shariah*-compliant status and oversubscription ratio, which suggests that companies with *Shariah* status could draw the attention of the investors. Strict guidelines and permissible elements of *Shariah*-compliant are considered agreeable and amicable by the investors.

Research limitations/implications – Future studies should look into financial ratio benchmark (cash and debt) for determining *Shariah*-compliant status to enhance the understanding of oversubscription of IPOs in Malaysia.

Practical implications – This study offers practical understanding to the issuers and underwriters on the factors that should be considered in assuring a good early performance of their issuance. Therefore, it will benefit the issuers and underwriters in managing and planning the IPO process carefully.

Social implications – The results of this study provide a new insight for investors regarding important information found in the prospectus when making the decisions to subscribe to IPOs.

Originality/value – This paper is one of the first to provide an empirical evidence of the impact of *Shariah*-compliant status on oversubscription in the IPO market.

Keywords IPO, Financial crisis, Institutional investors, Retail investors, Quantile, Fixed price mechanism, Offer size, Oversubscription, Shariah-compliant status, Initial returns

Paper type Research paper

1. Introduction

Initial public offerings (IPOs) serve as an alternative way of raising funds. For an issuer, IPOs would be the preferred funding mechanism that provides several benefits for a company, such as improving the public image of the company. However, there is a risk of the IPOs not being subscribed by the market. If the market is healthy, an IPO would normally be oversubscribed by investors. Oversubscription, which could be interpreted as investors' demand, is an essential element in the success of an IPO. In Malaysia, Dawson (1987), Low and Yong (2011), Taufil-Mohd (2007) and Yong and Isa (2003) found that the oversubscription rate was 44, 33.59, 41.14 and 43.71 times, respectively.

This paper forms part of a special section "IPAFEM 2", guest edited by Romzie Rosman.

Based on the existing literature, there are different levels of oversubscription observed in different countries that denote there may be certain unique features in each country which affect the performance of IPOs (Loughran *et al.*, 1994; Taufil-Mohd, 2007). Pricing mechanism on initiative to enhance the efficiency and transparency of the Malaysian market is one of the distinct features in Malaysian IPOs. Generally, Malaysian IPOs are issued through a fixed-price mechanism, unlike in developed countries, such as the USA where the IPOs are normally issued through book-building and auction mechanisms. Under the fixed-price mechanism, the offer price of the IPOs is fixed by the issuer and underwriter without knowing the demand from investors. In contrast, under the book-building and auction mechanisms, firms are allowed to extract information on shares demand from investors before setting the final price and issue size. As a result, the level of oversubscription and underpricing is lower for book-building and auction market as compared to fixed-price mechanism (Agarwal *et al.*, 2008; Low and Yong, 2011). Since the Malaysian IPO market mainly uses fixed-price mechanism, it may have a different effect on oversubscription rates as compared to other markets that use book-building and auction approaches. This scenario calls for this study to examine the factors that trigger oversubscription in its attempts to fill the gap in current literature pertaining to the subject of this study.

Another distinct feature of the Malaysian market is the *Shariah*-compliant status. The *Shariah*-compliant status indicates that a company's activities are free of non-permissible conduct, such as interest-based transactions, unethical elements and doubtful transactions. In other words, the income generated by companies from their primary business and investment activities must be in line with *Shariah* principles. This is because Muslims are forbidden from undertaking activities that do not adhere to religious or *Shariah* principles. Generally, the Securities Commission (SC), through the *Shariah* Advisory Council (SAC) and Bursa Malaysia, undertakes the screening process of *Shariah* compliance to determine whether the companies comply with its *Shariah* guidelines. This is important because the companies that comply with *Shariah* guidelines are thoroughly scrutinized and monitored during the listing process by the regulators. The development and growth of Islamic finance motivated the SAC to revise the *Shariah* screening methodology effective from November 29, 2013. This includes the introduction of financial ratio (cash and debt) for determining a *Shariah*-compliant status. It is hoped that such initiative would attract foreign investors, especially Middle Eastern investors, to subscribe to the IPOs and thereby, contribute toward Malaysia's aspiration of becoming a global Islamic hub for Islamic financial products and services.

If we were to look at the potential of *Shariah*-compliant IPOs in Figure 1, the percentage of *Shariah*-compliant IPOs issued each year has increased rapidly where the number of *Shariah*-compliant IPOs is higher than non-*Shariah*-compliant IPOs for the period of 2005 to 2015, except 2012. Specifically, the *Shariah*-compliant IPOs accounted for about 85 per cent of the total IPOs for this particular period, as shown in Figure I.

During 2005 to 2007, the average oversubscription ratio (OSR) recorded was high due to strong economic fundamentals. However, the average OSR declined during 2008 to 2010 due to the global financial crisis that affected Malaysian economy. Nevertheless, the market recovered from 2011 to 2015. Despite the issuance of IPOs showed decreasing trend, in terms of volume or proceeds, it was the largest in Asia during this period due to mega IPO listings (Bursa Malaysia, 2013). Though ORSs fluctuated during this period of study, they were still prevalent. Therefore, there is a need to examine this anomaly and determine whether *Shariah*-compliant status in Malaysian fixed-price IPOs affected the OSRs of IPOs.

The rest of this paper is organized as follows: Section 2 discusses the underlying theories and empirical research; Section 3 presents the data and methodology; Section 4 demonstrates the analysis; and finally, Section 5 concludes the paper.
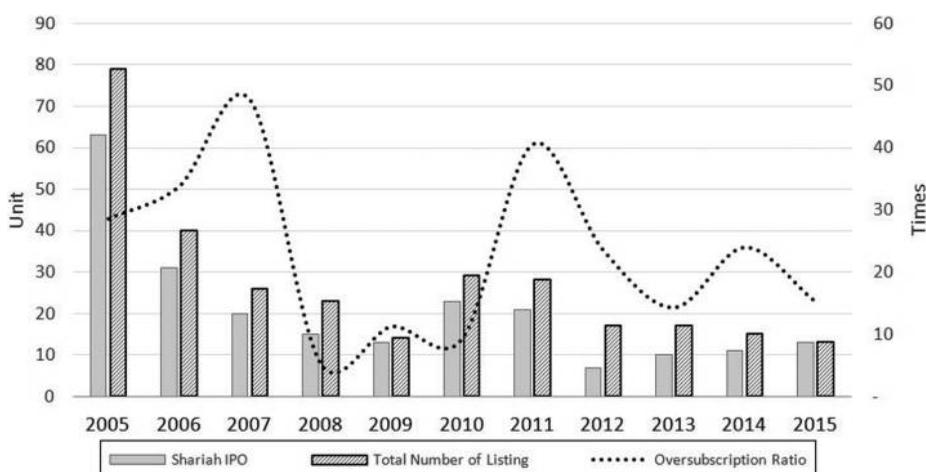
Figure 1.
Number of *Shariah*-
compliant IPOs,
number of IPOs and
average
oversubscription
ratio of the IPO

Source: Bursa Malaysia

2. Literature review

This section discusses the underlying theories and empirical research regarding the topic of the study. There are two underlying theories that will be discussed. These are the signaling and winner's curse theories. This is followed by empirical evidences on oversubscription and *Shariah*-compliant status.

One of the theoretical explanations for oversubscription is the signaling theory proposed by Leland and Pyle (1977). According to Leland and Pyle (1977), a high fractional ownership of a company by entrepreneur's implies that there are certain features of the company's prospect that face a higher risk, and this will provide a credible signal to future investors. The signaling models formalized by Allen and Faulhaber (1989), Grinblatt and Hwang (1989) and Welch (1989) demonstrate that underpricing is used as a signal which signifies that the firms are of high quality, and in that phase, an underpriced IPOs firms are considered better firms. In all these models, good quality firms would receive good response from investors for their respective IPOs. Therefore, investors' demand is an important component that determines the success of the IPOs. Investors normally pay attention to information that is available prior to making a decision. Rational investors use the information to subscribe to quality IPOs. When listing IPOs, issuers have the opportunity to signal the true quality of the IPOs through disclosures of information in the prospectus. The disclosures may influence the demand for shares as the informed investors tend to subscribe to good quality issues which is consistent with the argument highlighted by Álvarez and González (2005).

Another widely accepted theoretical explanation which has been suggested to explain the oversubscription of IPOs is the winner's curse hypothesis by Rock (1986). This theory explains the adverse selection problem faced by uninformed investors who are less aware of the true value of the issuing firms. On the contrary, informed investors have more information about the real value of issuing firms. The informed investors would only subscribe to good-quality IPOs that have a future potential and are worthy of their price. Moreover, informed investors are unlikely to subscribe to an IPO if they feel that there is a higher probability that the IPO is overpriced. In the absence of informed investors in the

bidding process, the uninformed investors would place the order to subscribe and are more likely to secure their subscription. Thus, investments in these IPOs can be aligned to a "curse" to the uninformed investors when they realize that the IPOs are overpriced. As such, they avoid entering the IPO market. To attract uninformed investors to enter the market, issuers and underwriters usually have to offer discounts, and this strategy leads to the underpricing of new issues. Thus, the participation of informed investors and uninformed investors would increase the oversubscription rate of the IPOs involved.

In developed countries, there has been very little focus on factors that influence oversubscription as the pricing mechanism is different and information on pre-market oversubscription is almost non-existent in the book-building and auction pricing mechanisms. As mentioned earlier, the final IPO price is determined by using investors' bids (demand from investors) once the bidding has closed. It is noted that currently only Low and Yong (2011) had examined the factors that explain the oversubscription anomaly in the Malaysian market. However, the determinant of OSR was very much focused on information related to a firm's actions during the IPO process, such as investor enthusiasm, IPO volume, opportunity cost of funds and offer price. According to Low and Yong (2011), pre-listing information will affect the oversubscription and has become prevalent, especially in countries that use a fixed-price mechanism. This issue has not been covered in the literature based on the Malaysia fixed-price IPOs. Thus, this study instigates this issue. This study postulates that there are several factors which should be analyzed to understand the phenomenon of oversubscription of IPOs in Malaysia with the *Shariah*-compliant status as one of the distinct features in the Malaysian market.

With regard to the *Shariah*-compliant status, the screening criteria and *Shariah*-compliant index serve as a guide to investors in making investment decisions on *Shariah*-compliant equity. According to Sadeghi (2008), shares included in the *Shariah*-compliant index would usually receive positive response from investors due to the permissible element in this index. However, very few studies have been conducted on the impact of *Shariah*-compliance on IPO listing (Abdul-Rahim and Che-Embi, 2013; Abdul-Rahim and Yong, 2010; Mayes and Alqahtani, 2015). Abdul-Rahim and Yong (2010) noted that several factors affected the initial returns of *Shariah* sub-sample, such as the offer size and offer type. Based on observations of 386 IPOs for the period of 1999 to 2007, they found the demand from investors was significantly related to initial returns of the *Shariah* sample. However, they did not empirically prove whether *Shariah*-compliant status played a role in explaining the phenomenon of oversubscription of Malaysian IPOs. Apart from the present study, there appears to be very few studies on the influence of *Shariah* on the OSR of IPOs.

Recently, Abdul-Rahim and Che-Embi (2013) investigated the initial returns of Malaysian *Shariah*-compliant versus non-*Shariah*-compliant IPOs. Based on 384 IPOs listed during 1999 to 2007, they found that the initial returns of *Shariah* and non-*Shariah*-compliant IPOs were not statistically different. However, there is no proof whether the firms' choice to comply with the *Shariah* regulations influence and affect investors' demand. In contrast to Abdul-Rahim and Yong (2010) and Abdul-Rahim and Che-Embi (2013), Mayes and Alqahtani (2015) found that *Shariah*-compliant status has reduced the underpricing of IPOs in Saudi Arabia. Based on 72 IPOs that were issued from 2004 to 2010, the negative impact of IPOs which carried the *Shariah*-compliant status on underpricing showed that the issuer and underwriter took into consideration the *Shariah*-compliant status when setting the offer price. As for non-*Shariah* IPOs, the issuer and underwriter may have given greater discounts in setting the offer price to attract the investors and subsequently, increased the oversubscription.

3. Data and methodology

This section begins with a description of the data and sample. Next, the methodology specification used in this study is discussed. This is followed by a discussion on the measurement of variables used in this study. Finally, a summary of variables, measurement and sources is presented in Table II.

3.1 Data and sample

The data used in this study were compiled from the websites of Bursa Malaysia, Malaysian Issuing House, Securities Commission and company prospectus. There were a total of 301 IPOs that were issued from January 2005 to December 2015. Financial companies which include banks, financial services, insurance companies and real-estate investment trusts (REITs) were excluded from the sample due to differences in the presentation of their financial statement. In line with Abdul Rahim and Yong (2010) and Yong (2007), to avoid less meaningful outcomes (uncommon type of issues), this study further restricted the sample based on the following criteria:

- restricted public issue;
- restricted offer for sale;
- restricted offer for sale to eligible employees;
- restricted offer for sale to *Bumiputera* investors;
- special and restricted issue to *Bumiputera* investors; and
- special issue and tender offer.

Furthermore, this study excluded IPOs that had extreme values that might influence the regression model. These outliers were identified through the value of studentized residuals ((Kleinbaum *et al.*, 2013; Ruppert, 2004). A total of 49 IPOs were excluded from the sample based on the selection criteria and removal of outliers. The final sample of 252 IPOs was estimated in the regression model. A summary of the final sample by year of listing from 2005 to 2015 is presented in Table I.

3.2 Method

This study uses a cross-sectional multiple regression analysis to examine the impact of the *Shariah*-compliant status on oversubscription of IPOs. The regression model, which includes six controlled variables, is represented as follows:

$$OSR_i = \alpha + \beta_1 DSHARIAH_i + \beta_2 LNSIZE_i + \beta_3 PRIVATE_i + \beta_4 RETAIL_i$$
$$+ \beta_5 DRETURN_i + \beta_6 DCRISIS_i + \beta_7 MKTCON_i + \varepsilon_i \tag{1}$$

Listing year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
IPO	79	40	26	23	14	29	28	17	17	15	13	301
Less finance and REIT companies	6	2	2	0	0	2	1	1	3	1	3	21
Less uncommon type of issues	1	4	3	5	0	2	1	2	2	0	0	20
Less outliers	1	1	0	1	0	0	2	2	0	1	0	8
Total observation	71	33	21	17	14	25	24	12	12	13	10	252

Source: Bursa Malaysia

Table I.
Summary of IPOs by year of listing from 2005 to 2015

The dependent variable in this study is IPOs oversubscription ratio, which is determined by dividing the total number of shares demanded by investors over the total number of shares offered. In this study, the OSR specifically focuses on the investors' pre-listing demand for the IPOs (Agarwal *et al.*, 2008; Low and Yong, 2011). The higher the OSR of a particular IPO, the more likely it is to show strong interest and confidence from investors for that IPO. The OSR is determined as follows:

$$OSR = \frac{Total\ number\ of\ shares\ demanded\ from\ an\ IPO}{Total\ number\ of\ shares\ offered\ in\ an\ IPO} \tag{2}$$

There are seven independent variables in this study in which *Shariah*-compliant status stands as the main variable, whereas offer size *(LNSIZE)*, institutional investor *(PRIVATE)*, retail investor *(RETAIL)*, investor sentiment *(DRETURN)*, financial crisis (*DCRISIS*) and market condition *(MKTCON)* become control variables. *Shariah*-compliant status indicates that a company's activities are free from non-permissible conduct. The *Shariah*-compliant status is awarded by SAC, following a screening process. In this study, the *Shariah*-compliant status is proxied by a dummy *DSHARIAH*, in which 1 represents the *Shariah*-compliant status and 0 represents otherwise. To be a *Shariah*-compliant IPO, the issuer must comply with the rules of the SAC and be free from elements of non-*halal* business conduct and interest *(riba)*. One of the advantages of *Shariah*-compliant securities is that it will attract global investors to subscribe to the shares. This conjecture is consistent with Sadeghi (2008) who argued that with the introduction of *Shariah*-compliant index, investors especially Muslims from the Middle East have responded positively, due to the permissible and non-permissible elements in this index. Accordingly, the introduction of *Shariah*-compliant index has led to a higher demand of shares. Therefore, this study argues that when firms comply with the *Shariah* requirement, investors feel more secure and safe to invest as the regulations are stringent. This will increase the OSR.

In analyzing the relationship between the main variables and oversubscriptions, the first control variable is offer size or proceed. It plays a significant role in influencing oversubscription. A theoretical analysis by Benveniste and Busaba (1997) proved that information from book-building procedure enabled issuing firms to alter the IPO offering size, and this serves as an extremely economical source of raising capital. However, this would not be possible if the IPOs were placed under a fixed-price mechanism. This is because the issue size and IPO price have been fixed without revealing much information to investors. Due to the scenario in which the offer size has been put in place and created without considering investors' demand, the offer size could influence the level of IPO oversubscription. Small issue size helps to ease the possibility of IPO oversubscription due to less issues being offered to prospective investors. In this study, offer size *(LNSIZE)* is calculated as follows:

$$LNSIZE = [ln(TSI\ x\ P^{OFFER})] \tag{3}$$

where
LN = natural log,
TSI = total number of issued shares; and
P^{OFFER} = offer price of the IPO.

The second variable, institutional investors are considered as informed investors. The winner's curse hypothesis by Rock (1986) suggested that as institutional investors are informed, they will only participate in underpriced IPOs. The higher the underpricing, the

higher the number of participants involved. Yong (2011) and Mohd-Rashid *et al.* (2014) studied the Malaysian IPOs and noted that in the absence of institutional investors, retail investors are compensated with lower initial returns, possibly due to the winner's curse theory. Therefore, this study views that firms with a higher institutional investor involvement send positive signals to investors as they are better informed of the true value of the firms. This study hypothesizes the demand from investors for particular shares to increase if the proportion of shares held by institutional investors is large. Institutional investor involvement *(PRIVATE)* is measured by dividing a private placement with the total number of shares issued:

$$PRIVATE = \frac{Shares\ placed\ privately}{Total\ number\ of\ shares\ issued} \qquad (4)$$

The third variable, retail investors can be regarded as individuals who purchase securities to be kept in their personal accounts in a smaller amount compared to securities purchased by institutional investors. In the literature, retail investors are considered as uninformed investors. According to Rock (1986), shares with a larger allocation to retail investors become a curse to uninformed investors and the shares would generate negative returns as they are overpriced. Therefore, investors tend not to subscribe to shares of company with a larger allocation to retail investors. In this study, the percentage of retail offering *(RETAIL)* over the total number of shares issued is used for retail investor involvement (Tajuddin *et al.*, 2016):

$$RETAIL = \frac{Shares\ offered\ to\ retail\ investors}{Total\ number\ of\ shares\ issued} \qquad (5)$$

The fourth variable, investor sentiment is proxied by initial returns. Initial returns reflect the percentage of changes between closing and offer prices on the listing day. In this study, the IPOs are grouped into high and low initial returns. A dummy initial return *(DRETURN)* is used as a proxy for investor sentiment, as suggested by Baker and Wurgler (2006), Bayley *et al.* (2006) and Low and Yong (2011), as well as Tajuddin *et al.* (2015). If the average initial returns of IPOs in a particular month are greater than the average of all IPOs, a dummy of 1 will be assigned to that month and 0 otherwise. Assuming that investors are optimistic of the IPOs, it would increase the demand from investors to subscribe to the IPOs. Therefore, this study hypothesizes that when optimism among investors is high, it would increase the OSR. We have conjectured that investor sentiment using the proxy of dummy initial return and oversubscription are positively correlated.

The fifth variable, financial crisis representing the period of the global financial crisis that affected Malaysian economy was from 2008 to 2010. In this study, a dummy variable takes a value of 1 if the IPO is undertaken during global financial crisis, and it is equal to 0 if the IPO is undertaken at any other time period. This study has conjectured that the global financial crisis during 2008 to 2010, using the proxy of "*DCRISIS*," and oversubscription are negatively correlated.

Finally, prior to IPO listing, market condition is known as one of the significant determining variables in predicting demand and returns of IPOs. Market environment influences the enthusiasm or interest of investors to subscribe to IPOs. Derrien and Womack (2003) found market returns as significant ex ante predictors of the level of underpricing of French IPOs. In their study, the market return was used as a proxy for the three months market price prior to listing. Furthermore, they used three-month weighted average of returns before offering date as their emphasis was on investors' perception of the effect of the current period compared to the earlier two months. The result showed that information

from the market conditions not only affected the number of successful listings but was vital in determining the demand for IPOs. As the IPOs samples were from various industries and of different size, it was appropriate to use the EMAS index as market price. In this study, the weighted average of three-month EMAS index returns prior to IPO listing was used to represent the market condition. Therefore, this study hypothesized that market condition was positively related to OSR. The market condition *(MKTCON)* is calculated as follows:

$$MKTCON_{Pre\,Offerings} = \frac{3}{6}MR_{-1} + \frac{2}{6}MR_{-2} + \frac{1}{6}MR_{-3}$$

$$MKTCON_{Pre\,Offerings} = \left(\frac{\sum_{t=-3}^{-1}(4+t)MR_t}{6} \right)$$

(6)

where

t	= −1 is the return in the month prior to listing;
t	= −3 is the return in the 3 month prior to listing;
$MKTCON_{Pre\,Offerings}$	= market condition prior to offering and
MR	= Market returns of EMAS index during month t.

A summary of the variables, measurement and sources is presented in Table II.

4. Findings and discussion

Table III provides a descriptive statistics involving a sample of 252 IPOs listed since January 2005 till December 2015. On an average, the OSR for the whole sample is 23.21 times. Meanwhile, the lowest oversubscription is −0.50 times. This indicates an

Variable	Measurement	Source
Oversubscription ratio *(OSR)*	Total number of shares demanded by investor to total number of shares offered	Agarwal *et al.* (2008), Low and Yong (2011)
Shariah-compliant Status *(DSHARIAH)*	Dummy variable in which "1" represents the *Shariah*-complaint status and "0" non *Shariah*-complaint	Abdul-Rahim and Che-Embi (2013)
Offer size *(LNSIZE)*	Natural log total number of shares issue times the offer price	Low and Yong (2011)
Institutional investor involvement *(PRIVATE)*	Percentage of shares placed privately over total number of shares issued	Agarwal *et al.* (2008), Abdul-Rahim *et al.* (2012)
Retail investor involvement *(RETAIL)*	Percentage of shares offered to retail investors over total number of shares issued	Tajuddin *et al.* (2016)
Investor sentiment *(DRETURN)*	Dummy initial return in which "1" if the average initial return of IPOs in a particular month is greater than the average of all IPOs whereby dummy "0" otherwise	Baker and Wurgler (2006), Bayley *et al.* (2006)
Global financial crisis *(DCRISIS)*	Dummy variable that take a value of "1" if an IPO is offered in the period 2008 to 2010 and zero otherwise	Taufil-Mohd (2007)
Market condition *(MKTCON)*	The weighted average of three months EMAS index returns prior to IPO listing	Derrien and Womack (2003)

Table II.
Summary of variables, measurement and sources

Variables	Whole ($N = 252$)	Mean Shariah ($N = 214$)	Non-Shariah ($N = 38$)	Median	Minimum	Maximum	Standard deviation
Oversubscription (times)	23.21	24.93	13.55	12.14	−0.50	227.01	33.31
Dummy Shariah	0.85	–	–	1.00	0.00	1.00	0.36
Number of shares issued (million)	148.00	145.00	167.00	45.02	3.71	2,480.00	346.00
Offer price (RM)	0.95	0.95	0.92	0.70	0.15	5.20	0.80
Retail offering (%)	16.15	16.30	15.32	14.35	0.00	75.07	10.85
Institutional offering (%)	60.61	61.87	53.53	69.55	0.00	98.50	27.25
Dummy crisis	0.22	0.23	0.18	0.00	0.00	1.00	0.42
Initial return (%)	14.77	16.76	3.59	6.83	−78.45	263.64	41.38
Market condition (%)	0.82	0.87	0.55	1.01	−6.64	7.88	2.37

Notes: Oversubscription ratio is the number of times the IPOs are oversubscribed. Dummy Shariah is dummy variable for Shariah-compliant which takes a value 1 for Shariah-compliant IPOs and 0 otherwise. Number of shares issued is the offer size. Offer price is the IPOs offering price. Retail offering is the percentage allocation of the issued to retail investors. Institutional is the percentage allocation of the issued to the institutional investors. Dummy crisis refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2010 and 0 otherwise. Market condition is the weighted average of three months EMAS index returns prior to IPO listing. Initial return is percentage change in offer price and closing price on the first day of listing

Table III.
Descriptive statistics
for variables from
January 2005 to
December 2015

undersubscription of 50 per cent or a subscription of only 50 per cent of the overall issue, whereas the highest oversubscription is 227.01 times. The massive difference between the minimum and maximum oversubscription shows that the demand for each IPO issued in Malaysia varies. This scenario has allowed and provided an avenue for this study to further examine a number of factors that influence oversubscription.

The whole sample has been segregated between Shariah sample and non-Shariah sample. The Shariah IPOs report an average oversubscription of 24.93 times which is almost similar to the whole sample that shows 23.21 times. This finding is as expected because 85 per cent of the IPOs issued in Malaysia carry the SAC Shariah-compliant status. However, the total number of shares issued by the non-Shariah IPOs is larger than the Shariah IPOs, which is about 22 million.

The average number of shares issued is 148 million with a median value of 45.02 million. The lowest (highest) number of shares issued is 3.71 million (2.48 billion). This shows a huge difference among issue sizes of Malaysian IPOs. On an average, an offer price of IPOs is RM 0.95 and the highest offer price is RM 5.20. The average offer price of Shariah IPOs which is RM0.95 is higher than the mean shown by the non-Shariah IPOs of RM0.92.

For allocation to investors, the average allocation of IPOs to uninformed investors or retail investors is 16.15 per cent and the highest percentage is 75.07 per cent. Meanwhile, the average allocation of IPOs for informed investors (institutional investors) is 60.61 per cent with a maximum of 98.50 per cent, indicating that the subscriber for IPOs is mainly from this group of investors. As for the crisis dummy, an average of 0.22 shows that 22 per cent of the total IPOs were offered during this period. The average crisis dummy of Shariah IPOs is 0.23, which is higher than the mean shown by the non-Shariah IPOs of 0.18.

Market condition reports a mean of 0.87 per cent returns and it ranges from −6.64 per cent to 7.88 per cent. The positive average returns imply that IPO firms go for listing when the stock market is generally performing well in the period of three months before the listings. On the day of listing, the average initial return (offer-to-close) is 14.77 per cent, with

the lowest return of about negative 78.45 per cent, whereas the highest return is 263.64 per cent.

Table IV presents the correlation matrix for all variables. Most of the independent variables have a correlation of less than 0.4, except for *PRIVATE* and *RETAIL* which show a significant negative relationship of 0.41.

Table V displays a comparison between mean values of high and low demand IPOs, *Shariah* and non-*Shariah* IPOs and IPOs prior and after financial crisis 2008 to 2010. They are reported in Panels A, B and C, respectively. Panel A displays the level of oversubscription rate which differs substantially across high and low investor demand groups. In the case of high investor demand group, the oversubscription is 41.22 times, whereas for the low investor demand group, the average is only 5.20 times.

The average *Shariah* IPO for the low investor demand group (0.79) is less than that of the high investor demand group (0.90). This suggests that investors prefer to subscribe to IPOs which possess *Shariah*-compliant status. On an average, the number of shares issued is only 57.75 million for the high-demand IPO group as compared to an average of 239 million of shares issued for the low-demand IPOs. This shows that a small number of shares issued has an impact on the IPO oversubscription due to a small issue size, and that more investors would compete to subscribe to less shares issues. On an average, the market capitalization for a high investor demand group is lower (RM171.73m) in comparison with that of the low investor demand group (RM1,735.89m). Meanwhile, high-demand IPOs group also has a lower offer price which is RM0.77 as compared to low-demand IPOs group which is RM1.13. This indicates that investors are more likely to subscribe to small companies with a lower offer price. Usually, companies that with lower market capitalization are young and small companies do not have an established business. Therefore, the issuers have to underprice their IPOs to attract the demand from investors. The above discussions are in line with Benveniste and Busaba (1997) and Chowdhry and Nanda (1996) who noted that small companies are associated with higher demand from investors.

Another interesting point to note is that a high-demand IPO group has less participation from retail investors and possesses greater involvement from institutional investors compared to low-demand IPO group. As mentioned earlier, if the IPOs have the highest

Variables	OSR	DSHARIAH	LNSIZE	PRIVATE	RETAIL	DRETURN	DCRISIS	MKTCON
OSR	1.00							
DSHARIAH	0.12*	1.00						
LNSIZE	−0.31***	−0.09	1.00					
PRIVATE	0.18***	0.11*	0.17***	1.00				
RETAIL	−0.21***	0.03	−0.23***	−0.41***	1.00			
DRETURN	0.30***	0.10	−0.23***	0.04	−0.03	1.00		
DCRISIS	−0.21***	0.04	0.06	0.04	−0.03	0.03	1.00	
MKTCON	0.08	0.05	0.05	0.01	0.06	−0.07***	0.00**	1.00

Notes: ***, **and *denote statistical significance at the 1, 5 and 10% levels, respectively. OSR is oversubscription ratio. DSHARIAH is dummy that takes a value 1 for *Shariah*-compliant IPOs and 0 otherwise. LNSIZE is the natural logarithm of the total number of shares issue times the offer price. PRIVATE is the percentage allocation of the issued to the institutional investors. RETAIL is the percentage allocation of the issued to retail investors. DRETURN is dummy takes a value 1 if IPO is listed in a month in which equally weighted average initial return of the month is above the median and 0 otherwise. DCRISIS is representing the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2010 and 0 otherwise. Market condition is the weighted average of three months EMAS index returns prior to IPO listing

Table IV.
Pearson's correlation matrix between variables

Variables	OSR (times)	Dummy Shariah	No. of shares issued (million)	Market capitalization (RM million)	Offer price (RM)	Retail offering (%)	Private placement (%)	Dummy crisis	Initial return (%)	Market condition (%)
Panel A: High- and low-demand IPOs										
High-demand IPOs (N = 126)	41.22	0.90	57.75	171.73	0.77	15.10	62.07	0.13	24.31	1.17
Low-demand IPOs (N = 126)	5.20	0.79	239.18	1,735.89	1.13	17.20	59.16	0.32	5.23	0.47
Mean difference	36.02	0.11	−181.43	−1,564.16	−0.36	−2.10	2.91	−0.19	19.08	0.70
t-statistic	10.19***	2.49**	−4.31***	−3.04***	−3.6***	−1.54	0.85	−3.72***	3.76***	2.34*
Mann–Whitney	−13.72***	−2.46**	−5.05***	−5.45***	−3.94***	−1.62	−0.50	−3.63***	−4.92***	−1.83*
Panel B: Shariah and non-Shariah IPOs										
Shariah IPOs (N = 214)	24.93	–	145.00	994.28	0.95	16.30	61.87	0.23	16.76	0.87
Non-Shariah IPOs (N = 38)	13.55	–	167.00	725.94	0.92	15.32	53.53	0.18	3.59	0.55
Mean difference	11.38	–	−22.00	268.34	0.03	0.98	8.34	0.05	13.17	0.32
t-statistic	1.95*	–	−0.36	0.37	0.27	0.51	1.75*	0.61	1.82*	0.77
Mann–Whitney	−2.08**	–	−2.80***	−2.23**	−0.12	−0.51	−0.78	−0.61	−1.81*	−0.47
Panel C: Prior and after financial crisis										
Prior financial crisis (N = 121)	32.44	0.91	47.06	134.40	0.78	16.42	52.96	–	20.61	1.00
After financial crisis (N = 75)	17.97	0.73	299.92	1,639.82	1.09	16.23	71.27	–	15.04	0.54
Mean difference	14.47	0.18	−252.86	1,505.42	−0.31	0.18	−18.31	–	5.57	0.46
t-statistic	2.76***	3.35***	−5.93***	−4.20***	−3.04***	0.11	−4.78**	–	0.88	1.62
Mann–Whitney	−2.54*	−3.27***	−8.01***	−7.36***	−2.29**	−0.21	−4.58**	–	−0.47	−1.26

Notes: ***, **, and *denote statistical significance at the 1, 5 and 10% levels, respectively. We have segregated the high and low investor demand groups by taking IPOs with high investor demand group consists of IPOs with oversubscription ratio that is above the median of all oversubscription. The low investor demand group has IPOs in which the oversubscription ratio is lower than the median of all oversubscription

Table V.
Mean values between high- vs low-demand IPOs, *Shariah* vs non-*Shariah* IPOs and prior vs after financial crisis

allocation for uninformed investors or retail investors, they would face adverse selection problems as argued in the winner's curse theory. Thus, the involvement of informed investors or institutional investors will often signal that the company has a good future prospect.

Meanwhile, investors stay away from IPOs during the period of global financial crisis due to uncertainty in the stock market. Only 13 or only 7 per cent IPOs are highly demanded during the financial crisis as compared to 32 per cent or 18 IPOs that are less demanded during the same period. Furthermore, high-demand IPO groups have received higher initial returns which are 24.31 per cent, compared to the ratio of low-demand IPO groups, which is only 5.23 per cent initial return. It is not surprising that the high oversubscription phenomenon is usually related to large IPO underpricing and this seems consistent with findings of previous studies, such as Agarwal *et al.* (2008) and Low and Yong (2011). However, such evidence can be seen at the time of IPOs listing during good market condition, which is 1.17 per cent for high-demand IPO groups, whereas for low-demand groups, the market condition is only 0.47 per cent. This indicates that high-demand IPO groups believe that they will receive higher returns when subscribing IPOs listing during good market condition.

The observed mean differences for OSR, *Shariah*-compliant status, number of shares issued, market capitalization, offer price, retail offering, private placement, financial crisis, initial returns and market condition between high- and low-demand groups are all significant at the 5 per cent level except for retail and institutional offering. Furthermore, we analyze whether there is a significant difference on the size (represented by market capitalization) of *Shariah*-compliant versus non-*Shariah*-compliant companies. Result as reported in Panel B of Table V shows that there is an insignificant difference on the size of the *Shariah* and non-*Shariah*-compliant companies except for oversubscription and initial return. This finding indicates that the difference in OSR could not be attributed to the size of *Shariah*- and non-*Shariah*-compliant companies.

As displayed in Panel C of Table V, the oversubscription mean for IPOs prior to the financial crisis is 32.44 times, whereas after the financial crisis, it is only 17.97 times. Before the financial crisis, approximately 91 per cent of the IPOs are *Shariah*-compliant, whereas after the financial crisis, the figure reduces to about 73 per cent. Further observation shows that prior to the financial crisis, the number of shares issued (47.06 million), market capitalization (RM134.40 million), offer price (RM0.78) and institutional offering (52.96 per cent) are significantly lower than those IPOs which were issued after the financial crisis that carry the highest number of shares issued (299.92 million), market capitalization (RM1,639.82 billion), offer price (RM1.09) and institutional offering (71.27 per cent). The difference is mainly contributed by mega IPOs listing by companies, such as AirAsia X Berhad, Astro Malaysia Holdings Berhad, Bumi Armada Berhad, Felda Global Ventures Holding Berhad, Gas Malaysia Berhad, IHH Healthcare Berhad, Malakoff Corporation Berhad, MSM Malaysia Holdings Berhad, Maxis, Petronas Chemical Group Berhad, UOA Development Berhad and Westports Holdings Berhad. The average initial return before the financial crisis is 20.61 per cent as compared to 15.04 per cent after the financial crisis, but it is not significantly different.

The cross-sectional multiple regression analysis result shown in Table VI quantifies the role of IPOs in explaining investors' demands (oversubscription ratio). We present the findings for the whole sample, *Shariah* sample and non-*Shariah* sample. Before we proceed in explaining the results, a few diagnostic tests have been executed. The Jarque–Bera (JB) test statistics is used to examine the normality of data distribution and to ensure the robustness of the findings. The JB probability of 0.000 rejects the null hypothesis that the

Variables	Whole ($N = 252$) Coefficient	t-statistic	Shariah ($N = 214$) Coefficient	t-statistic	Non-Shariah ($N = 38$) Coefficient	t-statistic
Dependent variable is oversubscription ratio						
DSHARIAH	6.181	1.984**	–	–	–	–
LNSIZE	−7.192	−3.576***	−7.418	−3.417***	−4.469	−2.061**
PRIVATE	0.160	2.269**	0.196	2.198**	0.044	0.946
RETAIL	−0.760	−2.630***	−0.761	−2.410**	−0.431	−1.473
DRETURN	15.159	2.237**	15.834	2.058**	11.020	1.808*
DCRISIS	−16.977	−3.904***	−17.151	−3.562***	−13.893	−2.249**
MKTCON	164.859	2.443**	172.266	2.188**	126.959	1.851**
C	144.018	3.887***	151.677	3.737***	97.071	2.159**
Adjusted R^2	0.288		0.299		0.296	
F-Statistics	15.505***		14.736***		3.589***	
Probability	0.000		0.000		0.008	
Durbin–Watson	0.597		0.613		0.820	
VIF range	1.286-2.682		1.559-6.935		1.495-15.158	

Notes: ***, **and *denote statistical significance at the 1, 5 and 10% levels respectively. OSR is oversubscription ratio. DSHARIAH is dummy that takes a value 1 for Shariah-compliant IPOs and 0 otherwise. LNSIZE is the natural logarithm of the total number of shares issue times the offer price. PRIVATE is the percentage allocation of the issued to the institutional investors. RETAIL is the percentage allocation of the issued to retail investors. DRETURN is dummy takes a value 1 if IPO is listed in a month in which equally weighted average initial return of the month is above the median and 0 otherwise. Dummy crisis refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2010 and zero otherwise. Market condition is the weighted average of three months EMAS index returns prior to IPO listing

Table VI.
Regression results
for an
oversubscription
model of 252 IPOs
listed from 2005 to
2015

residuals are normally distributed. However, non-normality is not an issue based on the central limit theorem which stated that the normality assumption could be ignored due to the sample size, which in this study was sufficiently large at more than 200 observations. Based on the variance inflation factor (VIF) values that range from 1.286 to 2.682, it is clear that multicollinearity is not a problem in this study (Kleinbaum *et al.*, 2013). Furthermore, the coefficients reported were generated using the Newey–West procedure to correct for the problems of autocorrelation.

Overall, the adjusted R^2 shows that the independent variables in the model could explain 29 per cent of the variations in IPO oversubscription ratio. We found that the Shariah-compliant status was related positively and significantly to an IPO oversubscription ratio for the whole sample. The introduction of Shariah-compliant status provides a positive signal to the market as these companies would need to fulfill a stringent requirement to be classified as Shariah-compliant IPOs. This would mean that Shariah-compliant IPOs are less risky than the non-Shariah IPOs, which could possibly attract both the Muslim and non-Muslim investors.

Pertaining to the size of offering *(LNSIZE)*, the results showed a negative and significant relationship between issue size and IPO oversubscription. In other words, the smaller the size of the offering, the fewer the number of shares are available for subscription by investors; consequently, this increases the possibility of oversubscription of IPOs. The negative relationship between the offer size and OSR is also consistent with the findings of previous studies (Mohd-Rashid *et al.*, 2013; Mok and Hui, 1998; Yu and Tse, 2006).

We observed that the involvement of institutional investors *(PRIVATE)* was positively significant in influencing the rate of subscription. This is because they are well-versed about

the quality of the IPOs, and this scenario seems consistent with the winner's curse hypothesis proposed by Rock (1986). Rock (1986) suggested that informed investors were more likely to subscribe to an IPO if they felt that there was a higher probability that the IPO was underpriced. The large proportion of institutional investors who subscribe to the IPO would subsequently attract uninformed investors' interest in a particular stock and increase the likelihood of oversubscription.

On the other hand, the allocation to retail investors *(RETAIL)* was significant and inversely related to the IPOs oversubscription. The finding supports the winner's curse hypothesis by Rock (1986) that shares with large allocation for retail investors become a curse to uninformed investors as the shares would generate negative returns as they are overpriced. Therefore, investors are unlikely to subscribe to an IPO that has large allocations for retail investors, which results in reducing the oversubscription.

Evidence on investors' sentiment *(DRETURN)* was positively significant in influencing the oversubscription. The finding is consistent with that of Cornelli *et al.* (2006) and Low and Yong (2011) that the investors would be interested to subscribe to an IPO when the returns are higher on the first day of listing because it creates a good impression to the market participants. Such enthusiasm will push and induce investors' subscription of an IPO and increase the probability of oversubscription.

The coefficient for the financial crisis *(DCRISIS)* was negatively significant in influencing the oversubscription. This is because during the global financial crisis, most investors would not apply for the IPO shares when the market turns bearish and this reduces the subscription rate.

The effect of market condition *(MKTCON)* was positively significant in explaining IPOs oversubscription. The finding suggests that oversubscriptions of IPOs are very much dependent on the market condition prior to the offering. It also revealed that good market conditions would reduce the uncertainty of the investment. Thus, it would create an advantage in attracting investors to subscribe to the IPOs and contribute to oversubscription. This result is consistent with previous studies, such as those by Derrien and Womack (2003), Loughran and Ritter (2002) and Ma and Faff (2007), which inferred that market conditions were vital in influencing investors to subscribe to the IPOs.

Based on the results, we observed that all variables (offer size, institutional investors, retail investors, investor sentiment, financial crisis and market condition) were significant in explaining oversubscription of *Shariah* and the whole sample. The similarities found in the relationship between the *Shariah* and whole sample are more likely caused by the fact that a majority or 85 per cent of newly listed companies possessed *Shariah*-compliant status. However, the relationship between the variables and oversubscription for non-*Shariah* sample showed that only the offer size, investor sentiment, financial crisis and market condition were consistently significant in explaining the OSR.

The next analysis uses the quantile regression model in estimating the impact of *Shariah*-compliant status IPOs at different levels of oversubscription, as shown in Table VII. The quantile regression model allows for a more comprehensive description of the conditional distribution in comparison to only having a conditional mean analysis. This has allowed us to describe and to examine how the median, whether it is the minimum or maximum percentile of the dependent variables, has been influenced by a number of independent variables. Furthermore, the quantile regression model offers a robust approach of modeling the relationships, as it does not require strong distributional assumptions (Koenker and Bassett, 1978). The approximation of a linear relationship between a specified quantile and a host of independent variables is produced by a quantile regression which includes the 25th, 50th and 75th quantile of the oversubscription (Koenker and Bassett, 1978).

Variables	QUANTILE 25th		QUANTILE 50th		QUANTILE 75th	
	Coefficient	*t*-statistic	Coefficient	*t*-statistic	Coefficient	*t*-statistic
Dependent variable is oversubscription ratio						
DSHARIAH	1.329	0.689	4.398	1.711*	10.229	3.061***
LNSIZE	−1.931	−2.969***	−3.988	−3.564***	−6.972	−6.042***
PRIVATE	0.026	0.794	0.051	1.052	0.094	1.750*
RETAIL	−0.161	−1.334	−0.447	−2.219**	−0.726	−4.641***
DRETURN	2.374	1.104	7.058	1.933*	13.601	3.238***
DCRISIS	−7.133	−4.011***	−10.689	−3.617***	−16.507	−4.135***
MKTCON	59.968	1.561	111.601	2.359**	117.716	1.751*
Constant	41.792	3.205***	85.236	3.767***	148.353	6.463***
Pseudo R^2	0.086		0.128		0.212	

Notes: ***, **and *denote statistical significance at the 1, 5 and 10% levels, respectively. OSR is oversubscription ratio. DSHARIAH is dummy takes a value 1 for *Shariah*-compliant IPOs and 0 otherwise. LNSIZE is the natural logarithm of the total number of shares issue times the offer price. PRIVATE is the percentage allocation of the issued to the institutional investors. RETAIL is the percentage allocation of the issued to retail investors. DRETURN is dummy takes a value 1 if IPO is listed in a month in which equally weighted average initial return of the month is above the median and 0 otherwise. DCRISIS refers to the period of the global financial crisis that takes a value of 1 if an IPO is offered in the period 2008 to 2010 and zero otherwise. Market condition is the weighted average of three months EMAS index returns prior to IPO listing

Table VII.
Quantile regressions
of the *Shariah*-
compliant status and
IPOs
oversubscription

Focusing on the impact of the main variable which is the *Shariah*-compliant status, we found that the coefficient of *DSHARIAH* was highly significant in the 75th quantile. It implies that the impact of the *Shariah*-compliant was stronger when oversubscription rate was higher. The finding is consistent with that of Sadeghi (2008) who argued that with *Shariah* certification, it would signal quality and thus, receive positive responses from investors due to the permissible elements in these shares. The pseudo R^2 for the 25th, 50th and 75th quantile are 8.6, 12.8 and 22.5 per cent, respectively. According to Koenker and Machado (1999), the pseudo R-squared or goodness-of-fit measure in the quantile regression is analogous to R-squared from a conventional regression analysis. In addition, the goodness-of-fit also is one of the criteria to evaluate the quality of a quantile regression model (Koenker and Machado, 1999). Overall, all variables are significant with oversubscription in the highest 75th quantile.

5. Conclusion and implications for future studies
In this paper, we analyzed the association of *Shariah*-compliant status with oversubscription of Malaysian IPOs using a sample of 252 IPOs that was issued from 2005 to 2015. The preliminary result presented the average oversubscription was 23.21 times, and also, there is a huge gap between high and low oversubscriptions. The distinct features of Malaysian IPOs, such as the fixed price mechanism and *Shariah*-compliant status, provide an avenue for us to analyze the factors that could explain the oversubscription anomaly. We found that investors were more interested in subscribing to a smaller size of offering with IPOs listed during good market condition that would be compensated with high initial returns. In addition, investors are also likely to invest in IPOs with a higher percentage of informed investors as it would signal the company has a good future prospect; therefore, it avoids from subscribing to IPOs with large allocation to the retail investors as they do not want to be trapped in the winners' curse problem. Furthermore, investors are reluctant to apply for IPO shares during the period of global financial crisis when the stock market turns bearish. The regression showed that *Shariah*-compliance status positively and significantly altered the level of oversubscription of the whole sample. This suggests that *Shariah*-

compliant status attracts investors to subscribe to the IPOs due to the stringent guidelines on listing that are associated with *Shariah* principles. We also found that the variables had significant relationships with oversubscription when only *Shariah*-compliant IPOs were considered. These results are consistent with the results for the whole sample. Nevertheless, only *LNSIZE*, *DRETURN*, *DCRISIS* and *MKTCON* variables had a significant relationship with oversubscription in non-*Shariah* sample. Moreover, focusing on the impact of *Shariah*-compliant status at different levels of quantiles showed that the coefficient of *DSHARIAH* was highly significant in the highest quantile when oversubscription rates were higher.

This study contributes to our understanding of the oversubscription anomaly specifically in the context of the Malaysian IPO market. This study revealed how investors responded to publicly available information (prospectus) during the subscription period. Overall, the results of this study provide a new insight for investors regarding important information found in the prospectus when making the decisions to subscribe to IPOs. Furthermore, the findings from this study would offer practical understanding to the issuers and underwriters on the factors that should be considered in assuring a good early performance of their issuance. Therefore, it will benefit the issuers and underwriters in managing and planning the IPO process carefully. The results from this study provide important information for regulators and policymakers when considering the continuous application of these policies (pricing mechanism and *Shariah*-compliant status) as part of the listing requirements of IPOs to achieve the goals of positioning Malaysia as Asia's central hub in Islamic finance as stated in the Financial Blueprint of 2011-2020. In addition, it will help the regulators to obtain some ideas on how these factors can be used as a mechanism to improve market liquidity and protect the interest of minority shareholders, particularly in the immediate aftermarket without creating an adverse impact on the performance of IPOs.

As discussed earlier, the SAC has revised the screening criteria which comprise a business activity benchmark, as well as the introduction of financial ratio benchmark (cash and debt) for determining *Shariah*-compliant status effective November 29, 2013. Thus, future studies should look into this area of study to enhance the understanding of oversubscription of IPOs in Malaysia as the aforementioned variables are under the financial ratio benchmark of the *Shariah*-compliant status. In addition, it is likely that oversubscription might also be affected by company directors. The inclusion of this variable might explain further on oversubscription of IPOs in Malaysia.

References

Abdul-Rahim, R. and Che-Embi, N.A. (2013), "Initial returns of shariah versus non-shariah IPOs: are there any differences?", *Jurnal Pengurusan*, Vol. 39, pp. 37-50.

Abdul-Rahim, R. and Yong, O. (2010), "Initial returns of malaysian IPOs and shari'a-compliant status", *Journal of Islamic Accounting and Business Research*, Vol. 1 No. 1, pp. 60-74.

Abdul-Rahim, R., Che-Embi, N.A. and Yong, O. (2012), "Winner's curse and IPO initial performance: new evidence from Malaysia", *International Journal of Business and Management Studies*, Vol. 4 No. 2, pp. 151-159.

Agarwal, S., Liu, C. and Rhee, S.G. (2008), "Investor demand for IPOs and aftermarket performance: evidence from the Hong Kong stock market", *Journal of International Financial Markets, Institutions and Money*, Vol. 18 No. 2, pp. 176-190.

Allen, F. and Faulhaber, G.R. (1989), "Signalling by underpricing in the IPO market", *Journal of Financial Economics*, Vol. 23 No. 2, pp. 303-323.

Álvarez, S. and González, V., M. (2005), "Signalling and the long-run performance of spanish initial public offerings (IPOs)", *Journal of Business Finance & Accounting*, Vol. 32 Nos 1/2, pp. 325-350.

Baker, M. and Wurgler, J. (2006), "Investor sentiment and the cross-section of stock returns", *The Journal of Finance*, Vol. 61 No. 4, pp. 1645-1680.

Bayley, L., Lee, P.J. and Walter, T.S. (2006), "IPO flipping in Australia: cross-sectional explanations", *Pacific-Basin Finance Journal*, Vol. 14 No. 4, pp. 327-348.

Benveniste, L.M. and Busaba, W.Y. (1997), "Bookbuilding vs fixed price: an analysis of competing strategies for marketing IPOs", *Journal of Financial and Quantitative Analysis*, Vol. 32 No. 4, pp. 383-403.

Bursa Malaysia (2013), "Bursa Malaysia Annual Report 2013", Bursa Malaysia, Kuala Lumpur, available at: http://bursa.listedcompany.com/misc/ar2013.pdf (accessed 10 November 2015).

Chowdhry, B. and Nanda, V. (1996), "Stabilization, syndication, and pricing of IPOs", *Journal of Financial and Quantitative Analysis*, Vol. 31 No. 1, pp. 25-42.

Cornelli, F., Goldreich, D. and Ljungqvist, A. (2006), "Investor sentiment and pre-IPO markets", *The Journal of Finance*, Vol. 61 No. 3, pp. 1187-1216.

Dawson, S.M. (1987), "Secondary stock market performance of initial public offers, Hong Kong, Singapore and Malaysia: 1978-1984", *Journal of Business Finance & Accounting*, Vol. 14 No. 1, pp. 65-76.

Derrien, F. and Womack, K.L. (2003), "Auctions vs bookbuilding and the control of underpricing in hot IPO markets", *The Review of Financial Studies*, Vol. 16 No. 1, pp. 31-61.

Grinblatt, M. and Hwang, C.Y. (1989), "Signalling and the pricing of new issues", *The Journal of Finance*, Vol. 44 No. 2, pp. 393-420.

Kleinbaum, D., Kupper, L., Nizam, A. and Rosenberg, E. (2013), *Applied Regression Analysis and Other Multivariable Methods*, Cengage Learning, Boston.

Koenker, R. and Bassett, G. Jr (1978), "Regression quantiles", *Econometrica: Journal of the Econometric Society*, Vol. 46 No. 1, pp. 33-50.

Koenker, R. and Machado, J.A. (1999), "Goodness of fit and related inference processes for quantile regression", *Journal of the American Statistical Association*, Vol. 94 No. 448, pp. 1296-1310.

Leland, H.E. and Pyle, D.H. (1977), "Informational asymmetries, financial structure, and financial intermediation", *The Journal of Finance*, Vol. 32 No. 2, pp. 371-387.

Loughran, T. and Ritter, J.R. (2002), "Why don't issuers get upset about leaving money on the table in IPOs?", *The Review of Financial Studies*, Vol. 15 No. 2, pp. 413-444.

Loughran, T., Ritter, J.R. and Rydqvist, K. (1994), "Initial public offerings: international insights", *Pacific-Basin Finance Journal*, Vol. 2 Nos 2/3, pp. 165-199.

Low, S.-W. and Yong, O. (2011), "Explaining over-subscription in fixed-price IPOs – evidence from the malaysian stock market", *Emerging Markets Review*, Vol. 12 No. 3, pp. 205-216.

Ma, S. and Faff, R. (2007), "Market conditions and the optimal IPO allocation mechanism in China", *Pacific-Basin Finance Journal*, Vol. 15 No. 2, pp. 121-139.

Mayes, D. and Alqahtani, F. (2015), "Underpricing of IPOs in Saudi Arabia and sharia compliance", *Journal of Islamic Accounting and Business Research*, Vol. 6 No. 2, pp. 189-207.

Mohd-Rashid, R., Abdul-Rahim, R. and Yong, O. (2014), "The influence of lock-up provisions on IPO initial returns: evidence from an emerging market", *Economic Systems*, Vol. 38 No. 4, pp. 487-501.

Mohd-Rashid, R., Abdul-Rahim, R., Yong, O., Mohd-Nor, A.H.S., (2013), "Lock-up provision and performance of IPOs", in Gaol, F.L., Kadry, S., Taylor, M. and Li, P.S. (Eds), *Recent Trends in Social and Behaviour Sciences*, Tylor & Francis Group, London, pp. 129-134.

Mok, H.M. and Hui, Y. (1998), "Underpricing and aftermarket performance of IPOs in shanghai, China", *Pacific-Basin Finance Journal*, Vol. 6 No. 5, pp. 453-474.

Rock, K. (1986), "Why new issues are underpriced", *Journal of Financial Economics*, Vol. 15 Nos 1/2, pp. 187-212.

Ruppert, D. (2004), *Statistics and Finance: An Introduction*, Springer Science & Business Media, Ithaca, New York.

Sadeghi, M. (2008), "Financial performance of shariah-compliant investment: Evidence from malaysian stock market", *International Research Journal of Finance and Economics*, Vol. 20 No. 20, pp. 15-26.

Tajuddin, A.H., Abdullah, N.A.H. and Taufil-Mohd, K.N. (2016), "Does growth opportunity matter in explaining the oversubscription phenomena of malaysian IPO?", *Procedia-Social and Behavioral Sciences*, Vol. 219, pp. 748-754.

Tajuddin, A.H., Mohd-Rashid, R., Abdullah, N., A., H. and Abdul-Rahim, R. (2015), "An empirical examination of over-subscription in the malaysian IPO market", *International Journal of Economics and Management*, Vol. 9 (Special issue), pp. 81-102.

Taufil-Mohd, K., N. (2007), "Regulations and underpricing of IPOs", *Capital Markets Review*, Vol. 15 No. 1, pp. 1-27.

Welch, I. (1989), "Seasoned offerings, imitation costs, and the underpricing of initial public offerings", *The Journal of Finance*, Vol. 44 No. 2, pp. 421-449.

Yong, O. (2007), "A review of IPO research in Asia: what's next?", *Pacific-Basin Finance Journal*, Vol. 15 No. 3, pp. 253-275.

Yong, O. (2011), "Winner's curse and bandwagon effect in Malaysia IPOs: evidence from 2001-2009", *Journal Pengurusan*, Vol. 32, pp. 21-26.

Yong, O. and Isa, Z. (2003), "Initial performance of new issues of shares in Malaysia", *Applied Economics*, Vol. 35 No. 8, pp. 919-930.

Yu, T. and Tse, Y.K. (2006), "An empirical examination of IPO underpricing in the chinese a-share market", *China Economic Review*, Vol. 17 No. 4, pp. 363-382.

Further reading

Beatty, R.P. and Welch, I. (1996), "Issuer expenses and legal liability in initial public offerings", *Journal of Law and Economics*, Vol. 39 No. 2, pp. 545

Bradley, D.J. and Jordan, B.D. (2002), "Partial adjustment to public information and IPO underpricing", *Journal of Financial and Quantitative Analysis*, Vol. 37 No. 4, pp. 595-616.

About the authors

Dr Ahmad Hakimi Tajuddin is Finance lecturer at Taylor's Business School, Taylor's University. Prior to that, he serves as a Credit Officer and Treasury Dealer in two major financial institutions in Malaysia for seven years. Most of his research works deal with initial public offerings. Ahmad Hakimi Tajuddin is the corresponding author and can be contacted at: hakimi.uum@gmail.com

Dr Nur Adiana Hiau Abdullah is Professor of Finance at the School of Economics, Finance and Banking, Universiti Utara Malaysia. She is an editorial board member of the *International Journal of Banking and Finance*, *Capital Markets Review*, *Malaysian Management Journal*, *The International Research Journal of Applied Finance* and *Contemporary Economics*. Her research areas focus on financial distress, rights issues, capital budgeting, initial public offerings, dividends and unit trust. Her written works appeared in refereed journals such as *Studies in Economics and Finance*, *Journal of Property Investment and Finance*, *Pacific Rim Property Research Journal*, *Contemporary Economics*, *Asian Journal of Business and Accounting*, *African Development Review*, *International Journal of Finance*, *International Journal of Economics and Management* and *Asian Academy of Management Journal of Accounting and Finance*.

Dr Kamarun Nisham Taufil Mohd is an Associate Professor of Finance and Investment at the School of Economics, Finance and Banking, Universiti Utara Malaysia (UUM). He joined UUM in 1989 after working as a dealer at a stockbroking firm. His most recent articles appeared in *Pacific Rim Property Research Journal* and *Journal of Property Investment & Finance*.